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Research Papers

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A Study of Health Workers' Knowledge and Practices Regarding Birth Prevention

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ABSTRACT
Introduction: To spread awareness of contraception among the general public, healthcare professionals are a crucial link. They are a crucial resource for informing couples about various forms of contraception, how to use them properly, and dispelling common misconceptions. However, they frequently lack in terms of attitude and contraception use.

Objective: The purpose of this study was to evaluate nurses working in a tertiary care hospital's attitude toward and use of contraception over the previous year.

Methods: A tertiary care hospital's 420 nurses were the subjects of the study. Each participant was given a questionnaire, which they duly completed, and the collected data was analysed.

Results: All were familiar with at least one form of family planning. 85.85% of people were unaware that contraception could space out pregnancies. Few individuals have accurate knowledge of lactational amenorrhea or the fertile period. Few people (8.29%) were aware of emergency contraception and its appropriate application. The barrier method (76.09%) and natural method (42.26%) were the two most popular. For a few cycles, there was a switch from the natural method to the barrier method and OC pills.

Conclusion: Despite having knowledge of contraception, health professionals rarely use it. To avoid unintended pregnancies and STDs, the right mindset and behaviour are crucial. Their use will improve general population counselling abilities.

Keywords: Attitude, contraception, health workers, knowledge ,practice

INTRODUCTION
India is the second-most populous nation in the world, with a population that has surpassed one billion [1]. Even though India was the first nation in the world to put in place a National Population Control Programme in 1952, we are still having trouble containing the baby boom. The National Family Welfare Programme has invested a lot of time and money, but the results have not been as effective as the inputs made to manage the population. The country's natural growth rate is still high, with Rajasthan having one of the highest rates at 18.6 [2].

Healthcare providers play a key role in providing information regarding different methods of contraception, their proper use and removing the myths from couple's mind. It is important that healthcare providers themselves have correct knowledge. Often their own negative attitude and lack of contraceptive practice influences their counselling. The aim of our study was to assess the knowledge and behaviour towards birth prevention among nursing staff and to identify their reasons for non-use of contraception.

METHODOLOGY
A cross-sectional study was conducted from October 2021 to March 2022. Female nursing staff, aged 20–45 years, working in a tertiary care institute were interrogated after a written informed consent. Sample size of 420 was calculated at 95% confidence level, assuming 68% use of family planning methods among healthcare providers as per reference study of Omishakin [3], at an absolute allowable error of 5%. The predesigned structured questionnaire included the type of contraception they knew, had used over the past 2 years, frequency of its use, use of emergency contraception and reasons for not using contraception.

RESULTS
Among the respondents, mean age was 32.54 years, and 62.36% had parity 1–3. Eighty-four percentage of them belonged to social class IV, Prasad classification [4]. Eighty-six percentage were Hindus and were from urban background. Most had newspaper delivered and television in their homes.

At least one form of family planning was known to everyone. Only 84% of people were aware that contraception could delay pregnancy. Most people were unaware of the success percentages of various techniques. Nobody was aware of the World Health Organization's medical eligibility requirements.

Few people actually understood the fertile time or the specifics of the breastfeeding amenorrhoea approach. 15 percent were aware of further intrauterine contraceptive applications. 10% of people had heard of hormonal

intrauterine devices. Only 75.60% of people were aware that condoms could protect against AIDS and other sexually transmitted diseases. 68 percent of people were unaware that spermicides were used in conjunction with the barrier method. Only 2% of people had heard of the female condoms, and even they were unaware of their availability While 68% of people were aware of skipped pills, many were unaware of how they related to the menstrual cycle. Only 7.5% of respondents were aware of treatments like injectable contraception and pills that contain only progestogen. 16% were aware of other oral medication uses outside contraception. Only 8.29% of people were aware of the use of emergency contraception.

Table 1: Knowledge of contraception

Questionnaire	**No. (n = 420)**	**%**
Awareness of contraception	420	100%
Knowledge of contraceptive method		
Natural	260	63.41%
Barrier	312	76.09%
Hormonal	136	33.17%
IUCD	108	26.34%
Sterilisation	114	27.80%
Awareness of emergency contraception	34	8.29%
Uses of contraception		
Prevention from HIV/STDs	310	75.60%
Spacing of children	352	85.85%
Source of updates of information of contraception		
Health professionals	116	28.29%
TV/newspaper/radio/internet	270	65.85%

Table 2: Behaviour regarding contraception

	No.	**%**
Contraceptive Method Used		
Natural method	64	15.23
Barrier	96	22.85
Hormonal	47	11.19
IUCD	13	3.09
Sterilisation	76	18.09
No method	124	29.52
Intention to use contraception in future	124	29.52
Imparting contraceptive counselling	Nil	–
		%
Reasons for not using contraceptives %		
Personal		
Fear of side effects		18
Want for male child		8
Religious beliefs		20
Lactational amenorrhoea		8
Found inconvenient to use		10
Apprehension regarding effect on future fertility		4
Interpersonal		
Partner/in laws objection		18
Family pressure		18
Societal/logistic		
Availability		3
Cost		3

Besides the teaching during their course, television and radio were the chief sources of reinforcing their information and knowing about newer methods. They had no regular medical education programmes (Table1).

Contraceptive usage among the health workers was 71%In total, 27.80% had sterilisation done. However, most of the non-users intended to use a contraceptive method in future.

Followed by natural method, 22.85% used barrier method. We found that despite having correct knowledge, only 76.09% of the barrier method users used them regularly. Many nurses used natural methods of contraception even though they knew it had a high failure rate. The hormonal method was used by 11.19%, in which oral pills were used most commonly (Table 2).

Many women shifted between natural methods and barrier use off and on. Few shifted between oral contraceptive pills for few cycles to barrier method for few. Fear of side effects including effect on menstrual cycle and partner objection were the most common reasons givenfor non-use of contraception.

Even though they were posted in obstetric units, most were not counselling the women regarding contraceptives.

DISCUSSION

The knowledge regarding contraception was good; all wereaware of at least one family planning method similar to the study by Khan et al. [5] in Pakistan where too the knowledge was 81%.

Only a small percentage of nurses were familiar with emergency contraception and its application, compared to 40% of college-bound girls in a related survey [6].

While other studies claimed that relatives/friends [10] or health workers [11] were the primary sources of information, it was observed that the mass media played an important role in providing and updating information as well as influencing the use of a contraceptive, whether it was among health workers as in our study, collegiate students in Rajasthan [6] and Sikkim [7] or the general population [8, 9]. To keep them informed about newer approaches, regular medical educational programmes should be organized.In a study performed by Anjum et al. [12], to assess the role of information imparted the knowledge score improved significantly after education.

Contraceptive usage among the nurses was 70.74%. This was higher than 51% reported in the general population by Patel et al. [13], 59% in rural Haryana by Choud- hary et al. [14] or 52.6% by Umoh et al. in a study from Nigeria [9] despite having similar high knowledge scores. Himani et al. evaluated the contraceptive practices of gynaecologist and observed that despite having complete knowledge about contraception, their own attitude and practices were lacking [15]. This bridge needs to be filled to achieve our family planning goals.

The most commonly used method of contraception in most studies including ours was the barrier method followed by natural method [8, 10, 11].

In the present study, we found that despite having correct knowledge, only 22.85% used the barrier method regularly. Many nurses even used natural methods of contraception, even though they knew about its high failure rate. Choi et al. [16] in their study also observed that 52% of the physicians advocated natural methods as a method of contraception.Completion of family was found to be the most common reason for using contraception rather than for spacing.

Fear of side effects and partner objection were the common reasons given even by the nurses for non-use of contraception. Reasons for non-use have varied in magnitude in different studies—need more children, opposition by partner and in laws and fear of side effects were the reasons found for non-use of contraception by Saluja et al. [17]. In a study from Raipur, the major reasons cited for non-use besides these were anaemia, weakness and lactational amenorrhoea [18]. Other reasons mentioned for non-practice were non-access to health facility, felt pregnancy was naturally spaced, preference of male child, religious beliefs, inconvenient to use, cost and family pressure. Few said the process of acquiring contraceptive was embarrassing [8, 19]. Religion has been identified to play a significant role in decision to use contraception. Muslims tend to have higher disapproval rate for contra- ception [10]. Therefore, religious scholars should be involved to make it clear that family planning is not sinful and rather beneficial to them.

CONCLUSION

Health providers have knowledge regarding contraception yet fail to use it regularly. Efforts should be directed through a lot of educational and motivational activities and improvement in family planning services to bring a

change in their practices. This change would help them have a more responsible attitude and improve their counselling skills regarding contraception.

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. Informed Consent Informed consent was obtained from all individual participants included in the study.

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The Knowledge Attitude & Practice of Mother Regarding Eye and Ear Care of New-Born in Rural Community of Ghaziabad

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ABSTRACT

Background: The eyes are extremely delicate part of the body and hence need good care. This care begins at birth and continues throughout the life span. The goal of this study is to increase awareness and knowledge about eye and ear care of new born that will result in improved practices towards eye health and decrease in burden of visual impairment.

Aim and Objective: To assess Knowledge, Attitude and Practice of mothers regarding eye and ear care of new-born in rural community of Ghaziabad.

Methodology: The present study is a community-based cross-sectional study was conducted on mothers in rural community of Ghaziabad to assess the knowledge, attitudes and practises of mothers regarding eye and ear care of new-born.

Result: All findings of this study pertain to the 300 mothers surveyed in the selected villages of Ghaziabad district. Most of the mothers cleaned their children eyes using clean cloth or cotton swab. Overall, 84% of mothers practiced applying kajal onto their children and 91.3% mothers did not consider kajal application harmful for children. Present study shows 34% mothers practiced putting oil in the ears of the children and the most common reason for doing so was cleaning the ears (61.8%).

Conclusion: This study indicated that most of the socio-demographic factors were associated with the knowledge and practices regarding various aspects of newborn care. Kajal application was practiced by almost all the mothers and most of them did not know about its harmfulness. Putting oil in the ears of a newborn was considered beneficial by most of the mother in the present study.

Keywords**:** Knowledge, Kajal, Eye, Ear, New-born, Cotton swab, Cloth.

INTRODUCTION

The care given to our children today determine the health of the future citizens. Healthy babies are likely to evolve as physically and mentally strong adults with enhanced quality of human resource development.[1] Neonatal mortality rate in Uttar Pradesh is 45.1% (2015-16). In the urban areas of Uttar Pradesh this is 36.7% while in the rural areas it is more than the state's average i.e. 47.4%. [2]

Ophthalmia neonatorum is an acute mucopurulent conjunctivitis that occurs in the first month of the life. It is usually contracted during birth from the infected canal of the mother, therefore screening of the pregnant mothers is important for sexually transmitted diseases (STIs) to reduce the risk of ophthalmia neonatorum. In a study by Nethra et al. (2018) revealed that %) application of kajal to the newborn's face and eyes was practised among 88% and 75% of the mothers practised pouring oil into the ears.[3]

Using a kajal or surma on your baby's eyes is a traditional Indian culture, which is believed to ward off evil eyes. It's recommended that new-born's eyes be kept free of kajal, surma or kohl. Using kajal can cause watery eyes, itchiness and allergies. When kajal is washed off during a bath, it can get into the eyes and the nose. It is recommended not to apply anything in the eyes of a newborn. [4] Putting oil in the ears of the baby is not recommended as it can cause fungal infections in the ear. [5]

MATERIALS AND METHODS

The study entitled "the knowledge attitude & practice of mother regarding eye and ear care of new-born" conducted in the rural community of district Ghaziabad. All findings of this study pertain to the 300 mothers of infant of one month to six months of age. Sample size is determined by Fisher's formula. For the present study, multi-stage sampling technique was used. The data collection covered a period of eight months from May 2019 to December 2019. The data will be collected and entered in MS Excel 2020 (version 16). Different statistical analysis was performed using SPSS software version 16. To measure the association for categorical, dataset was analysed using Chi-Square test. If p value <0.05, considered as statistically significant and if p-value>0.05, then it is statistically insignificant.

RESULTS

The study entitled "the knowledge attitude & practice of mother regarding eye and ear care of new-born" conducted in the rural area of district Ghaziabad. All findings of this study pertain to the 300 mothers surveyed in the rural community of Ghaziabad district.

Table 1 shows the distribution of the mothers of the children who were interviewed according to age, literacy status, occupation and shows that majority of the mothers were Hindu 224 (74.7%) and 76 (25.3%) were Muslims. It shows 186 (62%) mothers belonged O.B.C. caste, 63 (21%) belonged to general caste and 51 (17%) were SC/ST. Majority of the mothers belonged to the joint family 164 (54.7%) followed by nuclear family 99 (33%). Least number of mothers belonged to a three- generation family 12.3 (12.3%).

Shows that 112 (37.3%) families belonged to Social Class IV followed by 88 (29.3%) belonging to Class II. None of the families belonged to Class I and 17% belonged to Class V and 16.3% belonged to Class III. It shows that majority of the mothers were of second parity 124 (41.3%) followed by 100 (33.3%) of mothers having parity of three or more. Only 76 (25.3%) mothers were primi. It shows 223 (74.3%) of the mothers had done antenatal registration during the first trimester of the last pregnancy and 77 (25.7%) mothers had not done antenatal registration.

Majority 274 (91.3%) of mothers did not consider kajal application harmful for the neonate. Only 26 (8.7%) mothers considered kajal application harmful for the neonate. Most of the 188 (62.7%) mothers cleaned their children eyes using clean cloth or cotton swab. Remaining 49 (16.3%) used water, 38 (12.7%) rubbed their fingers over the eyes and 25 (8.3%) of mothers applied kajal to keep eyes clean. Overall, 252 (84%) of mothers practiced applying kajal onto their infants and 48 (16%) of mothers did not practice kajal application.

It was found that 102 (34%) mothers practiced putting oil in the ears of the neonates and 66% mothers did not practice oil application in the ears of a newborn (Figure 13). Out of these 102 mothers, who practiced putting oil in the ears of the neonates, 63 (61.8%) of them did so to clean the ears. Some of the other reasons given by the mothers were prevention of ear problems (12.7%), prevention of ear infection (12.7%) and relieving earache (12.7%).

It shows significant association between age, literacy status, occupation, religion, caste and socioeconomic status of the mothers and kajal application in the eyes of the new-born. It shows significant association between age, literacy status, occupation, religion, caste and socioeconomic status of the mothers and practice of cleaning eyes of the new-born using clean cloth or cotton swab (p= 0.001).It shows significant association between type of family of the mothers and practice of cleaning eyes of the new-born using clean cloth or cotton swab (p= 0.002).

Table 3(b) shows significant association between literacy status, religion, caste, and socioeconomic status of the mothers and practice of Kajal application on the new-born (p= 0.001). It shows significant association between age of the mothers and practice of Kajal application on the new-born (p= 0.007). It shows significant association between type of family of the mothers and practice of Kajal application on the new-born (p= 0.002).There is no association between religion of the mother and practice of Kajal application on the new-born (p= 0.761).

It shows significant association between age, literacy status, occupation and socioeconomic status of the mothers and practice of putting oil into the ears of the new-born (p= 0.001). It shows significant association between caste of the mothers and practice of putting oil into the ears of the new-born (p= 0.002). There is no association between religion of the mother and practice of putting oil into the ears of the new-born (p= 0.814).There is no association between type of family of the mother and practice of putting oil into the ears of the new-born (p= 0.529).

DISCUSSION

Majority of mothers did not consider kajal application harmful for the neonate (91.3%). Most of the mothers cleaned their children eyes using clean cloth or cotton swab (62.7%). Overall, 84% of mothers practiced applying kajal onto their children and 34% practiced putting oil in the ears of the neonates. It was found that 34% mothers practiced putting oil in the ears of the neonates and 66% mothers did not practice oil application in the ears of a newborn. Out of these 102 mothers, who practiced putting oil in the ears of the neonates, 61.8% of them did so to clean the ears. Some of the other reasons given by the mothers were prevention of ear problems (12.7%), prevention of ear infection (12.7%) and relieving earache (12.7%). There is a significant association between practice of Kajal application on the newborn, practice of putting oil into the ears of the newborn and socio-demographic factors (age, literacy status, occupation, religion, caste, type of family and socioeconomic

status of the mothers).There is no association between occupation of the mother and practice of Kajal application on the newborn. There is no association between religion and type of family of the mother and practice of putting oil into the ears of the newborn.

CONCLUSION

Present study of population of one month to six months of age of 300 study subjects shows 51% were females and 49% were males. Occupation wise 95.7% mothers were homemakers and majority of fathers were labourer (37.7%). Most of the mothers (62.7%) cleaned their children eyes using clean cloth or cotton swab. Overall, 84% of mothers practiced applying kajal onto their children and 91.3% mothers did not consider kajal application harmful for children. Present study shows 34% mothers practiced putting oil in the ears of the children and the most common reason for doing so was cleaning the ears (61.8%).

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Table 1: Distribution of mother and father of the children according to the demographic, social variables, socioeconomic status and distribution of the mothers according to the parity and antenatal registration during first trimester of the last pregnancy. (n=300)

Demographic variables		Mother (%)	Father (%)
Age (in years)	< 20	13 (4.3)	0
	21-25	136 (45.3)	75 (25.0)
	26-30	113 (37.7)	100 (33.3)
	>30	38 (12.7)	125 (41.3)
Literacy Status	Illiterate	13 (4.3)	13 (4.3)
	Primary	25 (8.3)	50 (16.7)
	Middle	137 (45.7)	113 (37.7)
	High School	13 (4.33)	25 (8.3)
	Intermediate	75 (25.0)	60 (20.0)
	Graduate	37 (12.3)	39 (13.0)
Occupation	Homemaker	287 (95.7)	0
	Laborer	7 (2.3)	113 (37.7)
	Farmer	0	13 (4.3)
	Business	0	50 (16.7)
	Semi-Skilled	0	49 (16.3)
	Skilled	0	36 (12.0)
	Semi-profession or profession	6 (2.0)	39 (13.0)
Religion	Hindu	224	74.7
	Muslim	76	25.3
Caste	General	63	21.0
	O.B.C.	186	62.0
	SC/ST	51	17.0

Type of family	Nuclear	99	33.0
	Joint	164	54.7
	3 generation	37	12.3
Social Class	II	88	29.3
	III	49	16.3
	IV	112	37.3
	V	51	17.0
Parity	Primi	76	25.3
	Second	124	41.3
	Three or more	100	33.3
Antenatal registration	Registered	223	74.3
	Not registered	77	25.7

Table 2: Distribution of the mothers according to knowledge regarding harmfulness of kajal application in a new-born and distribution of the mothers according to the newborn eye and ear care practices. (n=300)

Kajal Application and New-Born Eye Care Practice		**Number**	**Percentage (%)**
Whether kajal application harmful	Yes	26	8.7
	No	274	91.3
Method of cleaning eyes of the new-born	Cleaning with clean cloth or dry cotton swab	188	62.7
	Cleaning with water	49	16.3
	Cleaning by rubbing fingers over eyes	38	12.7
	Did not practice	25	8.3
Application of kajal	Not practiced	48	16.0
	Practiced	252	84.0
Practice of putting oil in the ears	Not practiced	198	66.0
	Practiced	102	34.0
Reasons for putting oil in the ear (N=102)	Keeping ears clean	63	61.8
	Prevention ear problems	13	12.7
	Prevention ear infection	13	12.7
	Relieve ear pain (excessive crying)	13	12.7

Table 3 (a): Association between socio-demographic factors and knowledge regarding advantage of feeding colostrum, bottle feeding is not good for a new-born and kajal application is harmful to the new-born.

Socio Demographicvariables		Kajal application is harmful		P value	Cleaning eyes using clean cloth or cottonswab		P value
		No	Yes		Not Practiced	Practiced	
Age(in years)	< 20	13	0	0.001	0	13	0.001
	21-25	114	22		44	92	
	26-30	109	4		34	79	
	>30	38	0		34	4	
Literacy Status	Illiterate	13	0	0.001	13	0	0.001
	Primary	16	9		12	13	
	Middle	133	4		59	78	
	High School	13	0		0	13	
	Intermediate	62	13		20	55	
	Graduate	37	0		8	29	
Occupation	Homemaker	260	26	0.498	104	182	0.001
	Labourer	8	0		8	0	
	Professional	6	0		0	6	
Religion	Hindu	224	0	0.001	112	112	0.001
	Muslim	50	26		0	76	

Caste	General	63	0	0.001	12	51	0.001
	O.B.C.	160	26		149	137	
	SC/ST	51	0		51	0	
Typeof family	Nuclear	99	0	0.001	51	48	0.002
	Joint	151	13		49	115	
	3 generation	24	13		12	25	
Socioeconomic status	II	88	0	0.001	26	62	0.001
	III	49	0		49	0	
	IV	99	13		24	88	
	V	38	13		13	38	

Table 3 (b): Association between socio-demographic factors and practice of Kajal application on the new-born and putting oil into the ears of the new-born.

Socio Demographic Variables		**Kajal Application**			**Putting oil in ears**		
		Not Practiced	Practiced	P value	Not Practiced	Practiced	P value
Age(in years)	< 20	0	13	0.007	4	9	0.001
	21-25	17	119		103	33	
	26-30	28	85		70	43	
	>30	3	35		21	17	
Literacy Status	Illiterate	0	13	0.001	0	13	0.001
	Primary	0	25		21	4	
	Middle	15	122		100	37	
	High School	0	13		0	13	
	Intermediate	13	62		53	22	
	Graduate	20	17		24	13	
Occupation	Homemaker	42	224	0.001	192	94	0.001
	Labourer	0	8		0	8	
	Professional	6	0		6	0	
Religion	Hindu	35	189	0.761	147	77	0.814
	Muslim	13	63		51	25	
Caste	General	0	63	0.001	37	26	0.002
	O.B.C.	48	138		136	50	
	SC/ST	0	51		25	26	
Type of family	Nuclear	24	75	0.002	61	38	0.529
	Joint	24	140		112	52	
	3 generation	0	37		25	12	
Socio-economic status	II	0	88	0.001	12	76	0.001
	III	11	38		49	0	
	IV	25	87		86	26	
	V	12	39		51	0	

The Knowledge Attitude & Practice of Mother Regarding Emergency Care of New-Born in Rural Community of Ghaziabad

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ABSTRACT

Background

In rural areas, neonatal death continues to be a public health concern. In the first week of life, 75% of newborn deaths take place, 50% of which happen during the first 24 hours. To enhance newborn outcomes, the World Health Organization created essential newborn care parameters. There are relatively fewer studies regarding knowledge, attitude and practice of mothers towards emergency care of newborn in rural community. So, this study was planned to assess the knowledge, attitude and practice of emergency care of newborn among postnatal mothers in rural community of Ghaziabad district.

Aim and Objective: The purpose of this study is to assess the knowledge, attitude, and practices (KAP) among mothers about new-borns' emergency care and its related factors in rural community of Ghaziabad.

Methodology: The current study was carried out in Santosh Medical College, Santosh Deemed to be University, Ghaziabad from June 2018 to May 2020. The present study is a community-based cross-sectional study. All the households in the study area with mothers of infant of one month to six months of age in the rural area. Sample size is determined by Fisher's formula and multi-stage sampling technique was used. A sample size of 300 was taken. For data collection a semi-structured study schedule for in-depth interview of the mother of the children was used as the tool.

Result: The present study shows that knowledge of mothers on dangers signs in newborn were limited. Only 41.7% mothers were aware fever or low body temperature danger sign in newborn, loose stools (37.3%), fast breathing (33.3%) and jaundice (25.7%). Out of the mothers who were aware of at least one danger sign only 21.5% were aware such newborn should be taken to hospital. Only 21% mothers had adequate knowledge of maintaining thermoregulation in a new born.

Conclusion: This study indicates that majority of the mothers had at least some knowledge regarding danger sings in a newborn and more than half of them would seek health care advice in case of development of danger in a new born. Care of the mother and new born care should be included in the adult education programme of the country as the content for teaching. Formation of peer groups should also be initiated to upgrade the knowledge of mothers regarding birth process, need of proper antenatal care, institutional deliveries and early identification of danger signs.

Keywords**:** Thermoregulation, Danger Sign, Neonate, Antenatal, Hygiene.

INTRODUCTION

New-born (Neonate) babies are the foundation of life. First month of life is an important period in the life of a new-born. This means that new-borns require special attention. New-borns have specific needs and require supportive care for a healthy life. [1] Newly born baby has to adapt from foetal life to extra uterine life. Thus with the arrival to this world, the new born begins highly vulnerable period in which many physiological adjustments to life-outside-uterus must be made. The baby must be provided basic care to ensure survival and optimum growth and development of the child. [2] Essential new born care is a set of comprehensive recommendations designed by the World Health Organization (WHO) to improve the health of the new born through intervention during pregnancy, soon after birth and during the postnatal period. [2]

The word "neonate" has been with us for at least eighty years and it refers to the child's first four weeks after birth. By 1960, doctors were beginning to fully realize the danger that infection posed to new-borns. In England, as hygienic new born care practices increased and improved the overall mortality rate from neonatal sepsis fell from 90% in the early 1930's to 18% in 1978.[20] In India too, at the time of delivery, the women were kept in the most dirty room of the house for the delivery of the baby. The delivery was conducted by an elderly female, the 'dai'. The placenta was cut unhygienically and in the absence of tetanus vaccination, many neonates died of neonatal tetanus within the first week of life.

Early recognition of the neonatal illness is important to improve new born survival. India is the first country to add neonatal component to Integrated Management of Childhood Illness (IMCI). New-born care practices have

changed after implementing the IMNCI strategy NRHM. It includes assessment of general danger signs of severe illness focussing on difficulty in feeding, hypothermia, fever, convulsions, difficulty in breathing, and jaundice on day one of life. Still many ill-practices regarding new-born care are prevalent in the rural parts of India. A study done in Wardha by Dongre et. al. (2009)40.3%, 22.2% and 13.9% identified difficulty in breathing, poor sucking and lethargy as new born danger signs respectively. Only 9.7% and 2.8% identified convulsion and hypothermia as new born danger signs respectively. About 37.5% babies were sick during new born period. About 15.3% and 11.1% were reported to have poor sucking and difficulty in breathing respectively. All sick new-borns with danger signs were taken to the doctor and only two mothers consulted faith healer for treatment. This suggests there is poor awareness of mothers regarding new born danger and there is need for raising awareness building which required for early recognition and prompt treatment. [3, 4, 5]

MATERIALS AND METHODS

To investigate the research topic, a community based cross-sectional study was performed in rural community of Ghaziabad district. All the households in the study area with mothers of infant of one month to six months of age in the rural area of Ghaziabad district. The sample selection was based on Household with mother of an infant from one month to six months ofage. Mothers who had been residing in the study area for one year or more. Willingness of the mother to participate in the study. For the present study, multi-stage sampling technique was used. The data collection covered a period of eight months from May 2019 to December 2019. A pilot study was carried out in May 2019 and based on this pilot study interview schedule was modified.

Early recognition and assessment of general danger signs of severe illness focussing on difficulty in feeding, hypothermia, fever, convulsions, difficulty in breathing, jaundice on day one of life is important to improve new-born survival. Still many ill-practices regarding new-born care are prevalent in the rural parts of India.

RESULTS

The study entitled “the knowledge attitude & practice of mother regarding emergency care of new-born” conducted in the rural area of district Ghaziabad. A total 300 children were studied. The mothers of these children were questioned about knowledge of newborn care and newborn care practices. Information was collected in a pre-designed and pre-tested schedule by house-to-house visits. The present study shows that knowledge of mothers on dangers signs in newborn were limited and some associated actions to be taken in case of danger sign, preventive measures for thermoregulation and temperature assessment in a new-born.

Table 1 shows that the distribution of the mothers of the children who were interviewed according to age, literacy status, occupation and shows that majority of the mothers were Hindu 224 (74.7%) and 76 (25.3%) were Muslims. It shows 186 (62%) mothers belonged O.B.C. caste, 63 (21%) belonged to general caste and 51 (17%) were SC/ST. Majority of the mothers belonged to the joint family 164 (54.7%) followed by nuclear family 99 (33%). Least number of mothers belonged to a three- generation family 12.3 (12.3%). Only 112 (37.3%) families belonged to Social Class IV followed by 88 (29.3%) belonging to Class II. None of the families belonged to Class I and 17% belonged to Class V and 16.3% belonged to Class III. This study shows that the majority of the mothers were of second parity 124 (41.3%) followed by 100 (33.3%) of mothers having parity of three or more. Only 76 (25.3%) mothers were primi. It shows 223 (74.3%) of the mothers had done antenatal registration during the first trimester of the last pregnancy and 77 (25.7%) mothers had not done antenatal registration.

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Table 2 depicts 125 (41.7%) of mothers identified fever as a danger sign in a neonate followed by low body temperature by 125 (41.7%) mothers. Other danger signs mothers had knowledge of were loose stools 112 (37.3%), fast breathing 100 (33.3%), jaundice 77 (25.7%), lethargy or unconsciousness 65 (21.7%), poor feeding 63 (21%), discharge from umbilicus 38 (12.7%), severe chest in drawing (8.3%) and convulsions 14

(4.7%). Around 67 (22.3%) of mothers did not know any of the danger signs in a neonate. 233 mothers who had knowledge of at least one of the danger signs 88 (37.8%) of mothers would treat it at home followed by 75 (32.2%) would take treatment from a local doctor. Only 50 (21.5%) of mothers would take neonate to a hospital in case of danger sign and 20 (8.5%) mothers did not know about the management of a neonatal emergency.

Table 3 shows significant association between age, literacy status, religion, caste, type of family and socioeconomic status of the mothers and knowledge regarding danger signs in new-borns (p=0.001). It also shows significant association between occupation of the mothers and knowledge regarding danger signs in new-borns (p=0.010). It also shows significant association between age, literacy status, religion, caste, type of family and socioeconomic status of the mothers and knowledge regarding preventive measures for thermoregulation in a new-born (p=0.001). There is no association between occupation of the mother and knowledge regarding preventive measures for thermoregulation in a new-born (p=0.378). It also shows significant association between age, literacy status, occupation, caste, type of family and socioeconomic status of the mothers and knowledge regarding temperature assessment in a new-born (p=0.001). There is no association between religion of the mother and knowledge regarding temperature assessment in a new-born (p=0.074).

DISCUSSION

The present study is a community-based cross-sectional study, undertaken to study the knowledge and practices regarding emergency care of the neonate in a rural community of Ghaziabad district. All the households in the study area with mothers of infant of one month to six months of age in the rural area of Ghaziabad district. Sample size is determined by Fisher's formula taking the prevalence of children breastfed within one hour at birth as 26.4% [6] [NFHS-4] and relative precision 20%, the sample size came out to be 267.7 or 268. Taking the safe upper limit allowing for non-responses (10%), a sample size of 300 was taken. For the present study, multi-stage sampling technique was used. The data collection covered a period of eight months from May 2019 to December 2019. A pilot study was carried out in May 2019 and based on this pilot study interview schedule was modified. Semi-structured study schedule for in-depth interview of the mother of the children was used as the tool for data collection.

The respondents were interviewed to record the various socioeconomic variables and the knowledge and practice of the mothers of the children regarding emergency care of new born. Symptoms and signs that indicate severe illness in the neonates. These signs and symptoms may be present in the child immediately after delivery, develop during hospital stay or present at home. The objective of early detection of danger signs is in a new born is initial management to stabilise and preventing deterioration in the child. The signs include: not feeding well, convulsions, drowsy or unconscious, fast breathing (60 breaths per min), severe chest in drawing, raised temperature, > 38 °C, hypothermia, < 35.5 °C, yellowish discolouration of skin especially palms and soles (severe jaundice) and poor feeding. When danger signs are recognized and the child should be taken to the hospital (as per IMNCI guidelines). [7,8]

CONCLUSION

The knowledge and practices of the mothers regarding new-born care has revealed that the IEC activities in the context of new-born care have not fully percolated with beneficiaries. There is a need to improve the new born care practices by designing IEC activities that motivates mothers to adopt healthy new born care practices and give up harmful practices. Hence, the behavioural change communication strategies should be directed specifically towards the mother and father of the child with supportive role of the family members. Formation of peer groups should also be initiated to upgrade the knowledge of mothers regarding birth process, need of proper antenatal care, institutional deliveries, early identification of danger signs etc.

Home visits of health workers (female) are great opportunity for counselling beneficiaries regarding various aspects of new born care. These visits should be utilized to communicate with mother and care-givers of the new born and promote institutional delivery and assess the new born for signs of serious neonatal emergencies and advice to seek prompt medical care if necessary. Training of male health worker in recognising danger signs should be done because male health worker can easily accompany the new-born's family in case of an emergency even during night. He can also advise the father of the baby regarding various aspects of essential new born care. Male health worker can be involved in IEC activities for the rural community.

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Table 1: Distribution of mother and father of the children according to the demographic, social variables, socioeconomic status and distribution of the mothers according to the parity and antenatal registration during first trimester of the last pregnancy. (n=300)

Demographic variables		Mother (%)	Father (%)
Age (in years)	< 20	13 (4.3)	0
	21-25	136 (45.3)	75 (25.0)
	26-30	113 (37.7)	100 (33.3)
	>30	38 (12.7)	125 (41.3)
Literacy Status	Illiterate	13 (4.3)	13 (4.3)
	Primary	25 (8.3)	50 (16.7)
	Middle	137 (45.7)	113 (37.7)
	High School	13 (4.33)	25 (8.3)
	Intermediate	75 (25.0)	60 (20.0)
	Graduate	37 (12.3)	39 (13.0)
Occupation	Homemaker	287 (95.7)	0
	Labourer	7 (2.3)	113 (37.7)
	Farmer	0	13 (4.3)
	Business	0	50 (16.7)
	Semi-Skilled	0	49 (16.3)
	Skilled	0	36 (12.0)
	Semi-profession or profession	6 (2.0)	39 (13.0)
Religion	Hindu	224	74.7
	Muslim	76	25.3
Caste	General	63	21.0
	O.B.C.	186	62.0
	SC/ST	51	17.0
Type of family	Nuclear	99	33.0
	Joint	164	54.7
	3 generation	37	12.3
Social Class	II	88	29.3
	III	49	16.3
	IV	112	37.3
	V	51	17.0
Parity	Primi	76	25.3
	Second	124	41.3
	Three or more	100	33.3
Antenatal registration	Registered	223	74.3
	Not registered	77	25.7

Table 2: Knowledge of mothers regarding danger signs in a new-born. (Neonatal emergencies) (Multiple response) (n=300) and distribution of the mothers according to knowledge regarding action to be taken in case of danger sign (neonatal emergency). (N=233)

		Number	Percentage (%)
Danger sign (n=300)	Poor feeding	63	21.0
	Convulsions	14	4.7
	Fast breathing	100	33.3
	Severe chest in drawing	25	8.3
	Fever (very hot to touch)	130	43.3
	Low body temperature (very cold to touch)	125	41.7
	Lethargy or unconsciousness	65	21.7
	Discharge from umbilicus	38	12.7
	Yellowish discoloration of palms and soles	77	25.7
	Loose stools	112	37.3
	Did not know	67	22.3
Action to be taken	Treat at home	88	37.8
	Take treatment from a local village doctor	75	32.2
	Take the child to a hospital	50	21.5
	Did not know	20	8.5

Table 3: Association between socio-demographic factors and knowledge regarding danger signs, preventive measures for thermoregulation and knowledge regarding temperature assessment in a new-born.

Socio Demographic variables		Knowledge regarding Dangersigns			P-value	Knowledge regarding Preventive measures for thermoregulation			P-value	Temperature assessment			P-value
		No	Partial	Present		No	Partial	Present		No	Partial	Present	
Age (in years)	< 20	0	4	9	0.001	0	13	0	0.001	1	12	0	0.001
	21-25	21	86	29		16	90	30		32	83	21	
	26-30	41	21	51		0	89	24		30	5	78	
	>30	0	25	13		7	22	9		37	0	1	
Literacy Status	Illiterate	0	9	4	0.001	0	13	0	0.001	13	0	0	0.001
	Primary	0	4	21		4	13	8		12	13	0	
	Middle	37	53	47		11	105	21		29	34	74	
	High School	9	0	4		0	4	9		0	4	9	
	Intermediate	4	53	18		0	58	17		21	45	9	
	Graduate	12	17	8		8	21	8		25	4	8	
Occupation	Homemaker	58	96	132	0.010	23	202	61	0.378	88	100	98	0.001
	Laborer	0	4	4		0	8	0		8	0	0	
	Professional	4	2	0		0	4	2		4	0	2	
Religion	Hindu	36	89	99	0.001	11	176	37	0.001	68	82	74	0.074
	Muslim	26	13	37		12	38	26		32	18	26	
Caste	General	0	13	50	0.001	0	63	0	0.001	10	53	0	0.001
	O.B.C.	62	51	73		23	112	51		69	42	75	
	SC/ST	0	38	13		0	39	12		21	5	25	
Type of family	Nuclear	12	50	37	0.001	12	63	24	0.001	37	17	45	0.001
	Joint	38	39	87		11	114	39		62	54	48	
	3generation	12	13	12		0	37	0		1	29	7	
Socio-	II	12	26	50		12	76	0		46	18	24	0.001

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economic status	III	0	25	24	0.001	11	26	12	0.001	28	4	17	
	IV	38	25	49		0	26	12		22	52	38	
	V	12	26	13		0	38	13		4	26	21	

Assessment of Nutritional Status of the Children Under Five Years of Age in a Rural Community of Ghaziabad District

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ABSTRACT

Background: Nutrition is the foundation of child survival and development. Improving nutrition in the early year of life is very crucial in connection with meeting the Millennium Development Goal. Under-nutrition is occurring in the form of silent epidemic among the children under five years of age.

Aim and Objective: The present study was undertaken to assess the nutritional status of the children less than five years of age in a rural community of Ghaziabad district.

Methodology: The current study was carried out in Santosh Medical College & Hospital Ghaziabad in May 2016- April 2017. The study was conducted on children below 5 years of age. Sample size calculated for this study was 979.31≈ 980. Multistage simple random sampling technique was used to cover the sample size. The data analysis for the study included univariate, bivariate and multivariate analysis. Pre-designed, pre-tested and semi-structured proforma was used during the study to collect the information.

Result: Total 980 under-five children were selected as the study population to assess the nutritional status of the children under five years of age. Stunting was found to be significantly associated with increase in age and wasting did not vary significantly with age. It was observed that occurrence of underweight was more among the female children (24.90%) than among male children (6.22%) and this difference was found to be statistically significant. Malnutrition was found to be significantly more common among female children than male children.

Conclusion: In the present study it was found that Occurrence of wasting was more among the female children than among male children.Occurrence of underweight was found to vary significantly according to caste. Diarrhea was the major morbidity among the children followed by ARI affecting.

Keywords: Malnutrition, Nutrition, Deficiency, Indices.

INTRODUCTION

Nutrition may be defined as the signs of food and its relationship to health. It is concerned primarily with the part played by nutrients in body growth, development and maintenance [1]. Nutrition is a core pillar of human development and concrete, large-scale programming not only can reduce the burden of under-nutrition and deprivation in countries but also can advance the progress of nations [2]. The nutritional status of a community particularly of its vulnerable groups comprising of children, expectant mother and lactating mothers has been recognized as an important indicator, of national development in turn depends on social development indices. The Nutrition emerges as an important pre- requisite for national development [3].

One of the most serious problems that children across the world face is malnutrition. Malnutrition has been defined as pathological state resulting from a relative or absolute deficiency or excess of one or more essential nutrients". It comprised of four forms under-nutrition, over-nutrition, imbalanceand the specific deficiency. Children below 5 years are usually affected and infants are hit hardest [4]. Malnutrition was the underlying cause for 55% deaths among children under five years of age [5]. It is a vicious circle – infection contributing to malnutrition and malnutrition contributing to infection, both act synergistically.8 Malnutrition among under-five children is a major public health problem in India.In India, weight for age has been the most widely used indicators for assessment of nutritional status, detection of under nutrition and monitoring the improvement following intervention in children [6].

Children who are more than two standard deviations below the median of the reference population in terms of height-for-age are considered short for their age or stunted. It is a telling indicator of chronic under-nutrition. Children who are more than two standard deviations below the median of the reference population in terms for weight-for-height are considered too thin or wasted. It is a measure of acute under-nutrition that often appears in emergency situations.

MATERIALS AND METHODS

The study was carried out inCommunity Medicine Department, Santosh Medical College, Ghaziabad and Sampling done in selected rural area of Ghaziabad district.The study was conducted on children below 5 years of agein May 2016- April 2017. Children whose families have not been residing in the community for the past 3 months and children of families who are visiting their relatives were excluded from this study. According to previous studies the prevalence in this area is 29%. Sample size calculated for this study is 979.31≈ 980. Multistage simple random sampling technique was used to cover the sample size for present study.

Data was collected in a pre-designed, pre-tested, semi-structured proforma. The head of family preferably Mother/care-giver of the under-five children were interviewed to obtain information regarding age, sex, religion, caste, mother tongue etc. Clinical examination was done to obtain signs of nutritional deficiencies of under- five children. Data after collection was analysed by using appropriate statistical methods including its correlation with different factors and statistical significance if any. Data analysis was done in association with different risk factors including nutritional status.The data analysis for the study included univariate, bivariate and multivariate analysis.

RESULTS

This study was conducted in the rural community of district Ghaziabad to assess the nutritional status of the children under five years of age. Total 980 under-five children were selected as the study population. Out of 980 children about 362 (36.94%) were stunted which is significantly associated with increase in age and about 196 (20.00%) were wasted which is not vary significantly with age. It was found that the risk of having underweight was more than 4 times higher in female children in comparison to male children and the occurrence of underweight was found to vary significantly according to caste. The occurrence of underweight was found to be significantly associated with birth order of 3 or more, low birth weight and non-exclusive breastfeeding.

Table 1 reveals that 57.04% were female children as compared to 42.96% males. 13.27% male children were in the 48-59 age group as compared to only 5.51% in the 0-11 month's age group; in contrast, this age group had the maximum 20.92% number of female subjects. Female group 12- 23 months accounted for 4.08% of the study group. It is observed from the above table that over 72.04% of study population belonged to the General category. Scheduled castes (SC) and Scheduled Tribes (ST) followed closely at 13.98% and 11.02% respectively. OBCs accounted for just over 2.96% and 63.98% of the study population were Muslim and only 32.04% were Hindus. There was only one Christian individualamong the study subjects (others include Sikhs & Christian). 980 children were distributed in a total of 500 families. Majority of the families were nuclear families (63.60%) and rest were joint families. Amongst under-five children, 58.98% belonged to the joint family.

It was observed from the table that majority 726 (74.08%) of the children were born at term, as reported by mothers or caregivers. However, almost one fourth 225 (22.96%) of mothers could not give history about it and deliveries took place at the institutional level in 539 (55.00%) of the children and 45.00% delivery were conducted at home.it was observed that over a quarter 264 (26.94%) of mothers could not produce any documentary evidence of their children's body weight or could not recall. Maximum 51.02 % children had normal birth weight. Occurrence of low birth weight was 22.04%.Majority of the children belonged to either first or second birth order (42.96% and 22.04%, respectively). However a large number 13.98% belonged to 4 or more birth order.More than half of the study population 510 (52.04%) was fully immunized as compared to only 27 children (2.76%) who were not immunized at all and 19.18% children were partially immunized.

Table 2 shows that among 305 underweight children maximum 99 (10.10%) belonged to 0-11 months and 24-35 months followed by 59 (6.02%) in 48-59 years age group. It was found that the proportion of underweight children varied significantly with age (X^2 = 82.151 df = 4 p = 0.000).It is seen that about 362 (36.94%) of all children were stunted. Stunting was found to be highest in the 48-59 age group (12.45%) as compared to minimum of 5.61 % in age groups of children- 0-11 months and 5.51% in 12- 23 months respectively. Stunting was found to be significantly associated with increase in age (X^2 = 73.738 df = 4 p < 0.00001). Among 980 children 196 (20.00%) were wasted. Out of these 196 wasted children majority belonged to the age group of 0-11 months 7.35%. It was found that wasting did not vary significantly with age (X^2 = 4.03 df = 4 p= 0.402).

Table 3 shows that Among 980 under-five children 675 (68.88%) were normal and 305 (31.12%) were under weight. It has been observed that the occurrence of underweight was more among the female children (24.90%) than among male children (6.22%) and this difference was found to be statistically significant (X^2 =95.256 df = 1 p = 0.0000). The risk of having underweight was more than 4 times higher in female children in comparison to male children.Among 980 under five children 362 (36.94%) were stunted. Stunting was more in female

children (23.78%) than male children (13.16%) but this difference was not found to be statistically significant (X^2 = 12.566 df = 1 p = 0.0003).Among 980 children 44 children (20.00%) had wasting. It has been observed that the occurrence of wasting was more among the female children (15.00%) than among male children (5.00%) and this difference was found to be statistically significant (X^2 = 32.248 df = 4 p < 0.0001). The risk of being wasted was more than 2 times higher in female children in comparison to male children. [OR = 2.46 (95% CI = 1.13 – 5.44)]

Table 4 shows the occurrence of underweight was found to be significantly associated with birth order of 3 or more (p = 0.0001), low birth weight (p = 0.0000) and non-exclusive breastfeeding (p = 0.0000). It was also significantly more common among those children who were not fully immunized (p = 0.0000).

DISCUSSION

The study was conducted in the rural community of Pasonda village under Rural training centre of Community Medicine, Santosh Medical College and Hospital, selected by multi-stage sampling, to address the vulnerable group of population in regard to malnutrition, with the objectives to assess the nutritional status of the children under five years of age in a rural community, to find out the socio-demographic profile of the study population and its association with the nutritional status, to find out the nutritional status of the study population.Total 980 under-five children were selected as the study population.The head of family/ mother/care-giver of these under-five children were interviewed to obtain information regarding age, sex, religion, caste, etc. Clinical examination was done to obtain signs of nutritional deficiencies of under-five children.

In the present study it was found that 57.04% were female children and 42.96% were males.72.04% of study population belonged to the General category. Scheduled castes (SC) and Scheduled Tribes (ST) followed closely at 13.98% and 11.02% respectively. OBCs accounted for just over 2.96%.Majority of the families were nuclear families (63.60%) and rest were joint families.The present study revealed that deliveries took place at the institutional level in case of 539 (55.00%) study children and 45.00% deliveries were conducted at home. Maximum 51.02% children had normal birth weight. Occurrence of low birth weight was 22.04%.Majority of the children belonged to either first or second birth order (42.6% and 22.04%, respectively).It was found in the present study that 20.00% of all children suffered from wasting; 5.00% of males suffered from wasting as compared to 15.00% of all females.In all age group females suffered more from wasting than males.362 (36.94%) of all children were stunted. Stunting was found to be highest in the 48-59 age group (12.45%). Among the 980 children, 196 (20.00%) were wasted. Out of these 196 wasted children majority belonged to the age group of 0-11 months 7.35% and 675 (68.88%) were normal and 305 (31.12%) were under weight. It has been observed that the occurrence of underweight was more among the female children (24.90%) than among male children (6.22%).

CONCLUSION

Nutritional status of a indicates the socio- economic status of the population and is linked to the availability of healthy food, getting nutrition awareness, good environment, enough dietary intake including healthy feeding pattern, proper utilization of food, which depends on physiological status of the body, which in turn, is influenced by the environmental situation. Undernutrition is commonly acknowledged as prevalent in rural areas. This study shows that majority of children are healthy, however female children were more likely than male children to be underweight. Stunting affected more female children than male children under the age of five. In the current study, it was discovered that female children were more likely than male children to have wasting. It was discovered that caste had a substantial impact on the prevalence of underweight.

ACKNOWLEDGEMENT

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Table1: Demographic distribution of the study population (n = 980)

Demographic Distribution		Number (Percentage)	
		Male	**Female**
Age inMonths	0–11	54 (5.51%)	205 (20.92%)
	12–23	76 (7.76%)	40 (4.08%)
	24–35	94 (9.59%)	96 (9.80%)
	36–47	67 (6.84%)	109 (11.12%)
	48–59	130 (13.27%)	109 (11.12%)
Caste	General	706 (72.04%)	
	ScheduleCaste(SC)	137 (13.98%)	
	ScheduleTribe(ST)	108 (11.02%)	
	OtherBackwardCaste(OBC)	29 (2.96%)	
Religion	Muslim	627 (63.98%)	
	Hindu	314 (32.04%)	
	Others	39 (3.8%)	
Family Type		**No. of Families**	**No. of Children**
	Joint	182 (36.40%)	578 (58.98%)
	Nuclear	318 (63.60%)	402 (41.02%)
Birth History	Fullterm	726 (74.08%)	
	Preterm	29 (2.96%)	
	Cannotsay	225 (22.96%)	
Place of delivery	Institutional	539 (55.00%)	
	Home	441 (45.00%)	
Birth weight	<2.5kg.	216 (22.04%)	
	□ □] □Kg.	500 (51.02%)	
	Can'tsay	264 (26.94%)	
Birth Order	1st	421 (42.96%)	
	2nd	216 (22.04%)	
	3rd	206 (21.02%)	
	4th or more	137 (13.98%)	
Immunization Status	Fullyimmunized*	510 (52.04%)	
	Partlyimmunized	188 (19.18%)	
	Nonimmunized	27 (2.76%)	
	Can’tsay/detect	161 (16.43%)	
	Notapplicable**	94 (9.59%)	

* Fully immunized means BCG, Measles (one dose), 3 doses of OPV, 3 doses of DPT (3 doses of Hepatitis-B vaccine completed by one year of age)** 21 children yet to complete 1 year of age)

Table 2: Distribution of study population according to age and nutritional status (Weight for age, WHO Standard), Age wise distribution of study population according to the nutritional status (height/length for age WHO standard, 2006) and Distribution of study population according to age and weight for height/length (WHO standard) (n =980)

Study Population		Age in Month				
		0-11	**12-23**	**24-35**	**36-47**	**48-59**
Weight for age	Normal	160(16.33%)	93 (9.49%)	90 (9.18%)	156 (15.92%)	176 (17.96%)
	Underweight	99 (10.10%)	27 (2.75%)	98 (10.00%)	22 (2.24%)	59 (6.02%)
Height / Length for age	Normal	204 (20.82%)	66 (6.73%)	100 (10.20%)	135 (13.78%)	113 (11.53%)
	Stunted	55 (5.61%)	54 (5.51%)	88 (8.98%)	43 (4.39%)	122 (12.45%)
Weight for	Normal	187(19.08%)	98 (10.00%)	147 (15.00%)	157 (16.02%)	195 (19.90%)

Height/ Length	Wasted	72 (7.35%)	22 (2.24%)	41 (4.18%)	21 (2.14%)	40 (4.08%)

Table 3: Distribution of children according to their nutritional status and sex, height/length for age and sex and weight for height/length and sex (n = 980)

Distribution of children		**Number (Percentage)**	
		Male	**Female**
Nutritional Status (weight for age)	Normal	360(36.73)	315 (32.14)
	UnderWeight	61(6.22)	244 (24.90)
Height / Lengthforage	Normal	292 (29.80%)	326 (33.26)
	Stunted	129 (13.16)	233 (23.78)
Weight forheight / Length	Normal	372 (37.96)	412 (42.04)
	Wasted	49 (5.00)	147 (15.00)

Table 4: Association between Nutritional status (underweight) and biological factors.

Biological Factors		**Nutritional status**		**Total**	**Chi-square Test**
		Normal	**Underweight**		
Birth order	2 or less	465(47.45)	172(17.55)	637(65.00)	x^2 (1)=14.418 p=0.0001
	3or more	210(21.43)	133(13.57)	343(35.00)	
	TOTAL	**675(68.88)**	**305(31.12)**	**980(100)**	
Birth weight	Low birth weight	104(14.53)	112(15.64)	216(30.17)	x^2 (1)=61.843 p=0.0000
	Normal	389(54.33)	111(15.50)	500(69.83)	
	TOTAL	**493(68.85)**	**223(31.15)**	**716(100)**	
Breastfeedingpattern	Exclusive	553 (56.43))	103(10.51)	656 (66.94	x^2 (1)=220.126 p=0.0000
	Non-exclusive	122 (12.45)	202 (20.62)	324 (33.06)	
	TOTAL	**675 (68.88)**	**305 (31.12)**	**980 (100)**	
Immunizationstatus	Fully immunized	436 (44.49)	74(7.55)	510 (52.04)	x^2 (1)=136.907 p=0.0000
	Not Fully Immunized	239 (24.39)	231 (23.57)	470(47.96)	
	TOTAL	**675 (68.88)**	**305 (31.12)**	**980 (100)**	

**birth weight of 264 children could not be obtained.

Assessment of Morbidity Pattern among Children Under Five Years of Age in a Rural Community of Ghaziabad District

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ABSTRACT

Background & Objective: Among children under five, acute respiratory infections (ARI), diarrhea, measles, and malaria are thought to be the main causes of death. Worm infestation and anemia only make the growing children's suffering worse. This study was aimed to find out the pattern of morbidity and socio-demographic parameters that influence the morbidity of under-five year's children in rural community of Ghaziabad district

Methodology: The current study was conducted from May 2016 to April 2017 at Santosh Medical College, Santosh Deemed to be University, in Ghaziabad. The study involved children under the age of five. The estimated sample size for this investigation is 980. Multistage simple random sampling technique was applied. Pre-designed, pre-tested and semi-structured proforma was used during the study to collect the information. Data analysis was done in association with different risk factors including nutritional status.

Result: Total 980 under-five children were selected as the study population to assess the morbidity pattern of the children under five years of age in rural community of Ghaziabad district. It is observed that diarrhea was the major morbidity among the children followed by ARI and worm expulsion respectively. Female children suffered slightly more episodes than male children. It was seen that underweight was significantly associated with diarrhea, ARI, measles, fever, skin infections and worm expulsion. However, it was not significantly associated with malaria or anemia.

Conclusion: Morbidities like diarrhea, ARI, Measles, anemia, fever, Wormexpulsion etc.among under-five children in the present study was very common.Morbidity can be reduced by improvement in the health care system at peripheral level.

Keywords**:** Morbidity pattern, Under-five, ARI, Worm expulsion, Neonatal.

INTRODUCTION

Morbidity is the state of being symptomatic or unhealthy for a disease or condition. It is usually represented or estimated using prevalence or incidence. Prevalence describes the proportion of the population with a given symptom or quality.Childhood morbidities are a major cause of mortality of children in the developing countries. Regardless of the noticeable improvement in the reduction of under-five death, childhood diarrhoea and fever are still the leading cause of death.

The burden of morbidities appears particularly high among rural and indigenous tribal populations who constitute about 8.2% (84.3 million) of total population in India [1]. The socio economic conditions, ignorance due to illiteracy, unhygienic conditions, overcrowding makes these people more susceptible to various communicable diseases and malnutrition. A number of child survival strategies implemented by Government of India has resulted in impressive improvement in morbidity and mortality indicators but the results have not been consistent. The pace of improvement is expected to accelerate further upon full implementation of activities under National Rural Health Mission (NRHM).

Many studies had been undertaken in various parts of the country to reveal the magnitude and nature of morbidity profile among under-five children [2-8].However, findings of these studies indicate extent of the problem and geographical differences highlighting the need for area specific strategies and interventions. Literature search necessitates the need for community-based information on morbidity patterns among under-five children, which can be used to assess the overall impact of various ongoing nutritional and disease control programs as well as in planning resource allocations. Considering the high prevalence of under-nutrition and morbidities in the under- five children especially in the rural areas, the study is planned in the rural community Ghaziabad to address the vulnerable group of population in regard to morbidities and associated factors.

Under-five children accounts for 10.7% of Indian populationand they are vulnerable to various morbidities [9]. Diarrhoea, dehydration, malaria, anaemia, acute respiratory infection, and meningitis accounted for 85.5% of the underlying diseases and for 76% of deaths [10]. According to WHO, out of total deaths in under five children 19% deaths each were contributed by ARI and Diarrhoea, 18%were due to perinatal cause, 7%

occurred due to Measles, 5% due to Malaria and 32% were from other causes [11]. There are several studies describing the morbidly status of under five children.

MATERIALS AND METHODS

The study was carried out in Community Medicine Department, Santosh Medical College, Ghaziabad and Sampling done in selected rural area of Ghaziabad district. The study was conducted on children below 5 years of age in May 2016- April 2017. Children whose families have not been residing in the community for the past 3 months and children of families who are visiting their relatives were excluded from this study. According to previous studies the prevalence in this area is 29%. Sample size calculated for this study is 979.31≈ 980. Multistage simple random sampling technique was used to cover the sample size for present study.

Data was collected in a pre-designed, pre-tested, semi-structured proforma. The head of family preferably Mother/care-giver of the under-five children were interviewed to obtain information regarding age, sex, religion, caste, mother tongue, family type, fuel used in the kitchen, literacy, income, occupation, addiction of each family members, birth history, feeding history of the under-five morbidity status etc. The list of common morbidities like fever, diarrhoea, measles, ARI, malaria, worm infestation, skin disease and anaemia was prepared after interviewing the mother or care seekers. Data after collection was analysed by using appropriate statistical methods including its correlation with different factors and statistical significance if any. The data analysis for the study included univariate analysis, bivariate and multivariate analysis.

RESULTS

The study entitled "Assessment of nutritional status of the children under five years of age in the rural community of district Ghaziabad" consisted 980 under-five children as the study population. Out of 980, diarrhea was the major morbidity among the children, accounting for 36.53% children. This was followed by ARI affecting 30.92% of the children. Worm expulsion accounted for about 10.10% of the children. Female children (56.63%) suffered slightlymore episodes than male children (43.37%). Maximum (37.84%) of female and32.46% of male children suffered from diarrhea followed by ARI. There is anassociation of various morbidities observed in this study with nutritional status. It was seen that underweight was significantly associated with diarrhea, ARI, measles, fever, skin infections and worm expulsion. However, it was not significantly associated with malaria or anemia.

Table 1 reveals that 57.04% were female children as compared to 42.96% males. 13.27% male children were in the 48-59 age group as compared to only 5.51% in the 0-11 month's age group; in contrast, this age group had the maximum 20.92% number of female subjects. Female group 12- 23 months accounted for 4.08% of the study group.It is observed from the above table that over 72.04% of study population belonged to the General category. Scheduled castes (SC) and Scheduled Tribes (ST) followed closely at 13.98% and 11.02% respectively.OBCs accounted for just over 2.96% and 63.98% of the study population were Muslim and only 32.04% were Hindus. There was only one Christian individualamong the study subjects (others include Sikhs & Christian). 980 children were distributed in a total of 500 families. Majority of the families were nuclear families (63.60%) and rest were joint families. Amongst under-five children, 58.98% belonged to the joint family.

It was observed from the table that majority 726 (74.08%) of the children were born at term, as reported by mothers or caregivers. However, almost one fourth 225 (22.96%) of mothers could not give history about it and deliveries took place at the institutional level in 539 (55.00%) of the children and 45.00% delivery were conducted at home.it was observed that over a quarter 264 (26.94%) of mothers could not produce any documentary evidence of their children's body weight or could not recall. Maximum 51.02 % children had normal birth weight. Occurrence of low birth weight was 22.04%.Majority of the children belonged to either first or second birth order (42.96% and 22.04%, respectively). However a large number 13.98% belonged to 4 or more birth order.More than half of the study population 510 (52.04%) was fully immunized as compared to only 27 children (2.76%) who were not immunized at all and 19.18% children were partially immunized.

Table 2 shows that diarrhoea was the major morbidity among the children, accounting for 36.53% children. This was followed by ARI affecting 30.92% of the children. Worm expulsion accounted for about 10.10% of the children.A few children suffered from more than one episode of morbidity.

From Table 3 it was observed that female children (56.63%) suffered slightlymore episodes than male children (43.37%). Maximum (37.84%) of female and 32.46% of male children suffered from diarrhoea followed by ARI

The above table shows the association of various morbidities observed in this study with nutritional status. It was seen that underweight was significantly associated with diarrhoea (p=0.0000), ARI (p=0.0000), measles, fever, skin infections (p=0.0000) and worm expulsion (p<0.0001). However, it was not significantly associated with malaria (p=0.429) or anaemia (p=0.05).

DISCUSSION

To find out the common morbidities of children under the age of five, the study was carried out in Pasonda Village, which was selected by multi-stage sampling, under the aegis of the Rural Training Center of Community Medicine, Santosh Medical College and Hospital.Total 980 under-five children were selected as the study population. The head of family/ mother/care-giver of these under-five children were interviewed to obtain information regarding age, sex, religion, caste, mother tongue, family type of the under-five morbidity status.

This study shows that female children (56.63%) suffered slightly more episodes than male children (43.37%). Maximum (37.84%) of female and 32.46% of male children suffered from diarrhoea followed by ARI.The present study revealed that underweight was significantly associated with diarrhoea (p=0.0000), ARI (p=0.0000), measles (p=0.0000) and worm expulsion (p=0.0001). However, it was not significantly associated with fever, skin infections (0.0000), malaria or anaemia (p=0.05).29.29% of the study population visited private practitioners for their illnesses as against only 18.67%, visited govt. hospitals for seeking treatment, 20.51% of the population sought advice from pharmacies and only (16.02%) of the children were referred to practitioners of ISM (Indian Systems of Medicine). The Primary Health Centre service was availed by 5.92% of the study population.

CONCLUSION

The current study emphasises the need to increase community knowledge of under-five child morbidity, its prevention, and the significance of seeking medical care from doctors at health centres. The present study concludes that ARI (Acute Respiratory Infections) and diarrheal diseases are still common among under five children through Govt. of India has made sincere efforts to improve the overall health of under five children using a multipronged approach under NRHM.Female children suffered slightly more episodes than male children.

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Table 1: Demographic distribution of the study population (n = 980)

Demographic distribution		Number (Percentage)	
		Male	Female
Age inMonths	0–11	54 (5.51%)	205 (20.92%)
	12–23	76 (7.76%)	40 (4.08%)
	24–35	94 (9.59%)	96 (9.80%)
	36–47	67 (6.84%)	109 (11.12%)
	48–59	130 (13.27%)	109 (11.12%)
Caste	General	706 (72.04%)	
	ScheduleCaste(SC)	137 (13.98%)	
	ScheduleTribe(ST)	108 (11.02%)	
	OtherBackwardCaste(OBC)	29 (2.96%)	
Religion	Muslim	627 (63.98%)	
	Hindu	314 (32.04%)	
	Others	39 (3.8%)	
Family Type		No. of Families	No. of Children
	Joint	182 (36.40%)	578 (58.98%)
	Nuclear	318 (63.60%)	402 (41.02%)
Birth History	Fullterm	726 (74.08%)	
	Preterm	29 (2.96%)	
	Cannotsay	225 (22.96%)	
Place of delivery	Institutional	539 (55.00%)	
	Home	441 (45.00%)	
Birth weight	<2.5kg.	216 (22.04%)	
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	Can'tsay	264 (26.94%)	
Birth Order	1st	421 (42.96%)	
	2nd	216 (22.04%)	
	3rd	206 (21.02%)	
	4th or more	137 (13.98%)	
Immunization Status	Fullyimmunized*	510 (52.04%)	
	Partlyimmunized	188 (19.18%)	
	Nonimmunized	27 (2.76%)	
	Can'tsay/detect	161 (16.43%)	
	Notapplicable**	94 (9.59%)	

* Fully immunized means BCG, Measles (one dose), 3 doses of OPV, 3 doses of DPT (3 doses of Hepatitis-B vaccine completed by one year of age) ** 21 children yet to complete 1 year of age)

Table 2: Distribution of morbidities in the study population.

Morbidity	Number (Percentage)	
	Children	MorbidityEpisodes
ARI	303 (30.92%)	309 (31.12%)
Diarrhea	358 (36.53%)	358 (36.05%)
Measles	27 (2.76%)	27 (2.72%)
Anemia	8 (0.82%)	8 (0.81%)
Fever	89 (9.08%)	89 (8.96%)
Malaria	14 (1.43%)	14 (1.41%)
Wormexpulsion	99 (10.10%)	99 (9.97%)
Skininfection	80 (8.16%)	80 (8.06%)
Other*	2 (0.20%)	9 (0.91%)

Total	**980 (100.00%)**	**993 (100.00%)**

*indicates the following morbidities: Refractive errors, Chicken Pox, Dental caries, Night blindness, Paediatric TB & Ear Infection.

Table 3: Sex-wise distribution of morbidities in the study population

Morbidity	**Number (Percentage)**	
	Female children	**Male children**
ARI	170 (30.63%)	139 (30.48%)
Diarrhea	210 (37.84%)	148 (32.46%)
Measles	9 (1.62%)	18 (3.95%)
Anemia	4 (0.72%)	4 (0.88%)
Fever	49 (8.83%)	40 (8.77%)
Malaria	5 (0.90%)	9 (1.97%)
Worm expulsion	54 (9.73%)	45 (9.87%)
Skin infection	45 (8.11%)	35 (7.68%)
Other*	9 (1.62%)	18 (3.95%)
Total	**555 (100%)**	**456 (100%)**

Table 4: Association of different morbidities with nutritional status (WHO weight for age criteria)

Morbidities		**Nutritional status**		**Total**	**Chi-square Test**
		Normal	**Underweight**		
Diarrhoea	Did not occur	515 (52.55%)	107 (10.92%)	622 (63.47%)	X^2 (1)=153.905 p =0.0000
	Occurred	160 (16.33%)	198 (20.20%)	358 (36.53%)	
ARI	Did not occur	510 (52.04%)	167 (17.04%)	677 (69.08%)	X^2 (1)=42.558 p =0.0000
	Occurred	165 (16.84%)	138 (14.08%)	303 (30.92%)	
Fever	Did not occur	660(67.35%)	231 (23.57%)	891(90.92%)	X^2 (1)= 123.591 p=0.0000
	Occurred	15(1.53%)	74 (7.55%)	89(9.08%)	
Skin infections	Did not occur	662(67.55%)	238 (24.29%)	900(97.26%)	X2 (1)= 112.551 p =0.0000
	Occurred	13(1.33%)	67 (6.84%)	80(2.74%)	
Measles	Did not occur	667(68.06%)	286 (29.18)	953(97.26)	X2 (1)= 19.952 p =0.0000
	Occurred	8(0.82%)	19 (1.94%)	27(2.74%)	
Malaria	Did not occur	664(67.76%)	3 (0.31%)	14(1.43%)	X2 (1)= 0.623 p =0.429
	Occurred	11(1.12%)	305 (31.12%)	980 (100%)	
Worm expulsion	Did not occur	631(64.39%)	250 (25.51)	881(91.32%)	X2 (1)= 30.668 p <0.0001
	Occurred	44(4.49%)	55 (5.61%)	99(8.68%)	
Anaemia	Did not occur	667(68.06%)	305 (31.12)	972(99.18%)	Fisher Exact Probability Test p=0.05
	Occurred	8(0.82%)	0 (0.00)	8(0.82%)	

Study of Awareness Regarding Healthy Diet among Adolescent Age Group in Urban Area of District Ghaziabad

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ABSTRACT

Background: Adolescence is the transition period between childhood and adulthood, a window of opportunity for the improvement of nutritional status and correcting poor dietary practice. A substantial amount of deaths and diseases are associated closely with conditions or behaviours that first take root in adolescence, primary among them being diet.

Aim and Objective: To study of awareness regarding healthy diet among adolescent age group in urban area.

Methodology: The Santosh Medical College in Ghaziabad's Department of Community Medicine conducted this study. Using a multi-stage sample technique, it was carried out in metropolitan higher secondary schools. 550 teenagers in all were inspected and asked about their eating habits. Through pre-planned and pre-tested school visits, information was gathered.

Result: Of the 550 adolescents, 60 (10.9%) were underweight, 156 (28.36%) were overweight or obese, and 334 (60.72%) had nutritional statuses that were within the normal range. Additionally, it is clear that the majority of men (75.28%) had a BMI that was appropriate for their age, but the majority of women (50.5%) were overweight or obese.

Conclusion: They need school-based nutrition education to improve their dietary practices of adolescent age group. The adolescent age group dietary practices will definitely show an impact on their healthy and bright future. To achieve anything in one's own life, that person should be healthy.

Keywords**:** dietary practices, adolescent, cardiovascular disease, type 2 diabetes, macronutrients .

INTRODUCTION

The word adolescence is Latin in origin, derived from the verb adolescere, which means 'to grow into adulthood.' Adolescence is a time of moving from the immaturity of childhood into the maturity of adulthood. [1,2]These transitions are biological, cognitive, social, and emotional. Adolescent females are more prone to nutritional difficulties than adolescent males. In early childhood (0–4 years), the available international evidence suggests that differences in nutritional status between girls and boys are statistically negligible[3-5]. A healthy diet should include a wide variety of nutritious foods for sufficient intake of all nutrients, including vitamins and minerals. Foods to include are breads, pastas, lean meats, fish, fruits and vegetables. A healthy diet can help you maintain a healthy body weight and decrease your risk of many diet-related chronic diseases, such as cardiovascular disease, type 2 diabetes and some cancers. Healthy diet is a diet that helps to maintain or improve overall health.[6,8] A healthy diet provides the body with essential nutrition: fluid, macronutrients, micronutrients, and adequate calories.

As given in the UNICEF India health statistics 2010, India has the largest population of adolescents in the world, being home to 243 million individuals aged 10-19 years. Though a large number of studies have been conducted regarding the nutritional status of children, the adolescents have not been traditionally considered at an elevated nutritional risk. Only recently, global attention has been given to this vulnerable group.[9,11] Adolescents are the future generation of any country and their nutritional needs are critical for the well-being of the society.

In their study on fruit and vegetable consumption in school going adolescents of five South east Asian countries, Karl Peltzer et al. (2012) observed that low fruits and vegetable consumption were reported, as 76.3% of the sampled population consumed less than the recommended five servings of fruits and/or vegetable, 28% reported consuming less than one fruit serving per day and 13.8% indicated consuming less than one vegetable serving per day. Sedentary leisure time behaviour (fewer hours sitting in a day) was in this study associated with inadequate fruits and/or vegetable consumption. [15]

Many low- and middle-income nations are currently bearing a 'double burden' of disease, according to the WHO Health Report (2006). While dealing with the issues of infectious disease and undernourishment, they are also rapidly increasing the risk factors for chronic diseases including obesity and overweight, especially in

metropolitan areas. In the same nation, same neighbourhood, and sometimes even in the same household, undernutrition and obesity are frequently coexisting problems. Inadequate prenatal, baby, and young child nutrition, followed by exposure to high-fat, energy-dense, micronutrient-poor meals, and a lack of physical activity in adolescence, are the main contributors to this double burden.[10] To prevent nutritional deficits in children, it is vital to come up with techniques for preventing both underweight and overweight and obesity. Additionally, this would assist them develop their academic and extracurricular skills and help them become more well-rounded people with strong mental and physical faculties. [7]

Poor nutritional status during adolescence is an important determinant of health outcome. Moreover, adolescents have different needs and diverse problems. Chronic energy deficiency in adolescents results in short stature and lean body mass and is associated with deficiencies in muscular strength and working capacities. In addition, obesity during childhood and adolescence is a risk factor for obesity in adulthood and is related to an increased morbidity and mortality in adulthood. [12] The prevalence and health consequences of under nutrition as well as overweight and obesity need to be evaluated especially among adolescents in whom preventive and corrective measures can be instituted early.

MATERIALS AND METHODS

The Department of Community Medicine at Santosh Medical College, Ghaziabad, conducted the study at higher secondary schools in the district's metropolitan region. The epidemiology study conducted at the school was utilised. The incidence of malnutrition is 42%, according to NFHS-3 and numerous other studies carried out in India by the World Health Organization and the World Bank [13,14]. We chose participants for our study from the urban Ghaziabad district who were between the ages of 11 and 15 and who were willing to consent. A pilot research was carried out between November 2013 and October 2014.

Pavithran and Bant (2018) revealed the nutritional status of adolescent school girls residing in rural areas of Dharwad district, India. They studied their socio demographic profile, anthropometric measurements (height, weight and BMI) and dietary pattern of rural adolescent girls. The study revealed that rural adolescent age group - 14.9% of were under weight for their age and based on BMI, 25.2% were under-nourished and 3.7% were over nourished. And there is high prevalence of under nutrition among adolescent girls and it is associated with micronutrient deficiencies like anemia. Nutritional awareness should be done to improve the nutritional needs of adolescent girls in rural areas.

Nair et al., (2017) studied the nutritional status of adolescent girls in a rural area of a district of Maharashtra. The study was a community based cross sectional study done among 583 adolescent girls in 10 villages of a district. In this study the prevalence of underweight (36.54%) and stunting (48.37%) was found, moreover under nutrition was high among adolescent girls. To improve their nutritional status appropriate health education and nutrition intervention should be directed towards them. The main objectives include, to study the general profile of rural and urban adolescent age group; to study the dietary practices and also the nutritional awareness of urban adolescent age group.It is a simple index of weight-for-height that is commonly used to classify underweight, overweight and obesity in adults. It is defined as the weight in kilograms divided by the square of the height in metres (kg/m2). [16]

RESULTS

Table 1 shows that out of the total 550 adolescents, the majority of the adolescents (64%) were male while females added up to 36% of the total. According to the table, majority of the adolescents were 13 years old. Among the 11 year olds, 79.49% were males and 20.51% were females. Among the 12 year olds, 62.93% were males while 37.07% were females. Out of the 13 year olds, 60.91% were males and 39.09% were females. Among the 14 year olds, 57.02% were males and 42.97% were females. Among the 15 year olds, 65.68% were males while 34.31% were females.

Table 1: Socio-demographic distribution of study subjects.

Socio-Demographic Characteristics		Number (Percentage) (N=550)
Age (Years)	11 (n=78)	78(100)
	12 (n=116)	116(100)
	13 (n=133)	133(100)
	14 (n=121)	121(100)
	15 (n=102)	102(100)
Religion	Hindu	389 (70.72)
	Muslim	98 (17.81)

	Sikh	46 (8.36)
	Christian	17 (3.09)
Caste	General	272 (49.45)
	SC	25 (4.54)
	ST	13 (2.36)
	OBC	240 (43.63)
Socio-economic status	I	99 (18)
	II	185 (33.63)
	III	195 (35.45)
	IV	71 (12.9)
Education status of mothers	Illiterate	20 3.63)
	Literate/Primary	32 (5.81)
	Middle school	40 (7.27)
	High School	54 (9.81)
	Intermediate	123 (22.36)
	Graduate	214 (38.9)
	Post graduate	67 (12.18)
Occupation status of mothers	Employed	97 (17.63)
	Housewives	453 (82.36)
Level of physical activity	Low physical activity (n=144)	144(100)
	Moderate physical activity (n=254)	254(100)
	High physical activity (n=152)	152(100)

As we show in above table that the majority of adolescents (70.72%) were Hindus, followed by Muslims (17.81%), Sikh (8.36%) and Christians (3.09%). The second table shows that the majority of adolescents belonged to general category (49.45%) followed by other backward classes (43.63%). 4.54% adolescents belonged to the scheduled caste category and 2.36% belonged to scheduled tribe category. majority of the adolescents (35.45%) belonged to SES III, followed by SES II (33.63%) and SES I (18%). 12.9% adolescents belonged to SES IV and the majority of the mothers (38.9%) were educated up to graduate level. In addition, 22.36% were educated up to intermediate level and 12.18% were post graduates. 9.81% of the adolescents' mothers had studied up to high school and 7.27% had studied till middle school. Notably, the majority of mothers (82.37%) were housewives.

Table 2: Distribution of study subjects according to nutritional status based on BMI for age.

Sex	**Underweight** (BMI for age <5th percentile)	**Normal** (BMI for age 5th to 85th percentile)	**Overweight/Obese**(BMI for age > 85thpercentile)	**Total (N=550)**
Male (n=352)	31 (8.8)	265 (75.2)	56 (15.9)	352(100)
Female(n=198)	29 (14.6)	69 (34.8)	100 (50.5)	198(100)
Total	60(10.9)	334(60.7)	156(28.3)	550(100)

Table 2 shows that out of the 550 adolescents, the nutritional status of 334 (60.72%) was in the normal range, 60 (10.9%) were underweight and 156 (28.36%) were overweight or obese. Additionally, it can be seen that majority of the males (75.28%) had normal BMI for age while majority of the females (50.5%) were overweight or obese. The association between sex of the adolescents and their nutritional status was found to be statistically significant.

Table 3: Distribution of study subjects according to knowledge about food groups in a balance diet, knowledge regarding dietary fat and balance diet.

knowledge about food groups, dietary fat and balance diet		**Total (N=550)**
Food group that should be taken in least amount in a balanced diet?	Carbohydrate	30 (5.45%)
	Fats	181 (32.9%)
	Proteins	42 (7.63%)

	Vitamins and minerals	297 (54%)
Food group that should be taken in maximum amount in a balanced diet?	Carbohydrate	294 (53.45%)
	Fats	3 (0.54%)
	Proteins	206 (37.45%)
	Vitamins and minerals	47 (8.18%)
Percentage of fats in a balanced diet is?	30% or less	501 (91.09%)
	30-59%	47 (8.54%)
	60% or more	2 (0.36%)
Percentage of carbohydrates in a balanced diet is?	30% or less	45 (8.18%)
	30-59%	120 (21.81%)
	60% or more	385 (70%)
How many servings of fruits and vegetables should be consumed every day?	None	1 (0.18%)
	Less than 1 serving	39 (7.09%)
	1 serving	176 (32%)
	2 servings	239 (43.45%)
	3 servings	57 (10.36%)
	4 servings	27 (4.90%)
	5 or more servings	11 (2%)
Can Fatty diet cause obesity?	Yes	454 (82.54%)
	No	60 (11.09%)
	Don't Know	36 (6.54%)
Can Obesity lead to other health problems?	Yes	440 (80%)
	No	85 (15.45%)
	Don't Know	25 (4.54%)
Can Obesity be prevented by regular physical activity?	Yes	536 (97.45%)
	No	14 (2.54%)
	Don't Know	0 (0%)
Do Fast food and soft drinks contribute to obesity?	Yes	411 (74.72%)
	No	122 (22.18%)
	Don't Know	17 (3.09%)
Fats and oil are not an important part of balance diet- True or False?	True	185 (33.63%)
	False	365 (66.36%)
Which one of the following is better for health?	Saturated fat	181 (32.90%)
	Unsaturated fat	369 (67.09%)
Balance diet included	Dal/ egg/ milk/ chicken/meat	353 (64.18%)
	Pastries/ cakes/ sweets	75 (13.63%)
	Chocolates	35 (6.36%)
	Bread/ roties/ buns/ rice	497 (90.36%)
	Pizzas/ pastas/ burgers	75 (13.63%)
	Ghee/ butter/ refined oil	442 (80.36%)
	Soft drinks	67 (12.18%)
	Green vegetables and fruits	507 (92.18%)
Source of information	School studies	177 (32.18%)
	Mass media	58 (10.54%)
	Parents	210 (38.18%)
	Friends and family	58 (10.54%)
	Doctors	47 (8.54%)

Table 3 shows that when tested on their knowledge about balanced diet, 54% of the respondents said that vitamins and minerals are the components taken in the least amount while 32.9% said it is fats. 53.45% of the adolescents believed that the component taken in maximum amount is carbohydrates while 37.45% believed it is proteins. 91.09% of the adolescents were aware that fats should make up 30% or less in a balanced diet and 70% were aware that carbohydrates make up 60% or more in a balanced diet. When asked about the number of servings of fruits and vegetables to be taken in one day, only 2% of the adolescents gave the correct answer i.e. 5 or more servings per day. It can be seen that 82.54% adolescents knew that fatty diet can cause obesity, 80% knew that obesity can lead to serious health problems, 97.45% knew that obesity can be prevented by regular physical exercise and 74.72% were aware that fast food and soft drinks contribute to obesity. Also, 66.36% were aware that fats are an important part of balanced diet and 67.09% believed that unsaturated fats are better for health as compared to saturated fats. The study subjects were asked to identify the foods that are part of a balanced diet. 92.18% adolescents selected green vegetables and fruits, 80.36% adolescents selected ghee, butter or oil, 90.36% selected breads, rice and buns, and 64.18% selected dals, eggs, milk and other proteins. Majority of adolescents (38.18%), parents are the source of health and nutritional information, followed closely by school studies (32.18%). In addition, 10.54% of the adolescents get this information each from mass media and family or friends.

Table 4: Distribution of study subjects according to consumption of one glass (~250 ml) of non-diet soda drinks and fast food/ outside meal in a typical week in a typical week.

Distribution of study subjects according to consumption		**Male (N=352)**	**Female (n=198)**	**Total (N=550)**	**p value**
		N (%)	**N (%)**	**N (%)**	
Consumption of soda/soft drink	Never (n=4)	0(0)	4(100)	4(100)	p< 0.05
	<1/ week (n=138)	83(60.14)	55(39.85)	138(100)	
	1-2/week (n=121)	67(55.37)	54(44.62)	121(100)	
	3-4/week (n=116)	77(66.37)	39(33.62)	116(100)	
	5-6/week (n=99)	68(68.68)	31(31.31)	99(100)	
	1-2/day (n=47)	35(74.46)	12(25.53)	47(100)	
	3-4/day (n=25)	22(88)	3(12)	25(100)	
Fast food/Outside meal consumption	Never	19(86.36)	3(13.63)	22(100)	p< 0.05
	<1/ week	37(71.15)	15(28.84)	52(100)	
	1-2 times/ week	89(53.61)	77(46.38)	166(100)	
	3-4 times/ week	94(60.64)	61(39.35)	155(100)	
	5-6 times/ week	87(79.1)	23(20.9)	110(100)	
	1 or more time/ day	26(57.78)	19(42.22)	45(100)	

In table 4 , It was found that out of 550 adolescents, 138 (25.09%) consumed non diet soda drinks less than once a week, 121 (22%) consumed 1-2 times in a week and 116 (21.09%) adolescents consumed one glass of non diet soda 3-4 times in a typical week. Among the adolescents drinking less than one glass a week, 60.14% were males while 39.85% were females. Out of the adolescents who consumed 1-2 glasses per week, 55.37% were males and 44.62% were females. However, among the adolescents who consumed 1-2 glasses per day, 74.46% were males while 25.53% were females among those who consumed 3-4 glasses per day, 88% were males while only 12% were females. The association between gender of the adolescents and the frequency of consumption of non-diet soda drinks is statistically significant ($p<0.05$). The majority ate fast food/outside meal food 1-2 times a week. Out of the adolescents who ate fast food less than once a week, 71.15% were males while 28.84% were females. Among the adolescents who ate fast food 1-2 times a week, 53.61% were males and 46.38% were females. Out of the adolescents who ate fast food 3-4 times a week, 60.64% were males while only 39.35% were females. Of the adolescents who ate outside 5-6 times a week, 79.1% were males while only 20.9% were females. Of those who ate fast food 1-2 times a day, 57.78% were males and 42.22% were females. The association between gender of the adolescents and the frequency of consumption of fast food/outside meal was found to be statistically significant.

DISCUSSION

In the present study, it was found that out of the total 550 adolescents, the majority of the adolescents (64%) were male while females added up to 36% of the total [Table 1]. Among all adolescents surveyed, the nutritional status of 334 (60.72%) was in the normal range (BMI for age between 5th to 85th percentile), 60 (10.9%) were underweight (BMI for age< 5th percentile) and 156 (28.36%) were overweight or obese (BMI for

age>85th percentile). Rawat R. et al (2012)[17] , in their study, found that 13.5% children were overweight or obese while Bharti et al (2008)[18] found that 4.3% school going children were overweight or obese. Overall prevalence of underweight was 17% and overweight and obesity was found to be 5.4% in adolescent girls , in a study done by Sachan B et al (2013) [19] .

The high prevalence of overweight and obesity seen in the present study may be attributed to the lack of physical activity among adolescents. The difference in the gender could be due to the fact that on reaching adolescence, girls are not as encouraged to play sports or outside games as the boys. In addition, most schools provide a limited number of hours for physical education per week which is not sufficient and even at home adolescents belonging to affluent classes have access to indoor activities like watching TV or playing games on the computer which discourages them from going out to play.

In the present study, 54% of the respondents said that vitamins and minerals are the components taken in the least amount while 53.45% of the adolescents believed that the component taken in maximum amount is carbohydrates and 91.09% of the adolescents were aware that fats should make up 30% or less in a balanced diet. Also, majority of the adolescents gave correct answers regarding obesity. Surprisingly, the knowledge on required amount of fruits and vegetables per day, only 2% of the adolescents gave the correct answer i.e. 5 or more servings per day. The study in Varanasi by Choudhary S et al (2010) [20] similarly saw that there was poor access to knowledge on nutrition and the level of nutrition related knowledge was not up to the mark.

It was also seen that out of the total 550 adolescents, the majority ate fast food/outside meal food 1-2 times a week. Out of the adolescents who ate fast food less than once a week, 71.15% were males while 28.84% were females. The association between gender of the adolescents and the frequency of consumption of fast food/outside meal was found to be statistically significant ($p<0.05$) i.e. males consumed more fast food than females.

This research revealed that availability, quick service, and flavor/taste were identified to be the primary motivators for rising fast food consumption. Additional factors that contributed to a rise in fast food consumption were exposure to commercials and the influence of other media.

CONCLUSION

A statistically significant relationship between eating fruits and vegetables and nutritional status was discovered ($p<0.05$). It was shown that teenagers with higher daily intakes of fruits and vegetables had higher BMIs relative to their ages. Among adolescents, 116 (21.09%) drank one glass of non-diet soda three to four times per usual week, compared to 138 (25.09%) who consumed non-diet soda less than once per week, 121 (22%) once or twice, and 138 (25%). However, there was no connection between adolescent dietary status and use of fast food or soda.

Improving adolescent diets requires a range of policies, programmes, and interventions at different stages of life. Nutritional awareness should be done to improve their nutritional needs of adolescent age group in urban areas which shall play an important role in to remain healthy and lead a healthy life.

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A Study of an Assess Knowledge, Attitude and Practices of Medical Professionals toward Antibiotics

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ABSTRACT

Introduction: Antibiotics are excellent medicines for treating infectious infections, but they are in danger due to a decline in their effectiveness. Antibiotic resistance is increasingly affecting public health globally. Antibiotic resistance is caused by a variety of underlying reasons. In terms of prescribing and using antibiotics, doctors are quite important. In the current study, we will evaluate the antibiotic knowledge, attitude, and behaviours of medical staff at Santosh University in Ghaziabad.

Aim and Objectives: To assess knowledge, attitude, and practices of medical professionals toward antibiotics.

Methods and Materials: A cross-sectional descriptive study was performed on medical professionals who are prescribing antibiotics through survey conducted.

Results: Every person who responded to the study did so completely. Of these, 77% use broad-spectrum antibiotics, and 41% prescribe antibiotics on the first day of the investigation. Despite having adequate understanding of resistance, the way they use antibiotics isn't very effective. Antibiotic usage is not covered by any policies. Everyone who responded is in favour of doing away with self-medication and excessive antibiotic use.

Conclusion: There is a good understanding of antibiotic use and resistance, but there is still a disconnect between knowledge and prescription practices. Antibiotic usage guidelines and a general public education campaign are required.

Keywords**:** Antibiotic resistance, Medical professionals, Prescription, Self-medication

INTRODUCTION

The prevalence of infectious diseases like tuberculosis and pneumonia is increasing, and the wonder medications known as "antibiotics" are losing their efficacy against various germs. Most of the time, there is no legal requirement to prove a connection between regular use and antibiotic resistance. [1] Although the efficacy of antibiotics is declining, which is a serious issue, there is also a decline in the production of new antibiotics, which exacerbates the problem of antibiotic resistance. [2] Self-medication is always a major problem when it comes to drugs, but when it comes to antibiotics, self-medication is alarmingly contributing to the rise in antibiotic resistance. The majority of people are accustomed to self-medicating and do not require a doctor's prescription prior to receiving an antibiotic. Antibiotic resistance is largely caused by the use of antibiotics without a prescription, combined with poor knowledge and attitude. [3] Among the many causes of antibiotic resistance, using antibiotics for conditions where they are not truly necessary, such as the common cold, is one of these causes.[4] In addition to these elements, prescribing knowledge also has a significant role in the development of antibiotic resistance. Antibiotic resistance is something that prescribers are aware of, yet they lack the expertise to deliver antibiotics in the most effective ways. [5] After reviewing numerous studies, it is clear that antibiotic resistance is a significant issue that requires immediate attention. Further research revealed that clinicians have adequate knowledge of antibiotic use and good prescription practises, but since doctors play a significant role in antibiotic use, it is necessary to regularly incorporate educational interventions related to antibiotic use and resistance patterns to keep clinicians' knowledge current and to make them aware of the use of antibiotics in order to maintain antibiotic efficacy and resistance. [6-9] Specialist recommendations for the interventional programme training sessions can help to improve the prescribing practises for antibiotics. [10] Any health intervention programme that is implemented and used regularly always yields positive benefits. It is necessary to support the programme with some policies that are specifically created for the rational use and prescribing of antibiotics in order to increase the effectiveness of the intervention. Antibiotic resistance appears to be more effectively managed by prudent antibiotic use in conjunction with intervention programs. [11] Antibiotic prescribing practises must be improved in all hospitals worldwide in order to reduce antibiotic resistance, which might be challenging but doable. [12] According to a study, doctors acknowledge that antibiotic overuse is a major factor in the development of antibiotic resistance. They recommended that clinical audits, assistance from microbiology, and implementation of antibiotic use policy can be useful ways to reduce and control antibiotic resistance. [13] Antimicrobial resistance and medicine availability should be brought up with the general audience. [14] For changes to be more effective, the relationships between doctors and pharmacists should be acknowledged. [15] After reviewing numerous research, it has been determined that doctors play an active part in the situation because their knowledge, attitude, and practise (KAP) in prescribing antibiotics is crucial for lowering antibiotic

resistance and avoiding medication pharmacological activity. In light of this, the current study was conducted to evaluate the KAPs of medical practitioners who often prescribe antibiotics.

METHODS AND MATERIALS

Santosh University in Ghaziabad, India, conducted the cross-sectional descriptive study through a survey on mail. A total of 56 medical professionals who work in healthcare facilities and write prescriptions for antibiotics were chosen at random on a practical basis.

A Google form-created questionnaire was used to conduct the survey. The questionnaire asks about demographic information, a doctor's understanding of antibiotics, how they feel about prescribing them, and how often they do so.

A committee of specialists assessed the prepared questionnaire, which was subsequently verified by running a pilot research with a sample size of four active medical practitioners. The overall amount of experience, their position within the healthcare establishment, and the length of time they have been working there are all included in the demographic section.

The pharmacodynamic properties of antibiotics in comparison to other medications, antibiotic resistance, how frequently they prescribe antibiotics, and other topics were covered in the KAP section's assessment.

All respondents were mailed information about the study and its value prior to receiving a response from them. Each participant was asked for their free, informed consent. After obtaining written agreement, the questionnaire was delivered to each person through mail with instructions to complete it completely and return it within two days. Those who failed to submit the form within the allotted time were contacted and asked to do so as soon as possible. To get all the completed forms, more than two attempts were needed.

Statistical Analysis

The data was collected using a Google Form-designed questionnaire, which makes it easier to export the data from Google Form to an MS-Excel sheet. MS-Excel was the only programme used for the analysis.

Ethical Consideration

The institution's ethical review board gave the research protocol their okay. The study's details were explained to each participant. They received guarantees that all the information they collected would be kept private and secret and that it would only be utilised for study. Each participant also signed an informed consent form.

RESULTS AND DISCUSSION

100% of participants gave satisfactory answers. Out of the 56 participants, every single one of them acknowledged that they regularly prescribe antibiotics. Table 1 shows that the majority of respondents (71.6%) have experience of less than three years, and only a small number have experience of more than nine years. Additionally, it has been determined that most medical professionals work at the same facility for a little over a year.

According to Figure 1, a significant percentage of respondents—41%—prescribe the antibiotic on the first day of the examination. Figure 2 shows that compared to narrow-spectrum antibiotics (23%), broad-spectrum antibiotics are typically prescribed by medical experts (77%). Since many respondents used to prescribe the antibiotic on the first day of the investigation without knowing the responsible bacteria for the disease, broad-spectrum antibiotics are frequently used. When broad-spectrum antibiotics are used, they kill not only the offending bacteria but also other bacteria that may contribute to the development of antibiotic resistance. [16]

The KAP of medical professionals regarding antibiotics is shown in Table 2. Out of the 56 total respondents, 43.6% agreed that viral infections can also be treated with antibiotics, 2.4% strongly agreed, 14.2% were neutral, 27.1% disagreed, and only 12.7% strongly disagreed. Most respondents (60.2%) agreed that the pharmacodynamics of antibiotics and anti-inflammatory drugs are different, but some of them (12.7%) claimed that the pharmacodynamics of antibiotics and anti-inflammatory drugs are identical. Nearly 50% of those surveyed.

Table 1: Demographic details

Variable	n=56 (%)
Total Experience	
0–3 Years	71.6
3–6 Years	17.3
6–9 Years	9.7

9–12 Years	1.4
Length of service in current facility	
0–1 Years	60.7
1–2 Years	21.6
2–3 Years	12.4
3–4 Years	5.3

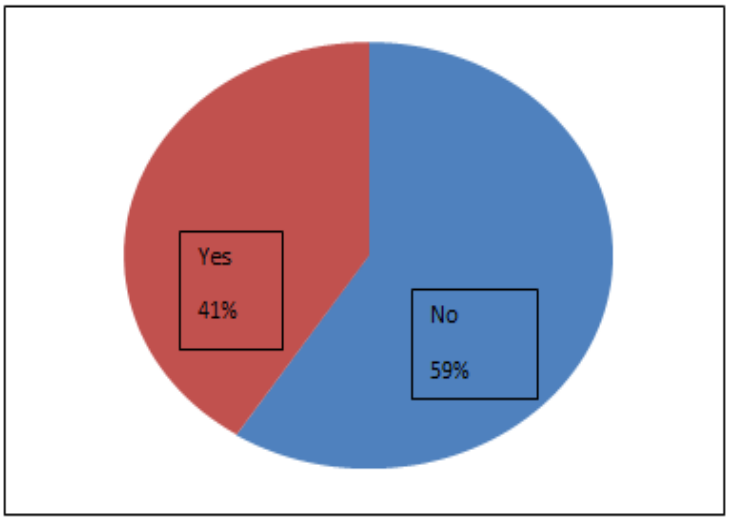

Figure 1: Prescribe antibiotic on first day of patient's investigation

Table 2: KAP of Medical Professionals towards antibiotics

Statement	Strongly Agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly Disagree (%)
Virus infection as well bacterial infection can be treated by the use of antibiotics	2.4	43.6	14.2	27.1	12.7
Pharmacodynamics of both the antibiotic and anti-inflammatory drugs is same	2.2	12.7	16.3	60.2	8.6
Antibiotic resistance is increasing day by day this is the result of using antibiotic in excess	53.7	35.3	6.6	2.4	2.0
Resistant antibiotic becomes sensitive again at higher doses than before	17.8	49.7	12.5	17.6	2.4
Diseases like common cold needs antibiotics for the treatment	1.2	6.4	12.5	51.5	29.6
Antibiotic resistance is the major problem in current scenario of public heath	60.3	27.1	8.8	1.1	2.7
Awareness program should be conducted to educate the common people for safe use of antibiotic	72.2	23.8	2.7	0.5	0.8
Pharmacist can sell the antibiotics without any prescription	8.3	4.2	4.6	38.4	44.5
Self-medication is increasing day by day, it can lead to antibiotic resistance	57.4	35.3	2.6	2.9	1.8
%: Percentage, KAP: Knowledge, attitude, and practice					

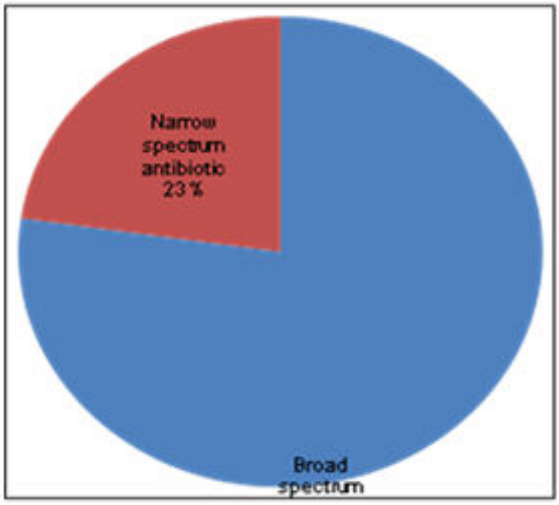

Figure 2: Kind of antibiotics generally prescribed

Only a small percentage of respondents (6.4%) agreed that antibiotics can be used as a treatment for colds, despite the large percentage of respondents who marked that antibiotics cannot be used in the treatment of the common cold. The viewpoint of the respondents about antibiotic resistance is a topic for further study. The majority of respondents (60.2%) seemed to confirm that antibiotic resistance is growing daily and is becoming a significant public health issue. Out of all the respondents, 53.7% listed excessive antibiotic use as a contributing factor, and 57.4% identified self-medication as a contributing factor. Self-medication is a result of dispensing drugs by a pharmacist without any prescription. When we asked medical professionals about the statement that is it correct to sell antibiotics without prescription: 44.5% seems to strongly disagree, 38.6% were disagree, and along with it 8.3% and 4.2% found to be strongly agreed and agree respectively with the statement. After analysis, it was found that respondents were known with antibiotic resistance and concerned with excess use of antibiotic, but at the same time majority of respondents (50%) agree and 17.8% are strongly agree that a resistant antibiotic can become sensitive again if administered with higher dosage. Respondents also believed that intervention to common people can help in reducing antibiotic resistance. Out of all the responses: 72.2% were strongly agree and 23.8% were agree with conducting the awareness program for common people to make them understand the safe use of antibiotics.

Table 3: Policy for Antibiotics

Statement	Yes (%)	No (%)
Hospital/Clinic in which you working has any regulation or policy to prescribe	16.3	83.7
While prescribing the antibiotic you consider hospital's regulation or policy	14.2	85.9
%: Percentage		

Table 3 shows the policies that are applicable to the use of antibiotics in healthcare facilities and how they are put into practise when antibiotic prescriptions are made. The majority of respondents (83.7%) had no policy regarding the use of antibiotics in their working spaces, whereas 16.3% had some restrictions in place in their serving spaces. A policy cannot be considered effective until it is put into practise. Out of the 16.3% of respondents who said they had a policy, just 13% said they took it into account while prescribing and utilising antibiotics.

CONCLUSION

The KAPs of medical professionals toward antibiotic use and prescription behaviour are the subject of the current investigation. All responders are aware of antibiotic resistance and how it affects treatment, according to the statistical study. Even after being aware of antibiotic resistance, the majority of respondents continued to use broad-spectrum antibiotics and prescribe antibiotics on the first day of the investigation, both of which can contribute to antibiotic resistance. Only the implementation of an antibiotic usage and prescription policy will be able to stop this kind of practice. Respondents in the current survey share the preceding studies' perception that self-medication and excessive use are potential causes of resistance. Awareness campaigns for the general public should be launched to help them comprehend the dangers of self- and excessive medication use in order

to halt self-medication. The majority of respondents to the study opposed pharmacists selling medications without a prescription, as was found. As a key player in dispensing, the pharmacist by just not administering any medication without a prescription, the prescribed medications can aid the most in reducing or eliminating self-medication. Respondents' insightful remarks furthered our study's findings in every way. The majority of survey participants agreed with the policy regarding antibiotics but opposed self-medication and excessive antibiotic use.

ACKNOWLEDGEMENT
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A Study on the Dietary Consumption Pattern of Adolescents and Intake of High Salt Foods and Frequency of Mealtimes during the Coronavirus Disease-19 Lockdown

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ABSTRACT

Background: Stress levels rose and physical activity levels dropped as a result of the lockdown constraints brought on by COVID-19. It has been widely established that adolescent arterial blood pressure (BP) readings and sodium intake are related. Globally, especially during lockdown, consumption of processed meals heavy in salt has increased.

Aims & Objectives: The present study aimed to analyze the dietary pattern of adolescents during the COVID-19 lockdown and to assess the changes in the consumption pattern of adolescents for high salt foods and the risk of overweight during the COVID-19 lockdown.

Methodology: To provide a basic understanding of the dietary habits of the adolescent population with regard to high salt foods, a food frequency questionnaire was created. A Google Forms online form was made because of the lockdown and social isolation. The study included 64 samples, all of which were from middle- to high-class backgrounds.

Results: All of the subjects reportedly salt-seasoned their meals. Adolescents admitted to eating 1-3 servings of high-sodium packaged meals, papads, pickles, and frozen ready-to-eat foods every day. Except for the consumption of packaged crisps (P = 0.04), there was no discernible relationship between salt intake and body mass index (BMI) in the teenagers (P = 0.56). The link between the likelihood of metabolic syndrome and the frequency of meals was shown to be highly significant (P = 0.00).

Conclusion: It was determined that chronically consuming too much salt increases the risk of metabolic syndrome and can lead to hypertension. The COVID -19 lockdown caused people to stay at home more often, which increased the frequency of meals eaten and had a direct impact on BMI.

Keywords**:** Adolescents, Coronavirus disease-19, high salt foods, Lockdown, Mealtimes, Overweight.

INTRODUCTION

Coronaviruses are RNA encapsulated viruses that infect humans, other mammals, and birds. They can lead to respiratory, gastrointestinal, hepatic, and neurological conditions. Prior to the outbreak of severe acute respiratory syndrome in Guangdong Province, China, in 2002 and 2003, these viruses were not thought to be particularly dangerous to humans. Instead, coronaviruses that were circulating at the time generally caused minor infections in healthy individuals. [1] A group of people were admitted to hospitals in late December 2019 with the first diagnosis of pneumonia with an uncertain origin. Epidemiological evidence connected these patients to a wholesale market for seafood and wet animals in Wuhan, Hubei Province, China. [2] When a coronavirus disease (COVID)-19 illness first appears, fever, coughing, and fatigue are the most typical symptoms. Other signs and symptoms include sputum production, headache, hemoptysis, diarrhea, dyspnea, and lymphopenia. The COVID-19 pandemic was acknowledged by the WHO, who also acknowledged this crisis. [3] Growth, long-term health promotion, and the formation of eating habits are all influenced by nutritional intake during adolescence, the period between childhood and adulthood. Due to the rapid growth and development that occurs during adolescence, total nutrient requirements are higher than at any other point in the life cycle. The quantity of nutrition you consume at this time may affect your health long-term. As an illustration, being overweight as a teen is linked to being overweight as an adult. [4] Childhood obesity, which raises the risk of non-communicable diseases, has become more prevalent over time. It poses a serious threat to the public's health, hence solving it is crucial. Enhancing physical activity and encouraging good eating, such as consuming more fruits and vegetables, can help avoid childhood obesity. The average adolescent consumes less produce than the minimum 400 grammes per day advised by the WHO and FAO. [5] It is encouraged that young people establish and maintain healthy lifestyles as crucial preconditions for the decline of disorders and diseases linked to nutrition, such as cardiovascular diseases. [6] Because of this, a change made at this age has a significant impact on and improves the quality of life for the population of future adults.

Increased sodium chloride (salt) intake during childhood causes high blood pressure (HBP), which increases the risk of adult-onset hypertension as well as the early onset of cardiovascular diseases like myocardial infarction,

cardiac failure, and stroke, ventricular hypertrophy, proteinuria, osteoporosis, and stomach cancer. Both adults and children are known to be at risk for hypertension due to high sodium intake and obesity. According to studies, among US children and adolescents, high sodium intake is positively correlated with systolic blood pressure (SBP) and the risk for developing pre-hypertension or high blood pressure, and this correlation may be stronger in individuals who are overweight or obese. [7]

High dietary salt intake may be linked to an increased risk of obesity in children, according to evidence, which is likely mediated by a rise in the consumption of sugar-sweetened beverages (SSBs). Following dietary salt administration, plasma sodium levels rise and thirst is induced to maintain fluid homeostasis, which encourages fluid consumption. It has been suggested that a high-sodium intake may cause SSB consumption to increase because SSBs are widely available and a common component of many children's and adolescents' diets. This may not always be the case, though, as other studies have found a link between dietary sodium intake and obesity that is independent of SSB consumption and energy intake. Furthermore, it's likely that high dietary salt intake and obesity are related through additional processes. [8,9] International nutritional targets have been established for sodium chloride (5 g/day) or salt (2 g/day), fruit and vegetable consumption (400 g/day), and other nutrients because of their effects on illness prevention and maintaining health status. [10]

Due to the increased use of processed foods rich in sodium rather than natural foods that are low in sodium and high in potassium, salt consumption in children and adolescents is rising globally. According to a study on adolescents aged 11 to 18 years, those with the highest quartiles of SBP and diastolic blood pressure consumed significantly more sodium on average (3.1 g/day) and on average (1.4 g/day) from snacks. Snack consumption of sodium, which made up almost half of the average daily sodium intake, was significantly related to adolescent BP readings. [11]

The study's objective is to determine how the COVID-19 lockdown has affected adolescents' consumption of high-salt foods, the number of meals they eat each day, and their risk of becoming overweight as a result of altered dietary patterns.

METHODS AND MATERIALS

Purposive convenience sampling was used to choose study participants from all around India. Both boys and girls who met the criterion for adolescent age made up the samples. Boys between the ages of 13 and 20 and girls between the ages of 11 and 18 were chosen for the study. Teenagers from medium-high socioeconomic status made up the majority of the samples because contact with those from lower socioeconomic status was impossible due to lockdown and social segregation.

Each individual gave their consent before participating in the study, and they were assured that the information they provided would be kept completely confidential. A Google Forms-created online form with two sections was used to collect data from the participants. The participants' background information was gathered in the first section, and questions about their dietary intake were asked in the second section using a food frequency questionnaire.

The data collected with the help of food frequency questionnaires included:

- Intake of high salts foods
- Added salt intake
- Processed and ultraprocessed food intake
- The no. of meals consumed in a day.

The questions contained information about the portion sizes according to which the participants were expected to select the frequency of that food they consumed.

RESULTS AND DISCUSSION

The analysis showed that 5.3% of the respondents never ate packaged crisps or fried chips, followed by 22.7% who consumed 1-3 servings per month, 25.3% who consumed one serving per week, 17.3% who consumed two servings per week, 13.3% who consumed three servings or more per week, and 12% who consumed one serving per day, two servings per day, and more than three servings per day. The fact that half of the respondents said they ate chips once a week and that some reported eating a lot of chips is significant. When food that is rich in carbohydrates and low in proteins is cooked at a high temperature or goes through thermal processing at temperatures of 12°C or higher, acrylamide, which is formed, is present in large amounts in packaged crisps and fried chips. It is created through a Maillard reaction, which occurs when the free amino acid asparagine is

heated in the presence of reducing sugars or other carbonyl compounds and undergoes decarboxylation and deamination.

Acrylamide is a potent clastogen and has been identified as a possible human carcinogen. In a research by Normandin et al.,[12] the median total daily consumption of acrylamide was estimated to be 0.29 mcg/kg bw/d based on the 2-day food diary, as opposed to 0.17 mcg/kg bw/d based on the food frequency questionnaire. These findings suggest that teenagers' dietary acrylamide intake has to be decreased.

The simplest technique to lengthen a food product's shelf life is to add preservatives. Preservatives, particularly the synthetic form, have been associated to a number of negative effects, including the development of cancer, cardiac issues, and breathing difficulties. The ability of preservatives to transform into carcinogens is one of the most detrimental effects they have on food products. Nitrosamines, a preservative with nitrites and nitrates that combine with gastric acids to form cancer-causing agents, are present in some food products. [13]

A general increase in blood pressure and other health hazards occur when salt consumption rises above what the body physically requires. Blood pressure increases harm the arteries and are a major factor in heart attacks and strokes, which are the leading causes of mortality worldwide. Recent trials and cohort studies revealed that consuming too much salt has negative effects on blood pressure that last into adulthood. [14] High salt consumption also carries the risk of contributing to calcium losses through the urine, which can result in bone demineralization and significantly raise the risk of osteoporosis, a condition that makes bones brittle and breakable. While studies have shown that the impact of salt on calcium metabolism can be seen in children and persist into adulthood, osteoporosis is most frequently found in older adults. [15]

Additionally, because ready-to-eat meals are processed, the majority of their nutritional value is lost, rendering them nutritionally worthless. These foods are empty calories, which not only have no positive effects on one's health but also don't keep one full for very long. [16] Long-term high-sodium diets may raise blood pressure and raise the risk of heart disease, stomach cancer, and early death. To find out if these effects hold true for everyone, more analysis is required.

According to the f-test in Table 1 above, P 0.05, there is no discernible relationship between teenage body mass index (BMI) and salt intake. The findings imply that there was no association between higher salt consumption and BMI. However, research indicates that salt consumption has a favourable relationship with BMI and the prevalence of overweight/obesity. Although consuming more salt does not directly result in weight gain, salty foods are high in calories, and more salt also makes you thirstier, which encourages you to drink more water. Teenagers enjoy SSB, and consuming too much salt might lead to weight gain. The average daily salt intake of the respondents, as shown in Tables 3 and 4, was 2 teaspoons, or around 10 g of salt and 4 g of sodium. According to the interpretation of Table 1, the WHO recommends consuming 5 g of salt and 2.3 g of sodium daily. Adolescents consume twice as much salt as is recommended, and their salt intake rises further with the consumption of high-salt meals such packaged foods and foods with preservatives, which are known to be favourites of adolescents during snack time. In a study by Ponzo et al.[11], it was discovered that, with increasing frequency of salty snack eating, the mean sodium intake from snacks was 1.4 g/day. It was determined that teenage BP values were substantially correlated with sodium intake from snacks, which was about half of the normal daily sodium intake. The relationship between salt intake and body weight, however, was insignificant with a P value of 0.328.

The association between the number of meals eaten each day and BMI, as shown in Table 2, was determined using the Chi-square test. The highly significant correlation between the number of meals and BMI is indicated by P = 0.00. The respondents who ate more meals per day fell into the category of overweight and obese people. Only 15.38% of the respondents who were underweight consumed 6 meals per day, compared to 38.46% who ate 3 meals, 23.07% who ate 4 meals, and 15.38% who ate 5 meals. Nearly half of the respondents who reported eating three meals per day were underweight, demonstrating a strong correlation between the number of meals consumed daily and BMI. Additionally, the majority of respondents (65.21%) in the normal category reported eating four meals every day, indicating that these teenagers had normal BMI. It was evident that as the number of meals grew, BMI increased in the group of adolescents who ate five meals per day, with 25% and 50% of them being overweight or obese, respectively. During the COVID-19 lockdown, staying at home and having easy access to food increased the number of meals consumed by adolescents, which directly affected their BMI because more meals mean more calories consumed, which causes an individual to become overweight and eventually obese.

Table 1: Relationship between salt intake and BMI of the respondents

BMI and salt intake	No. of respondents	Mean±Std. deviation	df	F	P
<0.25 tsp	3	27.68±0.88	5	0.809	0.563
0.25 tsp	4	17.84±5.96	66		
0.5 tsp	5	24.64±5.23	75		
1 tsp	8	23.76±6.36			
2 tsp	7	22.84±8.63			
More than 2 tsp	10	24.22±6.59			
Do not know	27	23.27±4.87			
Total	64	22.39±5.74			
BMI: Body mass index					

Table 2: Relationship between the no. of meals consumed in a day and BMI

No. of meals consumed in a day	Underweight	Normal	Overweight	Obese	Total	P-value
3 meals in a day						
Count	5	2	1	1	9	0.000
% within R_BMI BMI	38.46%	8.69%	12.5%	5%	14.06%	
4 meals in a day						
Count	3	15	2	4	24	
% within R_BMI BMI	23.07%	65.21%	25%	20%	37.5%	
5 meals in a day						
Count	2	1	2	10	15	
% within R_BMI BMI	15.38%	4.34%	25%	50%	23.43%	
6 meals in a day						
Count	2	4	1	5	12	
% within R_BMI BMI	15.38%	17.39%	12.5%	25%	18.75%	
More than 6 meals in a day						
Count	1	1	2	0	4	
% within R_BMI BMI	7.69%	4.34%	25%	0.0%	6.25%	
Total						
Count	13	23	8	20	64	
% within R_BMI BMI	100.0%	100.0%	100.0%	100.0%	100.0%	
BMI: Body mass index						

Table: 3

	Mean ± Std. Deviation	No. of respondent
What is your daily average consumption of salt?	5.49 ± 1.63	64

Table: 4

	What is your daily average consumption of salt?
Weight in kg	
Pearson Correlation	-0.122
Sig. (2-tailed)	0.324
N	64

CONCLUSION

However, there was no discernible correlation between BMI and sodium intake from the various foods chosen, which made up nearly half of the average daily intake. The research revealed no correlation between salt intake and BMI. Furthermore, evidence-based programmes that encourage people to consume less sodium, move more, and achieve or maintain a healthy weight may help to lower the higher than anticipated prevalence of HBP and other risk factors for cardiovascular disease among adolescents.

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Community Health Workers' Coping Mechanisms and Work-Related Stress of Santosh University, Ghaziabad

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ABSTRACT
Background: Understanding the stress that community health workers (CHWs) experience at work may help in developing interventions to entice and motivate healthcare workers to work in distant and underserved areas while also ensuring the quality of care.

Objectives: The goal of this study was to identify the sources, prevalence, and coping mechanisms of occupational stress among CHWs.

Methods: In Primary Health Centers in Santosh university, Ghaziabad 280 CHWs participated in this cross-sectional survey from January to April 2019. Both the stress level and coping mechanism were evaluated using the Occupational Stress Index and the Brief COPE scale, respectively. Use was made of descriptive statistics and the Chi-square test. $P \leq 0.05$ was regarded as significant.

Results: 45.7% of workers reported experiencing occupational stress. Significant correlations were found between stress at work and stressors like low participation, powerlessness, low status, and unprofitability. To cope with stress, CHWs employed a variety of coping mechanisms, including active coping, self-distraction, denial, substance abuse, behavioural disengagement, venting, positive reframing, humor, and self-blame.

Conclusion: To make CHWs 'stress-free, 'stress intercession programmes could be implemented on a regular basis. Higher levels of stress could hinder employees' performance, thus managing this is essential. In a similar vein, encouraging healthy coping mechanisms like active coping is important for stress management.

Keywords: Auxiliary nurse midwife, accredited social health activist, community health workers, coping strategy, multipurpose workers, occupational stress.

INTRODUCTION

The healthcare services are made more accessible to the general public by community health care, ensuring that everyone has access to them. Their presence at the local level aids in the "effective, democratic, and sustainable delivery" of health care to even the most remote regions. [1] Notably, in low- and middle-income nations, they have integrated seamlessly into health services and are seen as a pragmatic solution to the shortage of medical professionals. They offer a wide range of services, from basic health promotion and education to more specialised treatment including maternal and child health, tuberculosis, and HIV/AIDS care, as well as the implementation of national programmers at the local level and the eradication of malaria. [2-5] When primary health care was first established, its main goals were to achieve the Sustainable Development Goals (SDGs) and provide universal health coverage while also offering a wide range of services, including prevention, treatment, management, rehabilitation, and palliation. Strong primary health care requires highly qualified and driven healthcare professionals. [6-9] As a whole, stressors can be described as events or other behaviours that may have an impact on wellbeing. [11] Stress can be viewed as a psychological threat where a person sees a situation as potentially dangerous. [12]

Extreme strain can have a negative impact on performance overall, and stressed-out medical professionals often experience worsening depression. This depression can therefore lead to additional psychological health problems, such as excessive alcohol use, excessive drug use, or poor coordination at work and in interpersonal settings. [13] The entire area of learning, accomplishing, and adjusting to a new environment is thus called upon by work-related pressures, where a lot of material must be assimilated quickly. [14] Workplace stress is reportedly rising exponentially, according to numerous reports from throughout the world.

Healthcare practitioners that frequently participate in community services experience unrecognized stress. Workplace factors that may contribute to occupational stress include working hours, pay for completed work, the organization's structure and culture, career advancement (problems with advancement and the risk of losing one's job), the job itself (obligations to others), and interpersonal relationships with superiors, partners, and subordinates. [15-18] Particularly in various geographical sections of the nation, the overall perspective remained understudied. To better understand occupational stress among community health workers (CHWs) in

a region of Karnataka, the current study was undertaken. Its objectives were to identify its prevalence, origins, level, and coping mechanisms.

METHODS AND MATERIALS

Study Setup and Design: From January to April 2019, a cross-sectional study was carried out in a few Primary Health Centers (PHCs) in Santosh University, Ghaziabad. Study population and sampling strategy

The study population consisted of multipurpose workers (MPWs), auxiliary nurse midwives (ANM), and accredited social health activists (ASHA) who worked in PHCs. To choose the study subjects, a two-stage sampling procedure was used. Out of a total of 28 PHCs, 17 (or 60 percent) were chosen in the first stage by lottery. All CHWs employed by the chosen PHCs were included in the study during the second phase. The Ghaziabad District Health Office provided the complete list of health professionals.280 CHWs in all were investigated.

Data Collection – Tools and Techniques

The method for gathering data was a self-administered, pretested structured questionnaire. For convenience and participant understanding, the questionnaire was translated into the vernacular language (Kannada).

The tool consisted three parts: First part contains socio demographic characteristics of the study population (age, sex, marital status, years of experience, types of residence, monthly salary, etc.); second part - Occupational Stress Index (OSI); and the third part - Brief COPE Scale:

Occupational Stress Index

The individuals' occupational stress was evaluated using a well-established and popular OSI in the Indian setting (Srivastava and Singh 1981). The survey has 46 items with five possible answers on a Likert scale of 1 to 5, where 5 is for strongly agreeing, 4 is for agreeing, 3 is for unsure, 2 is for disagreeing, and 1 is for strongly disagreeing. For the purpose of evaluating occupational stress, the total score on this scale was taken into account. The level of stress is inversely correlated with OSI score. 46 items were further divided into 14 categories, including role overload, role ambiguity, role conflict, unreasonable political and group pressures, responsibility for people, under participation, powerlessness, poor peer relationships, intrinsic undernourishment, low status, taxing working conditions, and unprofitability. [19] Low level of occupational stress (total score: 46–122), moderate level of occupational stress (overall score: 123–155), and high level of occupational stress (according to the scale scores) were categories for the CHWs' occupational stress (total score: 156–230). This classification of the score was based on mean and standard deviation with reference to the Egyptian study. [20]

BRIEF COPE Scale

Dr. Charles Carver's Short COPE was used to evaluate a wide range of coping mechanisms in people with or without clinical issues. It consists of 28 items, and each one was scored on a Likert scale with four possible outcomes: "I haven't been doing this at all as Never (score 1),' 'I haven't been doing this much as Frequently (score 3")," "I haven't been doing this at all as Rarely (score 2"),' and 'I have been doing this a lot as Frequently (score 4").The higher score demonstrates that the participants were more capable of coping. The items were scored to produce 14 measurements, each reflecting the use of a different coping strategy: active coping, planning, acceptance, denial, self-distraction, substance use, use of emotional support, use of instrumental support, behavioural disengagement, venting, positive reframing, humour, religion, and self-blame.[21]

Validity/reliability of the tools

A pilot research was conducted in a similar survey setting before the main study to evaluate the viability and dependability of the study's methodology. A total of 28 CHWs were involved in the pilot project. Some of the surveys were changed after the pilot study. Two or more experts were consulted in order to maintain the validity of the instrument, and Cronbach alphas were calculated to assess the reliability of the scales. The Cronbach alpha for the OSI was determined to be 0.701, whereas the Cronbach alpha for the Brief COPE scale is 0.856.

The Ethical Issues

The K S Hegde Medical Academy's institutional ethics committee gave the study the go-ahead (Ref: INST.EC/EC/134/201819, date of approval: October 9, 2018). The District Health Officer of Dakshina Kannada was also officially consulted before moving on. Patients were given patient consent declaration forms after being informed of the study's goal. The study only included participants who consented to participate. The assurance given to CHWs was that involvement wouldn't interfere with their regular duties. A study was not conducted using incomplete questionnaires.

Statistical Analysis

With the help of SPSS (Statistical Package for Social Science) version 23, the data were coded, inputted, and analysed. Frequency and percentage were used to describe sociodemographic factors. The data's normality was evaluated using the Shapiro-Wilk test. Since the data were not regularly distributed, association tests like Chi-square and likelihood ratio were used. P 0.05 was used to define statistical significance. Using the geometric mean formula 2 x x 1. 2, the mean prevalence for moderate and severe stress was computed (low stress was disregarded because it was viewed as usual stress for every job).

RESULTS

280 healthcare professionals took part in the study overall. Among them, there were 23 MPWs, 196 ASHA, and 61 ANM. The average participant age was 37.94± 7.65 years, and 206 (73.57%) of the participants were female. The majority 198 (70.71%) were married, 207 (73.92%) had a family of five or fewer, and 216 (77.14%) were home owners. Married individuals had 308 (91.9%) children under the age of 2.200 (75%) of the 196 ASHA employees said they received performance-based incentives, the majority of whom(83[47%]) earned less than Rs. 1000/month. In the PHCs where they were employed, every participant said they had a vacant position that they had to fill in addition to their regular duties the tenth grade

The distribution of occupational stress among CHWs is shown in Table 1. An average of 45.7 percent of CHWs were found to have occupational stress. It was shown that the mean score for occupational stress was 128.52±12.38, with a range of 90-158. The overall occupational stress score was 194. According to the findings, the majority (69.64 percent) of CHWs had moderate levels of occupational stress, with severe and low levels of stress occurring in 23.21 percent and 7.14 percent of cases, respectively.

Table 1: Prevalence and level of occupation stress (n=280)

Characteristics	**N (%)**
Level of occupational stress	
Low	20 (7.14)
Moderate	195 (69.64)
Severe	65 (23.21)
Occupational stress	
Mean prevalence	128 (45.7)

Table 2: Coping strategies adopted by community health workers (n=280)

Coping Strategies	**Never, n (%)**	**Rarely, n (%)**	**Occasionally, n (%)**	**Frequently, n (%)**
Self-distraction	52(18.57)	78(27.86)	103(36.79)	47(16.79%)
Active coping	17(6.07%)	69(24.04%)	93(33.21%)	101(36.07%)
Denial	58(20.71%)	112(40%)	84(30%)	26(9.29%)
Substance use	196(70%)	49(17.50%)	27(9.64%)	8(2.86%)
Use of emotional support	19(6.79%)	97(34.64%)	85(30.36%)	79(28.21%)
Use of instrumental support	12(4.29%)	71(25.36%)	122(43.57%)	75(26.79%)
Behavioural disengagement	23(8.21%)	101(36.07%)	92(32.86%)	64(22.86%)
Venting	87(31.07%)	99(35.36%)	73(26.07%)	21(7.50%)
Positive reframing	34(12.14%)	72(25.71%)	118(42.14%)	56(20%)
Planning	20(7.14%)	74(26.43%)	124(44.29%)	62(22.14%)
Humour	97(34.64%)	83(29.64%)	88(31.43%)	12(4.29%)
Acceptance	27(9.64%)	69(24.64%)	101(36.07%)	83(29.64%)
Religion	8(2.86%)	72(25.71%)	103(36.79%)	97(34.64%)
Self-blame	84(30%)	101(36.07%)	79(28.21%)	16(5.71%)

Table 2 lists the coping mechanisms used by CHWs.According to CHWs, they never employ substance abuse or comedy as stress-reduction techniques.

Table 3: Association of occupational stress with occupational factors and stressors (n=280)

Characteristics	**Total**	**Low (%)**	**Occupational Stress Moderate (%)**	**High (%)**	**p-**value
Years of experience					
<5	107	32(29.91)	68(63.55%)	7(6.54%)	

5-10	131	28(21.37)	94(71.76%)	9(6.87%)	0.01*
>10	42	6(14.29%)	33(78.57%)	3(7.14%)	
Incentives per month (n=160)					
< 1000	80	21(26.25%)	58(72.50%)	1(1.25%)	
1000-2000	42	10(23.81%)	27(64.29%)	5(11.90%)	0.001*
>2000	38	7(18.42%)	29(76.32%)	2(5.26%)	
Monthly salary (n=220)					
<5000	138	32(23.19%)	98(71.01%)	8(5.80%)	
5000-10,000	28	4(14.29%)	23(82.14%)	1(3.57%)	0.014*
10,000-15,000	9	1(11.11%)	7(77.78%)	1(11.11%)	
15,000-20,000	11	3(27.27%)	7(63.64%)	1(9.09%)	
>20000	34	6(17.65%)	26(76.47%)	2(5.88%)	
Occupational stressors					
Role overload	280	15(5.36%)	142(50.71%)	123(43.93%)	0.167
Role ambiguity	280	128(45.71%)	98(35%)	54(19.29%)	0.144
Role conflict	280	62(22.14%)	162(57.86%)	56(20%)	0.269
Unreasonable group and pp	280	50(17.86%)	148(52.86%)	82(29.29%)	0.211
Responsibility for persons	280	59(21.07%)	175(62.50%)	46(16.43%)	0.360
Under participation	280	78(27.86%)	112(40%)	90(32.14%)	0.032*
Powerlessness	280	154(55%)	109(38.93%)	17(6.07%)	0.01 **1**
Poor peer relations	280	117(41.79%)	142(50.71%)	21(7.50%)	0.725
Intrinsic impoverishment	280	103(36.79%)	152(54.29%)	25(8.93%)	0.059
Low status	280	165(58.93%)	110(39.29%)	5(1.79%)	0.018*
Strenuous working conditions	280	57(20.36%)	97(34.64%)	126(45%)	0.232
Unprofitability	280	27(9.64%)	84(30%)	169(60.36%)	0.001*

Occupational Stress Index score=46-122 (low), Score=123-155 (moderate), Score=156-230 (high), *P<0.05. PP: Political pressure

Table 3 shows how many demographic characteristics and occupational stress are related. Years of experience (P = 0.01), monthly incentives (P = 0.001), and monthly compensation (P = 0.016) were all found to be strongly correlated with occupational stress.

Nevertheless, there was no evidence of a relationship between occupational stress and other sociodemographic characteristics, including age, gender, education, job title, the population studied, the quantity of field trips, and monthly income.

Significant correlations were found between different stressors, including limited participation, powerlessness, low status, and unprofitability, and occupational stress. It was evaluated whether there is an association between coping mechanisms and job stress. According to statistics, there is a substantial correlation between professional stress and numerous coping mechanisms such self-distraction, active coping, denial, substance use, behavioural disengagement, venting, positive reframing, humour, and self-blame. However, no proof of a connection between work-related stress and coping mechanisms including planning, acceptance, and religion was discovered.

DISCUSSION

It was discovered that 40.5% of CHWs experienced occupational stress. Most CHWs (69.64%) had a moderate level, followed by low (23.21%) and high (7.14%) levels of. In the current investigation, occupational stress. The typical score of the score for work stress was 128.52±12.38 the conducted research. It was discovered in Neelamangala that the bulk of the frontline health Workers experience moderate stress (52.1%), then mild stress (17.9%), Stress (37.1%) and extreme stress (107.%).[22] while these statistics between findings matched on the level of stress There are differences between these two research. According to the current study, there is no correlation between demographic factors such age, gender, occupation, education level, and the number of field visits per week and the overall population within their administrative area that experiences occupational stress.

Additionally, there is no evidence of a significant relationship between sociodemographic factors and stress in t he study by Spoorthy et al. [22] However, the current study found a substantial correlation between occupationa l stress and years of experience, monthlyperformancebased bonuses, and compensation.Similar findings were m ade by a study carried out in North Ethiopia, which discovered that stress at work was highly correlated with so cio-emographic factors as sex, marital status, and work experience.[23]

Women working in the private sector were found to be more stressed than women working in the government, a ccording to a study done in Allahabad. A major source of stress was the job's competitive character and the incr eased pressure placed on the workers. The survey, however, did not specify the working environment for wome n. [26] Similar findings came from a study done in South Kerala, where it was discovered that women police off icers were under stress due to a personnel shortage and difficulty finding time to maintain excellent physical hea lth. [27] In the current study, it was discovered that factors linked with occupational stress, such as poor participation, powerlessness, low status, and unprofitability, were substantially related to CHWs. Likewise, a study carried out in the Netherlands and Economic independence was found to be the main issue in Ethiopia. There were high stressors among healthcare staff.[28,29] The disparity in the health work force may be a substantial factor .and differences amongst health professionals. Numerous coping mechanisms were discovered to be used by CHWs.in the current study to control their occupational stress. Healthy coping mechanisms include venting, active coping, Humor and constructive reframing had a strong correlation accompanied by work stress. Similar to avoidant coping mechanisms such as behavioural patterns including substance abuse, self-distraction, denial, and Self-blame and disengagement also played a big part.correlated with work-related stress in CHWs

According to a study done in Nigeria and Greece, health professionals employ positive self-talk, quitting, and seeking out social support as coping mechanisms to deal with their emotions. both physical and mental wellness.[23,30] In a similar vein, a research adopting a helpful coping mechanism among social worker slow-stress workplace strategy reduces work-related anxiety, but adverse An increase in workplace stress is caused by coping mechanisms. [31]A pretested standard was used in this investigation, which was its strength.to gauge the level of occupational stress, a questionnaire was used.From the chosen participants, an overall sample was drawn for the study. PHCs. The study's flaw, however, was the way that it was conducted.the utilization of occupational stresses to determine the causality Due to cross-sectional data, how to accurately anticipate occupational stress design. Furthermore, because the questionnaire was self-administered, recall bias may have been more prevalent, and there was no way to confirm or validate that the answers provided by the healthcare professionals were accurate, genuine, and true.

CONCLUSION

Among Mangalore taluk CHWs, occupational stress was present 45.7% of the time. The study made it clear that factors including low participation, helplessness, Low standing and lack of profitability were the main causes of work-related stress an increase in compensation,A structured professional path and respect may be guaranteed for CHWs to perform more effectively. Then, a more detailed explanation Analysis is required to determine how using coping mechanisms impacts work-related stress.

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Amitraz Poisoning: A Clinical Challenge, Underestimated and Overtreated

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ABSTRACT
Amitraz is the most effective ectoparasiticide that kills a variety of ectoparasites in animals. Unfortunately, it affects these organisms' nervous systems, leading to paralysis and death. Underdiagnosed and frequently confused with organophosphorus poisoning, human poisoning is a serious problem. Unfortunately, the clinical spectrum resembles organophosphorus poisoning and is typically treated excessively, which may have severe clinical repercussions. We present a case of a 47-year-old male who presented in emergency with suicidal ingestion of unknown poisoning about 2 hours back. General condition was critical, with low GCS requiring immediate intubation and mechanical ventilation. The patient was treated successfully in the intensive care unit with the necessary supportive care and prompt treatments. There is no effective antidote for human use so far. Supportive intensive care holds the key to a successful outcome.

Keywords**:** organophosphorus, Atropine, serum cholinesterase , CNS depression

INTRODUCTION

Amitraz is a formamidine-derived insecticide that disperses in organic solvents like acetone, toluene, and xylene. Before using it on animals, triazapentadiene, a centrally active alpha-2 adrenergic agonist, must be diluted in water using a 1:100–1:1000 ratio. Amitraz is used as an ectoparasite to control demodicosis in canines, ticks, and mites in cattle and sheep. Human exposure can be accidental and suicidal via inhalation, skin exposure and oral ingestion. The minimum toxic dose in humans reported by Jorens PG et al. is 3.57 mg/kg [1], and the onset of action takes about 30 -180 minutes following ingestion[2, 3]. Most cases manifest as sudden CNS depression, observed within 30 – 90 minutes, with complete recovery in 24-48 hours [4]. The other standard clinical spectrum of amitraz poisoning in humans includes:- altered sensorium, vomiting, miosis, respiratory failure, hyponatremia, bradycardia, hyperglycemia, seizures, hypotension, hypotonia, atrial fibrillation, ventricular arrhythmia, cerebral oedema, ataxia, hallucination.[5]

CASE REPORT

Two hours before arriving at the emergency room, a 47-year-old man attempted suicide by ingesting an unknown poison. Gastric lavage and activated charcoal started to delay absorption, and supportive care started. On arrival patient was unconscious, GCS 3/15, Bilateral pupils constricted, non-reacting to light with mute planters. Vitals at the time of admission were HR – 98/min, BP – 136/78 mm /hg, RR – 18/ min, temperature - 96*f, spo2 – 90% on room air and 98 %on 4 L O2 support through the face mask. Immediately patient was intubated, and mechanical ventilation started. Initially, as per the clinical presentation, given very high suspicion of OPC poisoning, injection of atropine and pralidoxime started along with other supportive care. All blood tests, urine toxicology screening, and serum cholinesterase levels were sent. The patient had ingested around 15 ml of amitraz (12.5) Niltik (see Fig. 1), according to subsequent questioning of family members, as the family had been sharing the empty bottle. The case was discussed with the AIIMS Poison Cell National Helpline number, and advice was considered and implemented. Injection PAM stopped, injection atropine stopped, and supportive measures continued. The patient's hemodynamic status and other clinical parameters were stable; thus, we initiated weaning. The patient's miosis resolved with B/L pupils of 2-3 mm size, with a normal reaction to light. The patient's consciousness started improving after 24 hrs of mechanical ventilation; in 36 hours, he had regained a GCS of 15/15. The patient was weaned off from mechanical ventilation on day two and successfully discharged from the hospital on day four after psychiatric consultation. His routine laboratory evaluations and serum cholinesterase and urine toxicology were within normal ranges.

Fig 1. Amitraz bottle contains 125 mg Amitraz per mL.

DISCUSSION

Amitraz is an alpha-2 adrenergic agonist and mimics clonidine in its manifestations. It acts as an agonist on both pre and post-synaptic adrenergic receptors. In our patient, the dose consumed was 15 ml of 12.5 %solution, about 1875 mg of amitraz which is far above the toxic dose in humans. The onset of action was within 60-90 minutes, and there was a gradual recovery in about 24-48 hours. Predominant manifestations were altered sensorium, GCS 3/15, miosis, and hypothermia. All these manifestations could be attributed to pre-synaptic receptor stimulation that inhibits norepinephrine discharge, while stimulation of post-synaptic receptors leads to clinical effects similar to alpha stimulation. Hypothermia is related to the inhibition of prostaglandin E2 synthesis.

No specific antidote is available for Amitraz poisoning, and treatment remains symptomatic and supportive. Few patients might develop respiratory failure, hypotension, hypothermia, vomiting and seizures. Atropine is often used to treat symptomatic bradycardia; miosis alone does not warrant atropine use [6]. Although pralidoxime has frequently been used as an OPC imitator, it must be stopped as soon as possible once amitraz toxicity has been formally diagnosed. A lot of alpha 2 adrenergic antagonists in the animal model study have been shown to reverse the effects of amitraz. Yohimbine, an alpha 2 adrenoreceptor antagonist, tends to reduce amitraz-induced hyperglycemia[7], CNS depression [8,9], bradycardia, [10]sedation, hypotension, loss of reflexes, bradypnoea and mydriasis

Atipamezole, a new alpha 2 adrenergic antagonists, also showed similar effects with fewer adverse effects compared to yohimbine.

For amitraz poisoning, supportive measures such as hemodynamic stabilisation, respiratory support, mechanical ventilation, atropine, excellent hydration, inotropic support, oxygen delivery, reduction of toxic chemical absorption, and methods to improve toxin removal from the body are all goals of treatment. Amitriptyline toxicity can be recognised from organophosphorus poisoning by a mothball-like odour, hypoglycemia, hypothermia, decreased gastrointestinal motility, absence of fasciculation, increased salivation, lacrimation, sweating, and diarrhoea. Organophosphorus poisoning cannot be diagnosed based on a normal serum cholinesterase level. An average level of Serum Cholinesterase rules out organophosphorus poisoning

CONCLUSION

Amitraz intoxication mimics organophosphorus poisoning and is often misdiagnosed. Current identification requires a vigilant search for empty bottles or clues related to the kind of insecticides at work or at home becomes critical to avoid deleterious effects of overtreatment. Good supportive care holds the key until antidotes are available for human use to treat amitraz poisoning. More awareness of amitraz poisoning and clinical along with a spectrum of manifestations might help to overcome the clinical challenge.

Conflict of interest - none

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Relative Bradycardia in Covid 19

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ABSTRACT

Background: Ever since the news of COVID 19 in other countries and the virus itself reached India, the nation was looking up into various symptoms to curb the disease, to understand the disease.

Result: The present study discusses of 34 cases with RTPCR-confirmed mild-to-moderate coronavirus disease of COVID 19 showing relative bradycardia.

Conclusion: As the number of cases of COVID 19 cases has been dipping daily, it is advisable that physicians consider the possibility of various Covid manifestations while examining patients. This clinical sign could help clinicians to diagnose this disease.

Introduction: Covid 19 infection, which was first reported as a cluster of pneumonia, from Wuhan, China, in December 2019, has rapidly emerged as a global pandemic. However, the recent trend from the country shows a decrease in daily and total cases has crossed a certain mark, according to Health Ministry. Though the Covid 19 infection is acute, it can trigger several inflammatory pathways. The present study deals with cases having relative bradycardia. Pulse rate usually increases 18 beats/min for each 1°C increase in body temperature.[1] However, in some specific infectious diseases, pulse rate does not increase as expected, a condition called relative bradycardia. High fever (temperature >39°C) for patients with coronavirus disease (COVID-19) has been reported, [2,3] but the association between fever and pulse rate has not been investigated. We investigated relative bradycardia as a characteristic clinical feature in patients with mild-to-moderate COVID-19.

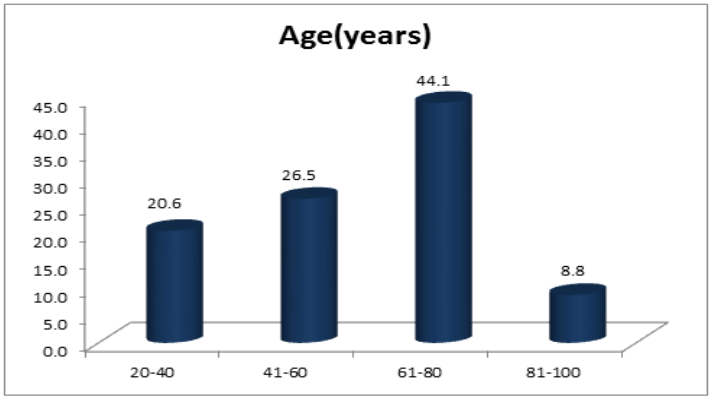
MATERIALS AND METHODOLOGY

Retrospective analyses of routinely collected clinical records of COVID-19 patients were approved by the ethics committee during July to November2021, we identified all adult hospitalized patients with COVID-19 at Santosh Hospital, Ghaziabad, U.P. We confirmed diagnoses of COVID-19 by using reverse transcription RTPCR. Patients who had known factors that could affect pulse rate (e.g. concurrent conditions or medications) were excluded.

Observation and Results

Table No. 1 Age distribution

Age (years)	Total(n=34)	%
20-40	7	20.6
41-60	9	26.5
61-80	15	44.1
81-100	3	8.8
	34	100



The bar chart illustrates the various age groups at 20 year intervals.

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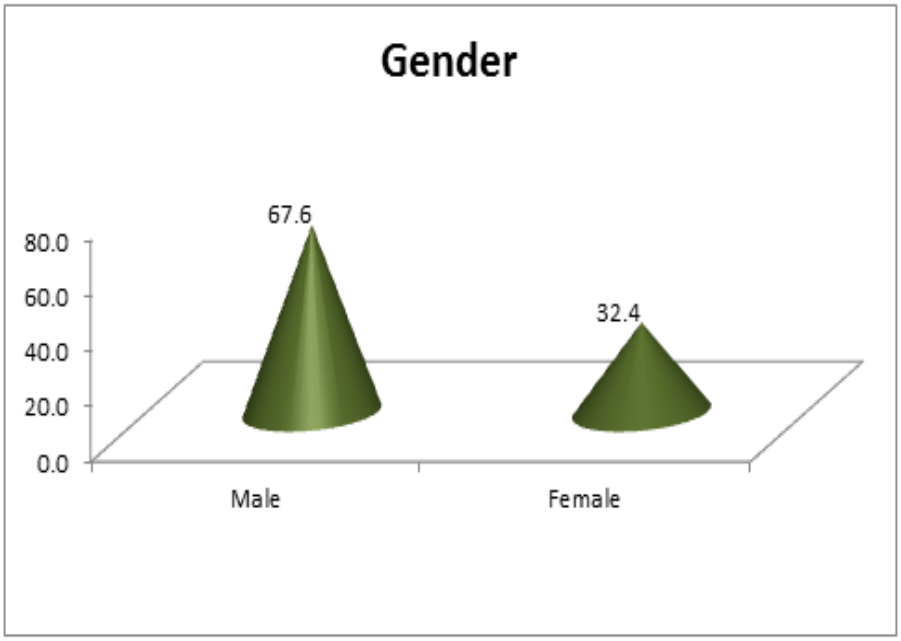
Table No. 2 Gender distribution

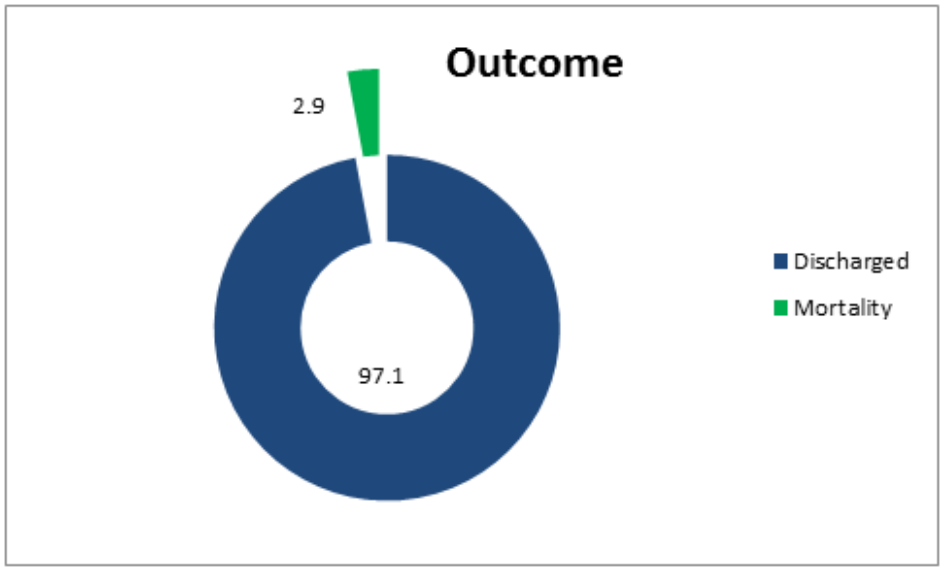
Gender	Total(n=34)	%
Male	23	67.6
Female	11	32.4



It can be seen that the number of males are significantly more than the females in all the decades.

Table No. 3 Outcome distribution

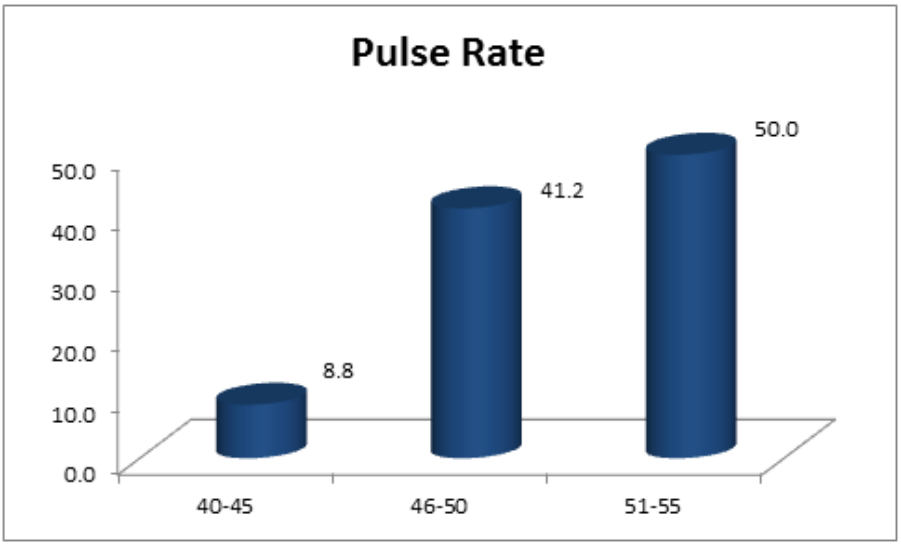
Outcome	Total(n=34)	%
Discharged	33	97.1
Mortality	1	2.9



This pie chart describes a large group of infected individuals were discharged (97.1%) where as there was only 2.9% mortality which occurred in the study population.

Table No. 4 Pulse rate distribution

Pulse Rate	Total(n=34)	%
40-45	3	8.8
46-50	14	41.2
51-55	17	50.0



DISCUSSION

Infectious disorders such as typhoid fever, legionnaire's disease, Chlamydial pneumonia, , and Ebola hemorrhagic fever can cause relative bradycardia, which is characterised by a lack of compensatory increase in heart rate despite having high fever. (4) Although the precise mechanisms of relative bradycardia are unknown, direct pathogenic effects on the heart muscle, the production of inflammatory cytokines (granulocyte colony-stimulating factor, interleukin-6, tumour necrosis factor-a), have all been documented. (5)

In a study done in China on 138 COVID-19 patients (6) it was described that 36 patients hospitalized to the intensive care unit had a mean heart rate of 89 beats per minute, with one fourth of them being diagnosed with heart failure where as half of them were who developed arrhythmias and had acute heart injury. However, neither the types of arrhythmia nor the variations in heart rate over the course of their illness were documented. (7-9)

Peigh et al. reported two occurrences of sinus node pain that started suddenly and didn't go away. (10) Direct viral invasion or inflammation can lead to sinus node dysfunction.

Despite acute pneumonia, high fever, and hypoxemia, our patients had relative sinus bradycardia and no compensatory increase in heart rate. Patients were appropriately sedated, and there were no complications. Beta-blockers or inotropic drugs were utilised. As a result, our individuals met the criteria for relative bradycardia and the bradycardia was not brought on by a medication. Not only is there sinoatrial node dysfunction as a result of direct viral infection, but there is also cardiac damage as a result of the inflammatory process.

In addition to relative bradycardia, this condition could worsen hypoxemia. Although the exact mechanisms of COVID-19-induced relative bradycardia are unknown.

Relative bradycardia could be one of the cardiovascular consequences and a key clinical hallmark of COVID-19, and it could be complex.

The clinical implications of relative bradycardia in COVID-19 are as follows: (1) it may be beneficial as a clue for suspecting COVID-19, because separating COVID-19 pneumonia from acute pulmonary edema from CT abnormalities is typically challenging and (2) It can cause a drop in cardiac output and worsen systemic oxygen deficit, particularly in patients with acute heart failure. As a result, the occurrence of relative bradycardia must be closely monitored. More research and more systematic data collection will be required to test our theory in a wider sample of COVID-19 patients with varying degrees of severity. This could lead to a better understanding of the prevalence of relative bradycardia as a possible COVID-19 clinical indicator, as well as therapy implications.

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Evaluation of Anthropometric Milestones (Mental Foramen and Angle of Mandible) in Determination of Gender in the Local Population- A Retrospective Study

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ABSTRACT

Aim: To determine the Gender in the Localized population by evaluating the location of Mental Foramen and Angle of Mandible in Panoramic Radiographs, the study further intends by comparing the distance between the superior border of Mental foramen to the lower border of mandible [S-L(x)]and Inferior border of the Mental Foramen to the lower border of mandible[I-L(y)] for males and females and, to find out the ratio between the superior border of Mental foramen to the lower border of mandible [S-L(x)]and Inferior border of the Mental Foramen to the lower border of mandible[I-L(y)] for males and females on panoramic radiographs using RAY SCAN software, to evaluate the angle of mandible for males and females on panoramic radiographs using RAY SCAN software and finally, to evaluate the possibility of any correlation exists between these parameters to come out as a useful tool in gender identification .

Material and Methods: The purpose of the study to include total of 300 panoramic radiographs, 150 radiographs of males and 150 of female individuals above 18 years of age undergoing conventional OPG for diagnostic, periodontal, surgical, or orthodontic purposes reffered from the Department of Oral Medicine and Radiology, Santosh Dental College and Hospital, were examined. Firstly, the distance between S-L and I-L were calculated and the their ratio were taken. Secondly, Gonial angles were measured using a method described by Mattila et al. The measurements thus obtained were subjected to discriminant functional analysis.

Results: The comparison of **S-L and I-L** between **males** and **females** showed a very high statistically significant difference (P value – 0.00) while the comparison of the mean ratio of **S-L: I-L** between males and females showed a statisticallyinsignificant difference (P value > 0.05). The mean **Gonial angle** among males and females showed a high statistically significant difference (P value – 0.00).

Conclusion: The distance between **S-L and I-L** and Gonial angles can be used as an important forensic tool in investigations regarding gender identification.

Keywords**:** Anthropometry, gender identification, orhopantomograph

INTRODUCTION

Forensic Odontology, or forensic dentistry was defined by Keiser-Neilson in 1970as “that branch of forensic medicine which in the interest of justice deals with the proper handling and examination of dental evidence and with the proper evaluation and presentation of the dental findings.Forensic Odontology is an important component of modern day investigations for the identification of people in mass disasters, accidents and pandemic situations or where the victim's bodies cannot be recognized by visual methods.[1]In human bones, skull and pelvis are the most reliable sources for gender determination. When only skull remnants are remaining, the identification of person becomes difficult, and in such cases, mandibular structures play a vital role.

Mandible is the hardest and most durable bone of the skull, exhibiting a high degree of sexual dimorphism.[2]Studies have shown differences between gender in the height of mandible, gonial angle, bigonial breadth, bicondylar breadth, and position of mental foramen (MF).[3]Therefore, the use of morphological features of the mandible is a common approach used by anthropologists and forensic odontologists in the determination of gender. It forms the lower jaw and holds the lower teeth in place. Presence of a dense layer of compact bone makes it very durable and very important for identification.[2]Among many anatomical landmarks in human skull, the mental foramen is a stable landmark on the mandible.[4]It is paired, present lateral to the mental protuberance (chin) on the body of mandible, usually inferior to the apices of the mandibular first and second premolars.[2] Radiographs are indispensable tools that also aid in forensic investigations. (Principal advantages of panoramic images are their broad coverage, low patient radiation dose, short time required for image

acquisition and have proven to be a very good source for retrospective studies.Studies have been reported that panoramic radiographs are reproducible and accurate for the linear and angular measurements on mandibles.[5]

Radiographically, mental foramen appears as either round, oblong, slit-like or very irregular radiolucent area which is partially or completely corticated. MF is located in the body of mandible midway between the inferior and alveolar margins. Panoramic radiographs (orthopantomogram [OPG]) show bilateral location MF, mandibular foramen, ramus, angle, and body of the mandible. OPG allows more accurate location of the MF in both horizontal and vertical dimensions.[6]Studies comparing different radiographic methods to assess the location of the mental foramen have suggested that digital panoramic radiographs show least error in the imaging of the mental foramen. [7]

Few studies have focused on mandibular angle, its alternations throughout aging, and changing relation to dental status. The lower jaw angle is formed by the ramus line (RL) and the mandibular line (ML), where RL is the tangent to the posterior border of the mandible and ML is the lower border of the mandible through the gnathion (gn).Jensen E and Palling M preferred to call this structure gonial angle[12].

Morphological alterations in the gonial region have been researched thoroughly in young individuals but very few research has been done for gender determination. To date there has been limited research into gender differences between the anthropometric milestones together noticing any change in parameters in regards to gender.

Internationally and nationally, studies have been conducted in an attempt to correlate gender with mandibular parameters but at present, there are no known studies conducted on the North Indian Population. The present study was conducted to better understand the alteration in the gonial region and mental foramen and to correlate with gender determination.

Materials and Methods

Thepurpose of the study to comprised a total of 300 panoramic radiographs, 150 radiographs of males and 150 of female individuals above 18 years of age undergoing conventional OPG for diagnostic, periodontal, surgical, or orthodontic purposes done in the Department of Oral Medicine and Radiology, Santosh Dental College and Hospital, were examined.

Digital panoramic radiographs were taken using the digital panoramic radiography machineRayscan, with a total filtration of 2.5 mm Aluminium (Al) equivalent.Digital panoramic radiographs were viewed using Rayscansoftware.

Inclusion criteria and exclusion criteria for the selected radiographs were as follows:-

Exclusion Criteria included any kind of distortion of images, Presence of artefacts, Surgical interventions, Presence of any pathology, Patient under 18 years and non-visualization ofmental foramen.

Inclusion Criteria

Only radiographs with good quality & clearly seen mental foramen, lower border of mandible and ramus of the mandible and borders of condyle were included in the study.

Parameters Assessed Were

S-L= Vertical distance between superior border of mental foramen to lower border of mandible(Fig:2).

I-L= Vertical distance between inferior border of mental foramen to lower border of mandible(Fig:2).

Then the ratio of S-L:I-L was calculated.

The **gonial angles** were measured using a method described by Mattila et al.A line was digitally traced on the panoramic radiographs tangential to the most inferior points at the gonial angle and the lower border of the mandibular body and another line tangential to the posterior borders of the ramus and the condyle.The intersection of these two lines formed the gonial angle, which was measured either on right or left side depending upon the accuracy of the image(Figure:1).

STATISTICAL ANALYSIS

The data obtained from radiographs were tabulated and subjected to Statistical Analysis using SPSS V.20.The data was analysed for any co-relation between the S-L, I-L and Gonial Angle between Male and Female by using Independent t test which is a parametric test.

RESULTS

Study conducted in the department of oral medicine and radiology revealed that the mean distance of **S-L** among males was 14.92 ± 1.51mm(Figure:1) and the mean distance of S-L among females was 13.34 ± 1.32 mm(Figure:2) which depicts that the mean distance of S-L is higher in males as compared to females.(Figure 4)The mean distance of **I-L** in males was 11.69± 1.52 mm and the mean distance of I-L in females was 10.37 ± 1.22mm which depicts that the mean distance of I-L is higher in males as compared to females(Figure 1&2)which were in accordance with **Mahima et al's**[8] study conducted in South Indian population,**Chandra et al.'s**[4]study conducted in North Indian population,[6] **Thomas et al.**[9]and **Catovie et al.'s**[10] studies conducted in different parts of the world.

The mean distance between the superior border of the mental foramen to the lower border of mandible and Inferior border of the Mental Foramen to the lower border of mandible among males and females was analyzed using**Independent sample t – test**. The comparison of **S-L and I-L** between **males** and **females** showed a very high statistically significant difference (P value – 0.00) (Table:1)

The mean **Gonial angle** among males was 119.08± 6.94(Figure:1)whereas it was 121.04 ± 7.07among females(Figure:2) which depicts that the gonial angle was higher in females as compared to males(Figure:4) which were in accordance with the results of the previous studies conducted by Bhardwaj D et al,[11] Abu Alhaija ES et al,[12] Ghosh S et al,[13]Xie QF et al[14][1, 16, 28, 29] which reached the same conclusion..The mean**Gonial angle**among males and females was analyzed using**Independent sample t – test**. The comparison showed a high statistically significant difference (P value – 0.00).

The mean ratio of **S-L: I-L** in males was 1.28 ± 0.1whereas it was 1.28 ± 0.13in females. The comparison of the mean ratio of **S-L: I-L** between males and females showed a statistically non significant difference (P value > 0.05) (Figure-3).

DISCUSSION

Determining gender of an individual is considered an important aspect of forensic science. Many studies have been conducted using lip prints, finger prints, palatoscopy, blood grouping and DNA analysis in different populations of India to determine the gender.

Forensic odontologists are the experts who can help in determining gender of the victims with mutilated bodies due to major mass disasters or pandemic situations which are beyond recognition.

In the present study, we tried to establish a correlation in identifying male and female gender through the mandible by evaluating the ratio between the distance of superior border of mental foramen to the lower border of mandible (S-L) and inferior border of mental foramen to the lower border of mandible (I-L).

Our results show that the mean value of measurements from superior border of mental foramen to the lower border of mandible in males was 14.92± 1.51 mm and from inferior border of mental foramen to the lower border of mandible was 11.69± 1.52 which was significantly higher compared to females which was 13.34 ± 1.32 mm from superior border of mental foramen to the lower border of mandible and 10.37 ± 1.22 mm from inferior border of mental foramen to the lower border of mandible which were in accordance with **Mahima et al's**[8] study conducted in South Indian population,**Chandra et al.'s**[4]study conducted in North Indian population,[6] **Thomas et al.**[9]and **Catovie et al.'s**[10] studies conducted in different parts of the world.

On the basis of gender difference, the present study confirmed a statistically significant difference in Gonial angles. This study revealed that the females had statistically significant higher gonial angles (121.04± 7.07)compared to the males (119.08± 6.94). The gender difference was statistically significant in the Gonial angle where males have a lower value than females. Findings of the current study are in accordance with the results of the previous studies conducted by Bhardwaj D et al,[11] Abu Alhaija ES et al,[12] Ghosh S et al,[13]Xie QF et al[14][1, 16, 28, 29] which reached the same conclusion.Females having a higher gonial angle might be due to the remarkable impact of masticatory forces [1]. Particularly, it is observed that an individual with relatively higher masticatory forces has a small gonial angle and vice versa. This might also be due to gender hormonal differences; testosterone in males and estrogen in females affect bone metabolism, thereby showing visible changes in radiographs, and contributing to the development of craniofacial morphologic differences between genders.

Also, we calculated the ratio between the distance of superior border of mental foramen to the lower border of mandible (S-L) and inferior border of mental foramen to the lower border of mandible (I-L). The mean ratio of

S-L: I-L in males was 1.28 ± 0.1whereas it was 1.28 ± 0.13in females. The comparison of the mean ratio of **S-L: I-L** between males and females showed a statistically no significant difference (P value > 0.05).

CONCLUSION

Human identification has always been a significantly important task for society. Summing up the above discussion revealed that the outcomes of this study are in line with the previous relevant literature; using values of superior border of mental foramen to the lower border of mandible, inferior border of mental foramen to the lower border of mandible and gonial angles is significantly important and helpful in the determination of gender. Further, this can be equally used as an important forensic tool in investigations regarding gender identification. The study explicitly revealed that females had statistically significantly higher gonial angles than males, the mean value of measurements from superior border of mental foramen to the lower border of mandible and from inferior border of mental foramen to the lower border of mandible was significantly higher in males as compared to females but the ratio between the distance of superior border of mental foramen to the lower border of mandible (S-L) and inferior border of mental foramen to the lower border of mandible (I-L) showed statistically no significant difference between males and females.

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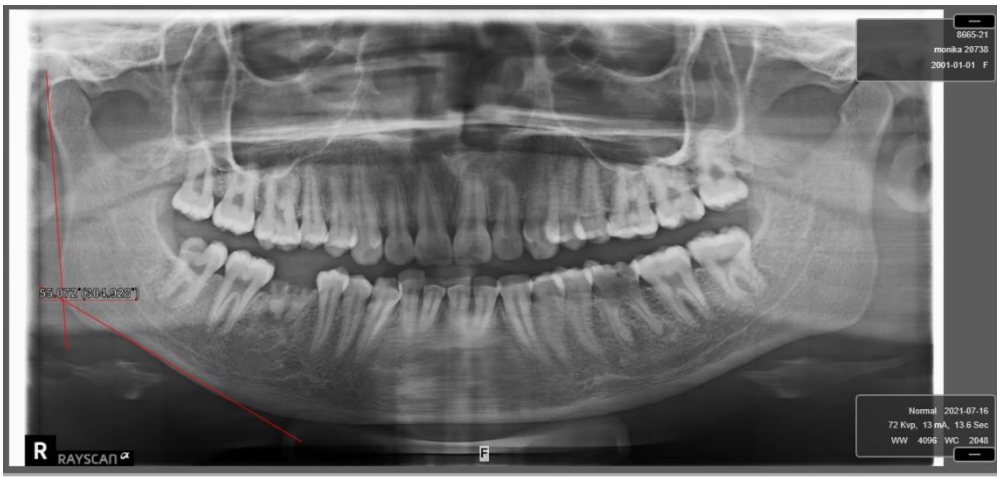

Figure: 1 Measurement of mandibular Gonial angle using a method described by Mattila et al.

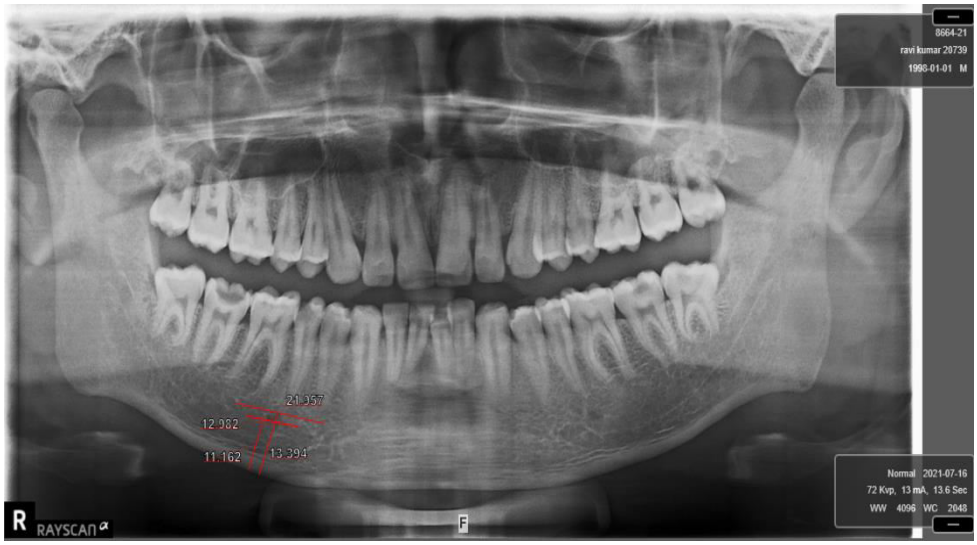

Figure: 2 Measurement of Vertical distance between superior border of mental foramen to lower border of mandible(S-L) and Vertical distance between inferior border of mental foramen to lower border of mandible(I-L).

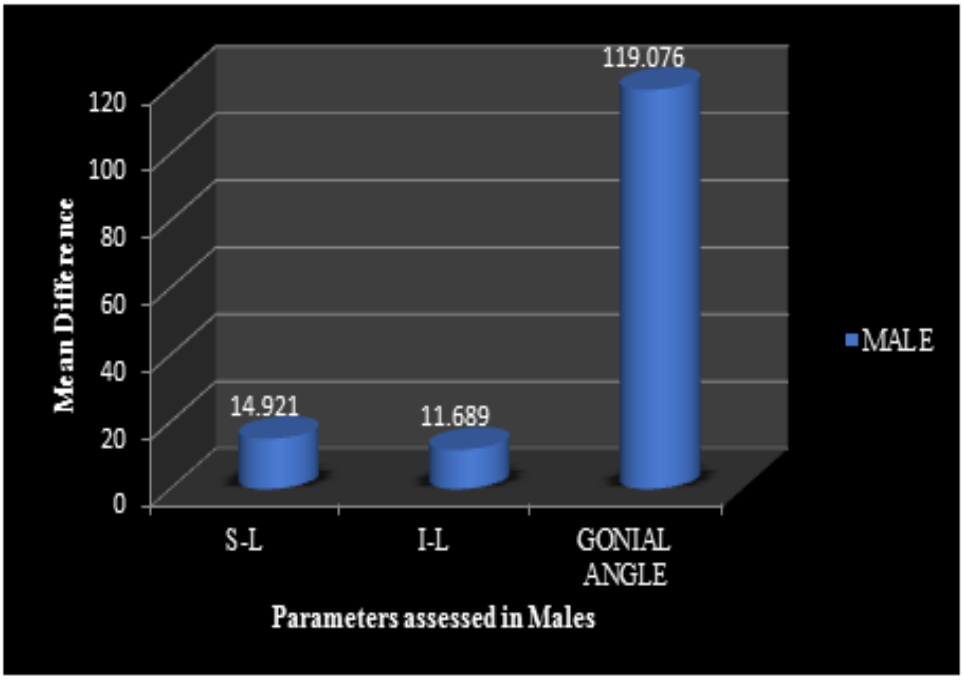

Figure: 1: Graph showing Mean differences in S-L, I-L and Gonial angle among Males.

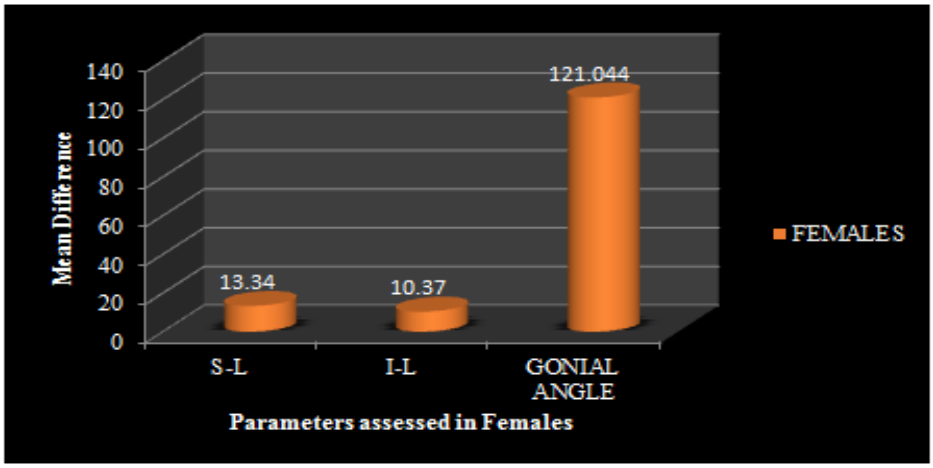

Figure: 2 Graph showing Mean differences in S-L, I-L and Gonial angle among Females.

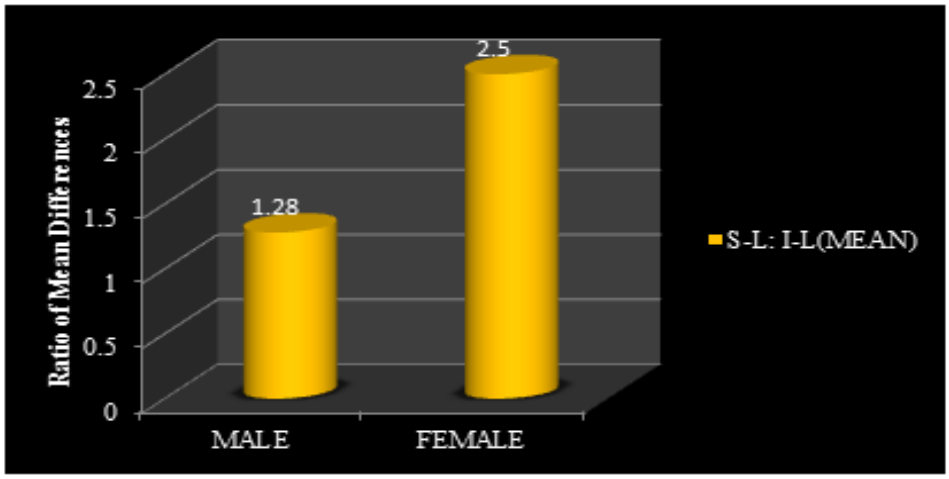

Figure: 3 Graph showing ratio of the mean differences between Male and Female.

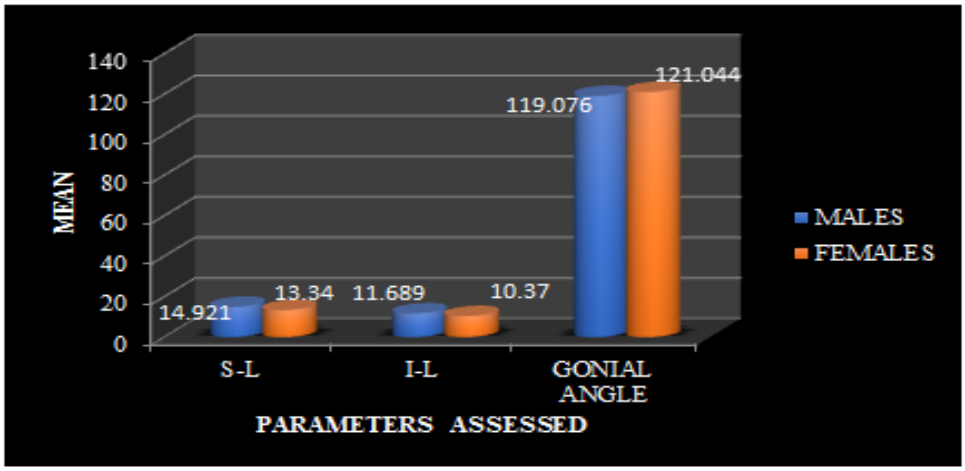

Figure: 4 Graph showing Mean differences between S-L, I-L and Gonial Angle among Males and Females.

Table: 1 Discriminant functional analysis for gender determination using the Gonial angles and Mental Foramen. S-L - Distance between the superior border of the mental foramen to the lower border of mandible and I-L - Distance between the Inferior border of the Mental Foramen to the lower border of mandible.

S.No	Variables	Male		Female		P- Value
		Mean	± Sd	Mean	± SD	
1	Age	37.79	11.342	36.22	± 10.76	0.219
2	S-L	14.921	1.51	13.34	± 1.32	0.00
3	I-L	11.689	1.52	10.37	± 1.22	0.00
4	Gonial angle	119.076	6.94	121.044	± 7.07	0.01
5	S-L : I-L	1.28	0.1	1.28	± 0.13	0.75

A Study to Evaluate the Effect of Ferrous Fumarate on Hemoglobin and Serum Ferritin Levels in Pregnant Women Attending Antenatal Clinic of the Department of Obstetrics and Gynecology

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ABSTRACT
Introduction:-Iron deficiency is the most common single nutritional deficiency in the world, affecting approximately one third (over 2 billion) of the world's population. Pregnant women are particularly at high risk for iron deficiency and iron-deficiency anemia because of increased iron needs during pregnancy. Iron supplementation during pregnancy is recommended universally even in non-anemic women. MATERIALS AND METHODS: It was a prospective, open label, randomized single-centered, 12-week study conducted over 120 pregnant women in age group of 18-35 years, attending the antenatal clinic of the Department of Obstetrics and Gynecology in collaboration with department of Pharmacology Santosh Medical College and Hospital, Ghaziabad. Result: Ferrous fumarate was a one of the best drug treatment in pregnant anemic patient that correct the Hemoglobin, PCV, MCV & Ferritin levels statistically significant after 12 weeks.

Keywords: - Iron, anemia, PCV, HB, MCV, Ferritin

INTRODUCTION

Iron deficiency is the most common single nutritional deficiency in the world,[1] affecting approximately one third (over 2 billion) of the world's population.[2] Pregnant women are particularly at high risk for iron deficiency and iron-deficiency anemia because of increased iron needs during pregnancy. The prevalence of iron-deficiency anemia in pregnant women is estimated to be between 35 and 75% (average 56%) in developing countries whereas in industrialized countries the average prevalence is up to 18%.[3, 4] The prevalence is very high in Central Asia, reported as being 87% in India. In India, about 90% of anemia cases are estimated to be due to iron deficiency.[5, 6]

Women in India and other developing countries are always in a state of precarious iron balance during their reproductive years. Their iron stores are not well developed because of poor nutritional intake, food habits, recurrent infections, menstrual blood loss and repeated pregnancies. Pregnancy is a time in which the risk for developing iron deficiency anemia is highest, because iron requirements are substantially greater than average absorbable iron intake. The fact that iron deficiency anemia frequently develops in pregnancy indicates that the physiologic adaptations are often insufficient to meet the increased requirements and the iron stores are inadequate to meet the increased iron needs required for red blood cell mass expansion in the mother as well as for the development of the fetus and the placenta.[7]

The iron requirement increases from a 0.8mg/day in the first trimester to 6 to 7mg/day in the second half of pregnancy.[7] Iron requirements may reach as much as 10mg/day during the last 6-8 weeks of pregnancy.[8] The recommended daily dietary allowance of ferrous iron during pregnancy is 27mg.[9] An average vegetarian diet does not provide more than 10 to 15mg of iron per day. Therefore, iron supplementation during pregnancy is recommended universally even in non-anemic women.[7, 10]

WHO recommends routine oral supplementation of 60mg elemental iron plus 400µg folic acid daily for 6 months during pregnancy in areas where the prevalence of anemia in pregnancy is <40%. In areas where the prevalence of anemia in pregnancy is ≥40%, it recommends the same dosages for 6 months and continuing for 3 months postpartum. [8]

The most widely recommended oral iron is ferrous salts. Ferrous sulfate, ferrous fumarate, and ferrous gluconate are all effective and inexpensive and are recommended for the treatment of most patients.[11-12]

Since ferrous sulfate tablets containing 50 mg or 100 mg of elemental iron are not available in India, so ferrous fumarate, which is almost similar in efficacy and side effect profile to ferrous sulfate, was included in the study to evaluate the effect of Ferrous fumarate on hemoglobin and serum ferritin levels in pregnant women attending antenatal clinic of the Department of Obstetrics and Gynecology of Santosh Medical college and Hospital, Ghaziabad, Uttarpradesh, India.

MATERIALS AND METHODS

This was a prospective, open label, randomized single-center, 12-week study conducted over 120 pregnant women in age group of 18-35 years, attending the antenatal clinic of the Department of Obstetrics and Gynecology, Santosh Medical College and Hospital, Ghaziabad.

Patients were selected in accordance with the following inclusion criteria:

- Pregnant women
- 18 to 35 years of age
- 14 to 32 weeks of gestation
- With or without anemia : Pregnant women who may not have developed anemia, could have deficient iron stores, therefore all pregnant women, with or without anemia, were included in this study.

Subjects with any of the following features were excluded from the study.

1. Pregnant women in the first three months of pregnancy.
2. Those already on any form of iron therapy.
3. Those having anemia other than iron deficiency type, such as sickle cell trait, megaloblastic anemia, thalassemia and hemoglobinopathies.
4. Those suffering from chronic diseases such as diabetes mellitus, chronic renal failure, liver disease, heart disease and rheumatoid arthritis and autoimmune disorders.
5. Those with a history of intolerance to iron preparations.
6. Patient with peptic ulcer, colitis or other ulcerative intestinal diseases.
7. Those on alternative forms of therapy.

Written informed consent was sought from all the patients included in the study, prior to enrolment and screening. Detailed history was taken and physical examination was carried out in conformity to pretested format prepared for the purpose.

Ferrous fumarate, 300mg tablet, containing 100mg elemental iron (Tab. Steadifer, Steadfast Pharma; 1 tablet orally once daily) was given to all eligible women who gave informed consent and patients were supplemented with 0.5 mg folic acid per day. A standard diet was advised to all subjects included in the study. The following extra-labeling instructions were given to all subjects:

- To be taken in between or just after meals
- Not to be taken with tea, coffee or milk
- May color the stools black
- May cause constipation or diarrhea
- May cause epigastric pain
- May cause nausea/vomiting
- Not to take any other drug, unless prescribed,

Therapy with iron was observed from the onset of the second trimester of pregnancy, at the time of booking (‘0’ week) and followed up at ‘6’ and ‘12’ weeks. The importance of iron in pregnancy and impact of compliance on the therapeutic response was stressed and explained to every patient at each visit.

The following hematological parameters were studied:

a) Hemoglobin

- A marker of the degree of anemia
- Studied at 0, 6 and 12 weeks

b) Serum ferritin

- An important indicator of the body iron stores
- Studied at 0 and at 12 weeks

Fasting venous blood samples (4 ml) were collected from antecubital vein; 2ml in Plain vial for serum ferritin estimation, 2ml in EDTA vial for estimation of haemoglobin.

In the present study the effect of Ferrous fumarate preparations was also compared by analyzing their effect on various hematological parameters like hemoglobin (Hb), red blood cell counts, packed cell volume (PCV), Mean corpuscular Volume (MCV) and serum ferritin level.

Hemoglobin Estimation
Hemoglobin was estimated by Cyanmethemoglobin method a WHO recommended method for haemoglobin estimation of blood. [13]

Serum Ferritin Estimation
The Plain vial samples were centrifuged for 10 minutes and the serum separated and stored at –20ºC till the assay was performed. The assay was performed as per the manufacturer's instructions. [14]

Calculation of Results
For the ferritin test 4-parameter fit with Lin-Log coordinate for optical density and concentration were used. Serum sample were read directly from standard curve.

Normal range: 15 – 200 µg/l (Females)

30 – 300 µg/l (Males)

Data Analysis
Quantitative data was analyzed using student's two-tailed Paired t-test for between the group comparisons. p-value < 0.05 was considered significant. Mean, SD and SE were calculated wherever applicable. The parameters were described in terms of Mean ± SD and/or percentages.

OBSERVATIONS & RESULTS
The present study was conducted over 120 pregnant women, attending the antenatal clinic of the Department of Obstetrics and Gynecology, Santosh Medical College and Hospital, Ghaziabad. Out of 120 subjects enrolled for the study, 30 left the study at the beginning and were excluded from the study. Out of 90 subjects, 74 (82%) completed the 12 weeks of study and 16 (18%) were lost to follow up after end of 6 weeks. The required parameters were recorded at three different intervals, at the start of study (0 week), at 6 weeks and at 12 weeks which were presented by following graph and Tables.

Table I: Hematological Parameters at Different Intervals With Ferrous Fumarate

At 0 week

	Hb (g/dl)	PCV (%)	MCV (fl)	RBC (million/mm^3)	Ferritin (µg/l)
Mean	10.07	33.71	75.87	4.45	15.92
S.D	1.53	4.38	8.77	0.53	7.47
S.E	0.27	0.76	1.53	0.09	1.30

At 6 week

	Hb (g/dl)	PCV (%)	MCV (fl)	RBC (million/mm^3)
Mean	10.53	35.54	78.16	4.56
S.D	1.39	3.65	6.66	0.38
S.E	0.24	0.64	1.16	0.07

At 12 week

	Hb (g/dl)	PCV (%)	MCV (fl)	RBC (million/mm^3)	Ferritin (µg/l)
Mean	11.12	37.59	80.46	4.68	19.77
S.D	1.26	3.46	6.57	0.43	7.88
S.E	0.27	0.64	1.22	0.08	1.46

- Ferrous fumarate, 300 mg tablet, containing 100mg elemental iron was given orally once a day.

- Hemoglobin, Red blood cell indices studied at the start of study i.e. 0 week, at 6 weeks and at 12weeks.

Serum ferritin was studied at 0 week and at 12 week

Fig. 1

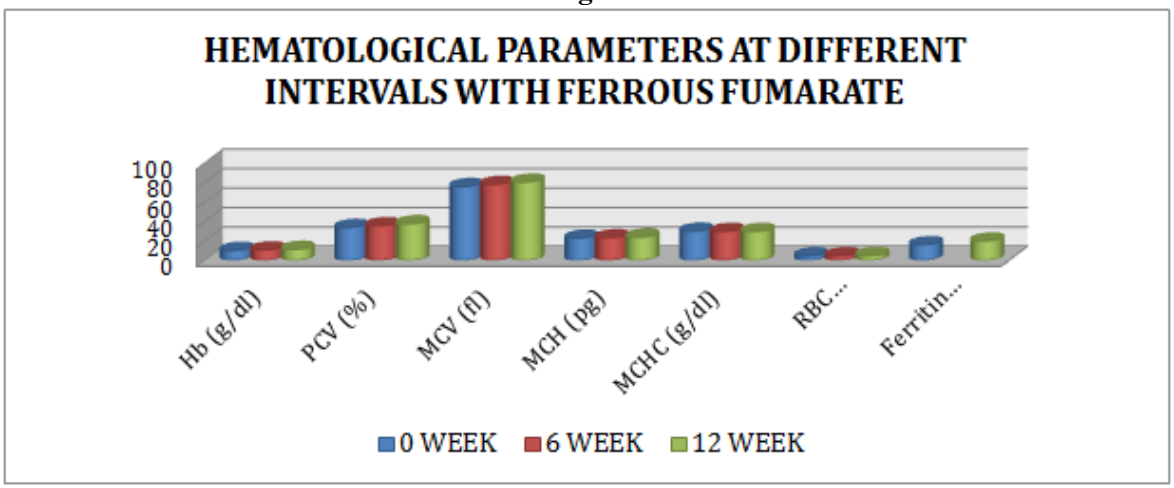

Table-2: Effect of Oral Iron Ferrous Fumarate on Hemoglobin Levels
(Mean ± SD in g/dl)

Drug	Study Period			p - value		
	0 weeks	6 weeks	12 weeks	0-6	6-12	0-12
Ferrous Fumarate	10.07 ± 1.53	10.53 ± 1.39	11.12 ± 1.26	NS	NS	*

NS : p value > 0.05 : Non Significant

* : p value < 0.05 : Significant

Table-3:- Effect of Oral Ferrous Fumarate on PCV
(Mean ± SD in %)

Drug	Study Period			p - value		
	0 weeks	6 weeks	12 weeks	0-6	6-12	0-12
Ferrous Fumarate	10.07 ± 1.53	10.53 ± 1.39	11.12 ± 1.26	NS	NS	***

NS: p value > 0.05 : Non Significant

***: p value < 0.001 : Highly Significant

Table-4: Effect of Ferrous Fumarate on MCV
(Mean ± SD in fl)

Drug	Study Period			p - value		
	0 weeks	6 weeks	12 weeks	0-6	6-12	0-12
Ferrous Fumarate	75.87 ± 8.77	78.16 ± 6.66	80.46 ± 6.57	NS	NS	*

NS : p value > 0.05 : Non Significant

* : p value < 0.05 : Significant

Table-5: Effect of Ferrous Fumarate on Serum Ferritin Levels
(Mean ± SD in µg/l)

Drug	Study-Period		p - value
	0 weeks	12 weeks	0 - 12
Ferrous Fumarate	15.92 ± 7.49	19.77 ± 7.88	****

****: p value < 0.0001 : Extremely Significant

DISCUSSION

Iron deficiency continues to be one of the most prevalent nutrient deficiencies in the world. Pregnant women are particularly at high risk for iron deficiency and iron-deficiency anemia because of increased iron needs during pregnancy. With increasing severity of anemia maternal morbidity and mortality progressively increases. Iron deficiency anaemia during pregnancy has been associated with increased risk for low birth weight, preterm delivery, and perinatal mortality.[15] Interventions are often designed to prevent the decrease in hemoglobin concentration and in the decline in iron stores associated with pregnancy. Oral iron supplementation is

recommended to prevent and treat deficiency since dietary absorption cannot keep up with the increased iron demands.

In the present study, the baseline values of Hemoglobin and other hematological parameters were not significantly different as shown in fig-1, and table 1.

The mean hemoglobin levels were 10.07 ± 1.53 g/dl at start of the study, which was raised to 10.53 ± 1.39 g/dl at 6 weeks and at 12 weeks these levels were 11.12 ± 1.26 g/dl. The rise in Hb levels from 0 to 6 week and from 6 to 12 weeks was not significant statistically, while the rise from 0 to 12 weeks was statistically significant as shown in Table-2.

The mean PCV levels at the start of study were 33.71 ± 4.38%, which were raised to 35.54 ± 3.65% at 6 weeks and at 12 weeks these levels were 37.59 ± 3.46%. The raised in PCV levels from 0 to 6 week and from 6 to 12 weeks be not significant statistically, while the raised in PCV from 0 to 12 weeks was highly significant statistically as shown in table 3.

The mean MCV levels at the start of study were 75.87 ± 8.77 fl which was raised to 78.16 ± 6.66 fl at 6 weeks and at 12 weeks these levels were 80.46 ± 6.57 fl. The raised in MCV levels from 0 to 6 week and from 6 to 12 weeks was not significant statistically, while the rise from 0 to 12 weeks was significant statistically was shown in Table 4.

The mean serum ferritin levels at the start of study were 15.92 ± 7.49 µg/l, which were raised to 19.77 ± 7.88 µg/l at 12 weeks. The rise in ferritin levels was extremely significant statistically as shown in Table-5.

The above results were in conformity to those reported by **Aronstam et al** who showed a significant rise in hemoglobin, PCV, MCV after 4 weeks of starting the therapy with ferrous fumarate. [16] **Milman et al** studied the comparative effect of ferrous fumarate (66 mg/day) with placebo and showed that rise in haemoglobin, serum iron and ferritin concentration was higher in supplemented group. [17]

CONCLUSION

- Iron deficiency anemia can be treated by Ferrous fumarate which was a one of the best drug treatment that can rise Hemoglobin, PCV, MCV & Ferritin levels statistically significantly after 12 weeks. So it is one of the effective drugs for treatment of iron deficiency anemia with cost effective way and lack of any severe adverse drug reaction.

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High Flow Nasal Canula in Postoperative Period for a Case of Morbidly Obese Patient with Obstructive Sleep Apnea Undergoing Commando Surgery: A Case Report

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ABSTRACT
Background: High flow nasal cannula (HFNC) has gained popularity as non invasive mode of ventilation post COVID. It has also proved to be helpful in obstructive sleep apnea (OSA).

Case: We hereby report a case of 50 yr female with growth in left buccal mucosa planned for COMMANDO surgery. Patient was morbidly obese with a history of OSA. Post extubation patient was put on HFNC to avoid desaturation.

Conclusion: HFNC is a good alternative to CPAP for OSA.

Keywords**:** HFNC, CPAP, OSA, Morbidly obese, COMMANDO surgery,

INTRODUCTION

Over the decade especially during COVID time High flow nasal cannula (HFNC) has become an increasingly important and popular mode of non invasive support for acute and chronic respiratory failure. High-flow nasal cannula (HFNC) therapy is an oxygen supply system capable of delivering up to 100% humidified and heated oxygen at a flow rate of up to 60 liters per minute.

Use of HFNC increases end expiratory pharyngeal pressure which has proved to be helpful in obstructed sleep apnea (OSA) which is due to upper airway obstruction. (1)

We herein report the use of HFNC in postoperative period on a morbidly obese patient with history of sleep apnea who underwent Combined Mandibulectomy and neck dissection operation (COMMANDO).

CASE REPORT

A 50 yr female, from low socioeconomic group, presented in surgery department with a progressively increasing growth in Left buccal mucosa of size 3.5x2 cm. Biopsy showed infiltrative squamous cell carcinoma grade II. Computed tomography (CT) showed a homogenous enhancing mass in left buccal mucosa extending into left gingivo buccal sulcus with level I B and II lymphnodes. She was planned to be taken up for COMMANDO surgery with PMMC flap reconstruction and was sent to anaesthesia department for preanaesthetic checkup.

Patient was morbidly obese with a BMI of 41.9 kg/m2. And was a known case of hypertension and hypothyroidism on regular treatment. She gave a history of inadequate disturbed sleep pattern, feeling sleepy during day time, snoring , fatique. Neck circumference was 47 cm. STOPBANG scoring was 6 which categorized her to be a high risk case of OSA.

Airway examination showed interincisor gap of 3cm, Malampatti grade III, Jaw protrution Grade III, Thyromental distance 5.9 cm , Hyomental distance 4cm . Neck flexion and extension were slightly restricted.

Systemic examination, labs (CBC, KFT, Elctrolytes, LFT, coagulation profile, thyroid profile), chest ray , ECHO were normal.

The problems anticipated to be faced by the anaesthetist in this case were Difficult Airway and postoperative airway obstruction.

Since the mouth opening was adequate we went for conventional laryngoscopy. Patient preoxygenated with 100% O2 induced with propofol and succinylcholine. Oxygen insuffulation done through one nostril to avoid desaturation during intubation and nasal intubation done through the other nostril using a bougie. Intubation done in single attempt . After placing 7mm flexometalic tube and checking the correct placement ETT fixed. Pt kept on closed circuit and ventilated on Volume control mode keeping TV – 450ml, RR 16, PEEP 7. Maintainence was done by Isoflurane, O2, N2O and vecuronium. Intraoperative period was uneventful. Duration of surgery was 8 hrs.

In view of difficult airway, edema and patient being at high risk of postoperative airway obstruction, we planned to electively ventilate the patient for 24 hours.

Patient was shifted to ICU on mechanical ventilator and kept on volume control mode with ongoing dexmeditomidine and vecuronium infusion. After 24 hrs sedation and muscle relaxant were stopped. Once the patient fulfilled the criteria she was extubated. Immediately post extubation patient SpO2 dropped to 82%.

In view of desaturation and being at high risk of OSA we had to choose an alternative over continuous positive airway pressure (CPAP) since only CPAP with full face mask were available in our setup and that could not be used because of the flap reconstruction. So we used HFNC post extubation keeping flow of 50 L/min. Patient was maintaining a saturation of 95 to 98%. She also slept comfortably with no episode of desaturation.

DISCUSSION

Obstructive sleep apnea (OSA) is a common disease of the head and neck respiratory tract with severe systemic ramifications. (2,3). It is characterized by multiple episodes of apnea or hypopnea during sleep resulting from partial and /or complete collapse of upper airway (4).

Polysomnography is the gold standard for diagnosis of obstructive sleep apnea.(5) In our patient due to the nonavailability of polysomnography diagnosis of OSA was made by the STOP-Bang questionnaire. A systemic review and metanalysis done by Nagappa et al validated the accuracy of STOP-Bang Questionnaire as a Screening Tool for Obstructive Sleep Apnea by polysomnography. It was seen the sensitivity was 90%, 94% and 96% to detect any OSA (AHI ≥ 5), moderate-to-severe OSA (AHI ≥15), and severe OSA (AHI ≥30) respectively . (6)

It is a proven fact that CPAP is the best remedy for patients with OSA (7,8) but the purpose of this case report is to show that places where CPAP is not an option HFNC can be used as an alternative.

In our case we just had an option of full face mask CPAP which could not be used because of the Pectoralis major myocutaneous (PMMC) graft. Even nasal canula CPAP would not have been affective in this case since it requires mouth to be closed and this may have displaced the graft.

HFNC delivers hot and humidified air through the nose. It is seen that HFNC exceeds the normal inspiratory flow rate, reducing the negative pressure generated during inspiration and in turn increasing the end expiratory pressure, thus reducing the tendency of airway to collapse. It decreases apnea hypopneic index in OSA pts.(9,10)

HFNC reduces the anatomical dead space by directly insufflating the air into the nose.

Additionally simplified nasal interface and delivery of low level of positive air pressure in HFNC also offers better compliance as compared to CPAP.

Still there is no literature available for use of HFNC in patients post COMMANDO surgery where airway obstruction can be commonly encountered.

CONCLUSION

HFNC to prevent postoperative airway obstruction is a good alternative to CPAP. Not only is it easy to use but also has good patient compliance.

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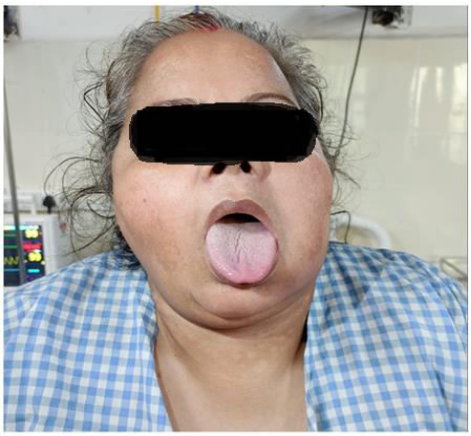

Fig 1. Shows patients mouth opening and Mallampatti grade of III and short neck.

Fig 2. Shows growth in Left buccal mucosa

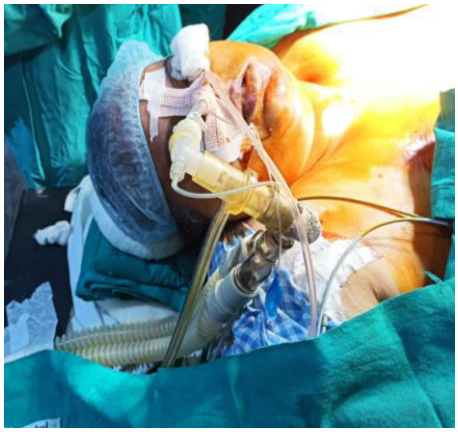

Fig 3. Patient on OT table with nasal endotracheal tube in situ.

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Fig 4. Patient on HFNC post extubation.

Laparoscopic Cholecystectomy under Segmental Thoracic Spinal Anesthesia: A Feasibility Study

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INTRODUCTION

Laparoscopic cholecystectomy is normally performed under general anesthesia, but regional techniques such as thoracic epidural and lumbar spinal and segmental thoracic spinal anesthesia have been emerging and found beneficial usually to manage patients with significant medical problems [1]. Encouraged by such experience, we performed a feasibility study study of segmental thoracic spinal anesthesia in a 10 ASA grade I patient using bupivacaine and fentanyl injected at T9-T10 interspace. The use of fentanyl reduces the bupivacaine dose requirement and shortens the onset time of block, thereby minimizing the negative effects of higher bupivacaine doses and improving block quality.

METHODS

10 patients between the age group of 18-60 yrs , ASA grade I , posted for elective laparoscopic cholecystectomy who gave written and informed consent for the procedure and the study were included .For all patients Preanesthetic checkup was done a day before surgery; relevant investigations were done . All patient were asked to remain nil per oral 8 h before surgery. The patients were premedicated with tablet alprazolam 0.5 mg and tablet ranitidine 150 mg in the night before surgery. In Pre operative theater, a good intravenous (IV) access was secured for preloading with 500 ml Ringer's lactate solution. In the operation theater monitor was attached for monitoring electrocardiogram, heart rate (HR), noninvasive blood pressure, oxygen saturation (SpO2) , and respiratory rate. Patient was given and injection ondansetron 4 mg IV and was made to sit with their elbows resting on their thighs on operating table. Flexion of the spine was done and midline approach was used. Segmental thoracic spinal anesthesia was given using 1.7 ml hyperbaric bupivacaine 5 mg/ml mixed with 0.5 ml of fentanyl 50 µg/ml injected at T9-10 interspace with a 26-gauge spinal needle after confirming its placement by free flow of clear cerebrospinal fluid. Finally, the patient was turned to the supine horizontal position for the operation. Onset of action and level of sensory block was judged by pin prick method every minute until the establishment of desired block. For anxiolysis and sedation all patients were given inj . midazolam 1mg and inj.fentanyl 50 µg . Hypotension was defined as systolic blood pressure 20% decrease in baseline values and was treated by fluids and vasopressors (mephentermine 6 mg boluses). Bradycardia was defined as HR < 50 /min and was treated with Inj . atropine 0.6 mg. HR rate BP AND SPO2 was recorded every 3 minutes. Intraoperative and post operative complications such as nausea, vomiting, pain, headache or any other side effects were recorded.

Observations and Results

Segmental spinal was performed with relative ease in all patients , no patients experienced any paresthesiae at the time of spinal needle insertion , no patient experienced any problem during injection of the anesthetic solution . An effective block (upper T4 and lower L2- L3) developed with in 10 minutes in every patient .Modest levels of lower limb motor block developed before the start of the surgery (bromage - 2) . Cardiovascular changes were minimal during surgery only one patient sustained a fall in mean arterial pressure more than 20 % than the base line which was managed effectively by single bolus dosage of mephentermine 6mg . two patients described some amount of shoulder pain which was managed effectively with an infusion of Dexmedetomidine(0.2–0.7 µg/kg/h) which was titrated to achive a RASS score of 0 . No patient experienced nausea or vomiting or showed overt evidence of respiratory depression , oxygen saturation being > 97 % throughout . Duration of surgery on an average of 80 minutes . The first indication of regression of sensory block was observed after 90 minutes after anaesthetic injection , with the median upper level decreased by two segments at 110 minutes and complete recovery at 180 minutes . Muscle relaxation was judged fair by the surgeon . Postoperatively ,there were minor degree of abdominal pain and shoulder pain , all treatable with standard pain medications , but no nausea or vomiting was observed.None of the patients developed any post - dural puncture hedache . All patients resumed oral intake on the day of the surgery . Overall satisfaction score of 8 (out of 10) was given by the patients .

DISCUSSION

This study provided some preliminary indication of the feasibility of segmental thoracic spinal anesthesia in patients undergoing routine laparoscopic cholecystectomy and is certainly supportive of wider evaluation. The spinal anesthesia technique was performed at the low thoracic level with a 26-gauge spinal needle without any

great difficulty, the T9-T10 interspace[1] being chosen as lying in the "center" of the surgical field. Puncturing the dura mater in the thoracic region can lead to needle damage to the spinal cord, avoidance of this risk being the main reason why spinal anaesthesia is traditionally performed at the lumbar level. This anxiety has been increased by a report that the accidental performance of spinal anaesthesia at a higher level than the intended one of L2–L3 can result in spinal cord damage.[2] However, spinal puncture at the cervical and thoracic levels was regular practice for myelography when that investigation was used more widely.[3] Measuring the space between the dura mater and the mid to lower thoracic spinal cord on MRI scans have showed that its width is actually greater than that of the epidural space at that level because the thoracic spinal cord lies anteriorly in the theca .[1] Newer techniques like Ultrasonic guidance can also be used for insertion of spinal needle for better precision and safety .

Paresthesia can occur with any technique of spinal anesthesia but are of potentially greater significance when the needle is inserted above the termination of the spinal cord.The lumbar spinal cord is situated more dorsally and takes up more space because of the lumbar enlargement so that it is at greater risk of needle damage as shown by Reynolds's reports of pain and paraesthesia when needles were inserted at that level.[2] However, we did not get paresthesia in our patients during needle insertion, occurrence of paresthesia implies contact with the neural tissue and in that case needle should be withdrawn until the point where paresthesia disappears and then only anesthetic drug should be injected.[1]We used a narrow gauze (26-gauge) spinal needle which minimized the trauma to the patient and the chances of post-dural puncture headache .

The prime fear is that the extensive thoracic nerve block produced might result in ventilatory impairment. The main inspiratory muscle, the diaphragm, will be unaffected because it is innervated from the cervical level, and expiration is normally a passive phenomenon at rest. However, forceful expiration and coughing will be affected because they are generated primarily by the muscles of the anterior abdominal wall which are innervated by the thoracic nerves.[4,5]The use of very low doses of local anaesthetic should minimize the degree of nerve block, and thus muscle weakness . The pressure of the pneumoperitoneum also needs to be controlled carefully during surgery to ensure adequate diaphragmatic excursion.

Our patient did not experience dyspnea during abdominal insufflation and SpO2 was above 97% at all-time intervals,perhaps, because of the use of the horizontal position and low gas pressure(10-12 mm of hg).

Cardiovascular changes were also minimal only one patient had a fall in systolic blood pressure more than 20 % than base line which was effectively treated will single bolus dosage of mephentermine 6mg . Fluid therapy was liberal, the patients all remained conscious, so avoiding significant central depression of circulation or respiration.Other side effects such as pain, nausea, vomiting, and pruritus were also not noted although we had to start infusion of Dexmedetomidine for shoulder pain caused due to irritation of diaphragm by pneumoperitoneum intraoperatively, so low intrabdominal gas pressures were used.[6]

Although postoperative pain managament would have been easier with epidural technique with a catheter, in situ . Postoperative pain in laparoscopic cholecystectomy patients can also be managed with other analgesic modalities such as paracetamol, nonsteroidal anti-inflammatory drugs, opiods and facial plane blocks .

CONCLUSION

In conclusion, this small study has provided preliminary evidence that segmental spinal anaesthesia can be an effective and economical anaesthetic technique for routine laparoscopic surgery. Cardiovascular changes and side effects were minimal and patient satisfaction scores were high ,but further careful evaluation of the method is appropriate.

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Rehabilitation of Upper Arch Using Transmucosal Abutments: A Case Report

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ABSTRACT
With the success of implants, implant dentistry has now become the field which gave great importance to final restoration. Hence there is lot of emphasis given to the abutment, their connections to the implants and also the availability of different types of abutment for different clinical situations. The key is to have an optimum selection and designing of the implant to meet the implant position and angulation in the clinical scenario.The present case series, evaluation is conducted to see the clinical performance of Transmucosal abutments in All-on-five and All-on-Six cases. Transmucosal abutment is a new prosthetic component that promotes the conditioning of peri-implant tissues. Transmucosal abutment makes the prosthetic procedure more beneficial for peri-implant tissue by moving the implants' engagement platform from internal to external connection. So the implant platform moves from bone level to the soft tissues level.

Keywords: dental implants, transmucosal abutments ,hybrid prosthesis.

INTRODUCTION

The passive fit of implant supported prostheses to the underlying structures is essential for successful and survival of the osseointegrated prosthesis[1,2].While restoring a full arch, screw-retained implant prosthetic case, even a minimal disparity in the draw of the implant interface access can cause restorative challenges[3].

Passive fit of cement retained prosthesis has been proven to be significantly better when compared to screw retained prosthesis distortions (Randy et al)[4]. The stress concentration is found to be greater in screw retained superstructures due to lack of passive fit and that of cement retained prosthesis to be better.

The use of Trans Mucosal abutments can overcome restorative challenges and is highly recommend when creating a full arch screw-retained implant restoration. Transmucosal abutment is a new prosthetic component that ensures a perfect fit of the abutment-implant interface. Hence preventing colonization of bacteria in that region. Rather than struggle with 'sluffing' tissue around the implant during restorative and maintenance procedures, these abutments support and promotes the conditioning of peri-implant tissues.

Transmucosal abutment are generally used for multiple-unit screw retained restorations, with an implant level framework design. When the restoration at implant level is very deep or angulated, multi-unit abutments are used to elevate the seating platform of the restoration making it more viable option. Other benefits of transmucosal abutment include redirecting the trajectory of the prosthetic screws to more esthetic or functional direction, correcting angles of divergently placed implants to allow easier case-seating, and determining framework passivity.

The new prosthetic component is applied at the same time as the surgical phase of the implant positioning and maintains the freedom of flexibility during the prosthetic phases[5].

Multiunit abutments can be used both with immediate loading and delayed loading implant prosthesis. In delayed loading cases, multi-unit abutments have a protective cap that leaves the soft tissue undisturbed for an optimal tissue adaptation and a complete implant integration.

CASE REPORT – 1

A 65-year-old male patient reported to the department of Prosthodontics, Santosh Dental College, Ghaziabad, with a history of Missing all maxillary and mandibular teeth. On Intraoral examination, the patient revealed Completely edentulous maxillary and mandibular arches. The etiology of loss of teeth was due to periodontal disease. The patient was in possession of removable complete denture prostheses for the maxilla and mandible but was not satisfied with the maxillary denture due to gag reflex and wished for a fixed prosthesis instead. Treatment planning was done, and treatment option for a screw retained implant-tissue supported hybrid

prosthesis for the maxillary arch(All-on-six) and a conventional complete denture for the mandibular arch was discussed with the patient. Patient was advised to get a OPG and CBCT before planning implant surgery.

Surgical Phase

At the commencement of surgical phase, it was decided to use patient's previous denture as surgical stent (Fig 1). Surgery was performed under local anaesthesia. A crestal incision was given and a full thickness mucoperiosteal flap was raised in the maxillary arch (Fig 2).

A total of 6 implants were placed in the maxillary arch, and after implant insertion, gingival formers were placed. Implant locations were 14, 15, 16, 24, 25 and 26. After implant insertion, gingival formers were placed and the flap was closed with sutures (Fig 3).

The patient was instructed not to brush in the operated area and to start 0.12% chlorhexidine gluconate mouth wash twice daily from the second postoperative day till 15 days. The patient was recalled 7 days postoperatively for suture removal.

PROSTHETIC PHASE

After 2 weeks, gingival formers were removed and replaced with Transmucosal abutments (fig 4). Impressions were made using open-tray technique (fig 5). A- Silicone material was used. Impressions were poured in die stone (Ultrarock, kalabhaikarson Ltd, Mumbai, India) to form master casts. Record bases and occlusal rims were fabricated, and maxillomandibular relations were recorded. Mounting of master casts was done, and castable abutments were attached to the implant analogs in the master cast and connected together in the master cast to form a jig. This jig was then tried in the patient's mouth (fig 6).The patient was discharged to return for the initial wax try-in.

In the next wax try-in appointment, we evaluated the esthetics, lip support, OVD and RVD of the maxillary wax denture (fig 7). The patient accepted the esthetics. Processing of the hybrid prosthesis was done conventionally. The prostheses were finished and polished.

As seen on the master cast, this full arch restoration was fabricated to seat over a common restorative platform established by Transmucosal abutments (fig 8).

The prosthesis was then screwed in the patients mouth and the patient was motivated and educated for oral hygiene, recall and maintenance of the prosthesis (Fig 9 - 11).

DISCUSSION

A **Transmucosal Abutment (TMA)** is an advancement of a normal abutment and can be used in cases where it has to pass through the mucosa overlying the implants by correcting the depth and the angulation of the placed implants[6]. These abutments can be used for multiple-unit, screw-retained restorations.

For survival of any implant , the bone around the implant has to be sound[7,8]. The prosthesis which is made on these implants should be designed in such a way that it causes reduced stress on implants and surrounding bone. To reduce the stress it is always advisable to have a passive fit prosthesis over the implant [9]. If the fit is not passive or there are any misfit in the framework over the osseointegrated implant, it can lead to bone loss and jeopardize the whole treatment plan. According to the placement of implants, the dentist can decide whether the prosthesis is screw retained or cement retained superstructures with a caution of them being a passive fit[10]. A passive fit is more complex and difficult to achieve for a screw-retained implant superstructure especially with multi-unit implant supported prostheses[9]. It is therefore, essential to optimize the prosthesis fit by optimizing the prosthesis fabrication steps[11].

Transmucosal abutment is a one such prosthetic component that promotes the conditioning of peri-implant tissues and helps in determining framework passivity. The use of transmucosal abutment has also avoided the repeated connection/disconnection of the abutment at the implant platform level, and this could contribute to the enhanced stability of marginal bone[12].

Moreover, the prosthetic construction on the prefabricated transmucosal abutment (gingival level) brought the prosthetic platform close to the gingival margin. This would help in minimizing errors during impression making.In a study by Geramipanah et al, impression making at implant level was not superior to that at the abutment level. However, in the case of highly diverged posterior implants, abutment level method shows better linear accuracy[13].

Hermann et all, in their study concluded that when transmucosal abutments are placed on the implants directly after the surgery, almost no or minimal bone loss was seen[14]. Hence according to the literature and evidence present, it is advised that transmucosal abutments should be inserted on the same day of implant surgeryto minimize marginal bone loss and enhance soft tissue changes[5].

While TMA are not required for every all-on-four or all-on-six dental implant surgery, they may be recommended or even required in certain cases. One common reason why we require the placement of a TMA is due to the fact that they can be used in patients who have slight misalignments in their teeth. Placing different TMA's with different angles can ultimately help to level off the restoration.

Another common reason is due to height disparities. In cases where there are height discrepancies, lower implants are to be placed higher above the tissue, while taller abutments must be placed deeper in the bones. This helps to make all the abutments the single, same height.

Not only does this give the final product a much more polished look, but it balances the restoration so that any force is evenly distributed. This maintains eating and speaking functions, as well as making sure the restoration lasts for a longer period of time.

CONCLUSION

Transmucosal abutments have been added to implant dentistry few years back. Though theoretically it shows lot of promise but the current literature available on this topic does not provide sufficient evidence regarding Transmucosal abutment. However, based on the data accumulated by Javier Montero[15], transmucosal abutments can be comfortably used in cases with most tapered implants and impressions can be recorded by means of rigidly splinted copings through the pick-up technique, and milled prosthesis can be screwed to the implants which can then be occlusally adjusted to minimize functional overloading.

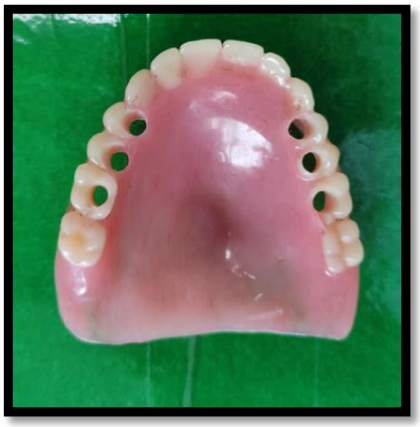

Figure 1: Surgical Stent

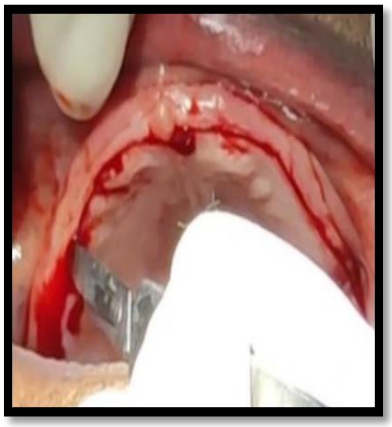

Figure 2: Crestal Incision

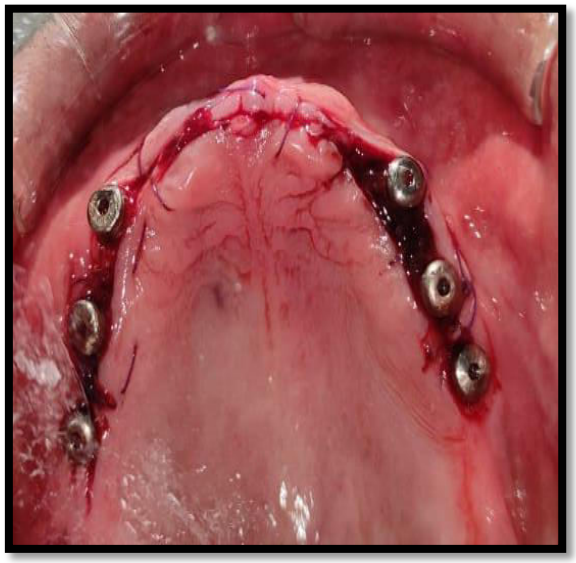

Figure 3: Implant insertion w.r.t maxillary arch

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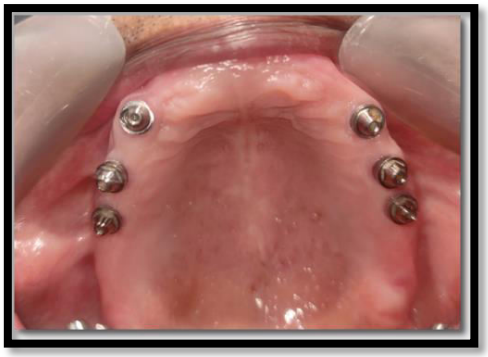


Figure 4: Transfer of TransmucosalAbutment Figure 5 Open Tray Impression

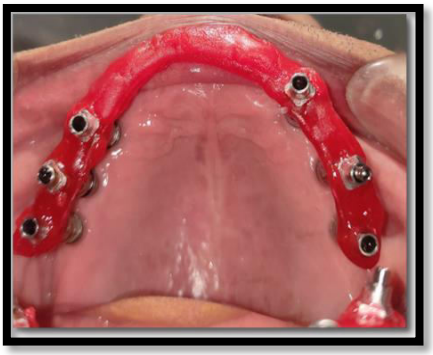
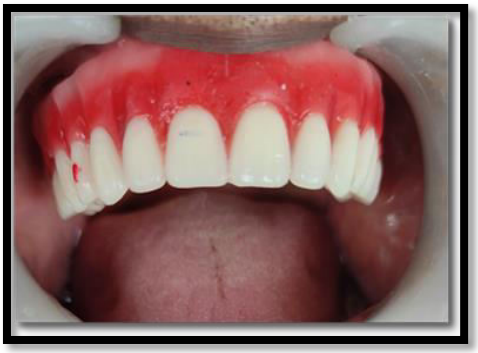

Figure 6: Jig Try-in **Figure 7:** Wax Try-in

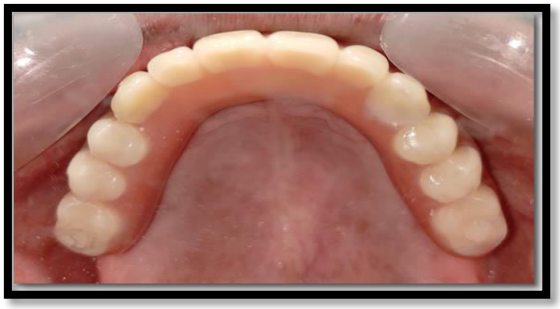

Figure 9: Clinical image of completed prostheses : Occlusal view

Figure 10: Clinical image of the completed prostheses: Centric Occlusion

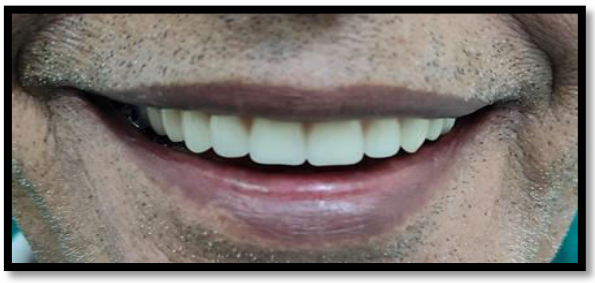

Figure 11: Clinical image of the patient smiling with completed prostheses in place.

Basal Implants: A New Innovation in Implant Dentistry: A Case Report

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ABSTRACT
Conventional Dental implants require an adequate bone volume i.e, bone width and height for anchorage. Basal Implants are however indicated in situations where an adequate vertical bone is not present. Therefore, In cases of severe resorption or where extensive bone augmentation procedures are required, Basal implant or bicortical implant is a viable treatment option. The following article presents a case report of severely resorbed mandibular arch and rehabilitation of the same using basal implants.

Keywords: Basal Implants, Disk Implants, Periotest, Immediate Loading.

INTRODUCTION

Dental Implantology has emerged as one of the best treatment modalities to replace missing teeth. The most important requirement for successful implant treatment with root form endoseeous dental implants is adequate bone volume. Basal Implants or Lateral Implants or Disk Implants have been developed to salvage tricky situations of limited residual bone and delayed loading protocol .

Basal implants are transosseous implants with a skeletonised design, a polished vertical implant part and one or several supportive ring base-plates. They transmit masticatory forces to the more stable and hard cortical bone rather than cancellous bone.

Basal implants utilize the lateral/ horizontal flat bone. A disk-diameter of 7mm or more is utilized, and is inserted into the jaw bone through a T-shaped slot (the T-shape slot is inverted in the mandible) [1].At the same time they may pass through without utilizing spongious bone areas, as their success does not depend at all on bone being available between the corticals or osseous integration in areas other than the cortical bone.

This article discusses a case report where a resorbed mandibular posterior edentulous region has been restored with double disk basal implant and loaded immediately.

CASE REPORT

38 year old female patient reported to the Department of Prosthodontics, Crown & Bridge, Maxillofacial Prosthodontics and Oral Implantology, with the chief complaint of missing teeth in left lower back region since 2 years. Various treatment options were discussed with the patient prior to the treatment however since the patient wanted a fixed treatment and a quick, the patient opted for basal implant placement with immediate loading. A written informed consent was thus obtained prior to the start of the treatment All the pre operative investigations were within normal limits.

Preliminary intraoral examination was done to evaluate the Osseous architecture of the proposed site. Primary Impressions were made with the help of irreversible hydrocolloid impression material (Marieflex ,Septodont). A surgical stent was fabricated to aid in placement of implants at the time of surgery.

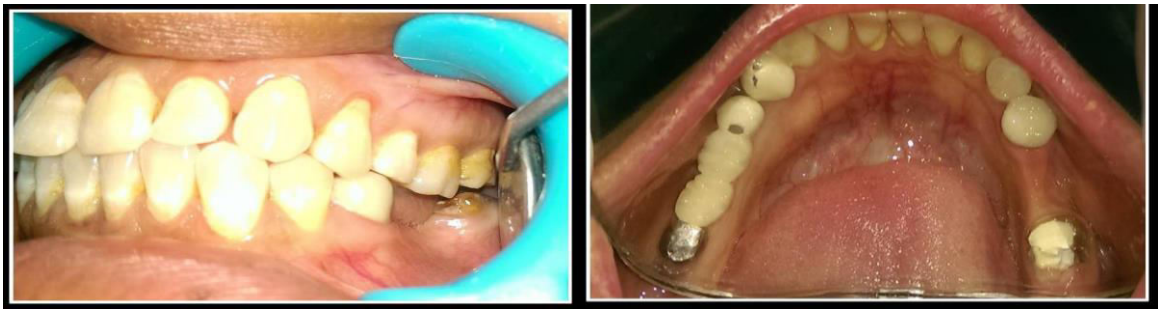

Fig 1: Pre operative view

On the day of surgery, the patient was given local anaesthesia with 2% lignocaine with adrenaline 1:2, 00,000 (LOX – ICPA). A crestal incision was give and a full thickness mucoperiosteal flap was elevated to expose the surgical site (Figure 2). The surgical stent was positioned at the surgical site so as to allow an ideal predetermined implant placement in the alveolar ridge.

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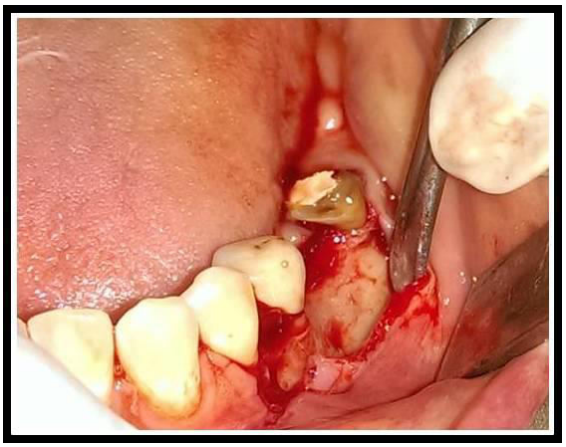

Fig 2. : Surgical procedure: Flap elevation

The implant bed was created through a lateral access using various cutters(Figure 3). Vertical bone cut was performed with the help of vertical cutter (VC 1.6) this was followed by lateral cutter of the size corresponding to the size of the implant in order make the horizontal bone bed. Horizontal osteotomy was prepared to achieve bicortical anchorage. The osteotomy was finished with the help of combination cutter (KC)

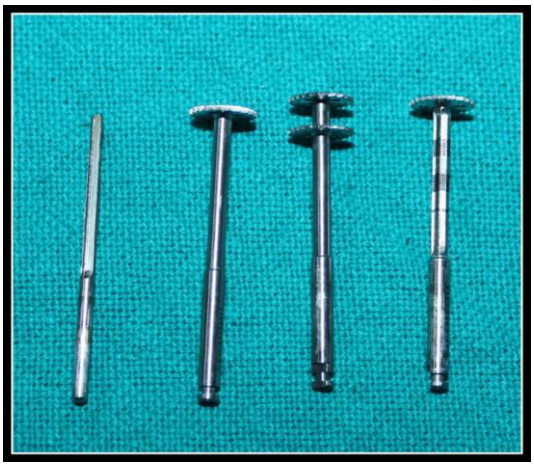

Fig 3: IHDE Dental Surgical drills

The implant size was selected as per the available bone (both in width and length) as determined by radiographic evaluation. One-piece basal implant (IHD Dental) longitudinal oval threaded pin (1.95 mm × 2.1/2.3 mm) with height of the implant head, 7.2 mm and width of the implant head, 3.5 mm; sandblasted Titanium alloy grade 2 (Ti6Al4V) basal implants(single disk or double disk)was selected.(Figure 4)

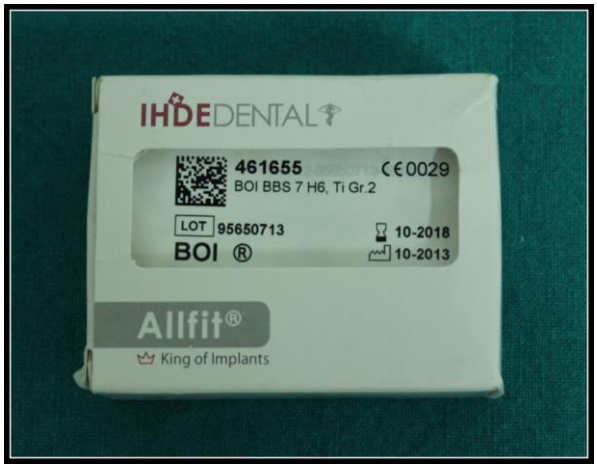

Fig 4: IHDE Dental Basal Implant

Once the vertical and lateral bone cuts were created, the implant was inserted through a lateral access with the chisel and the mallet using carefully dosed hammer-style strokes.(Figure 5) Soft tissues were approximated and sutured with vicryl absorbable suture (Ethicon 3.0)(Figure 6)

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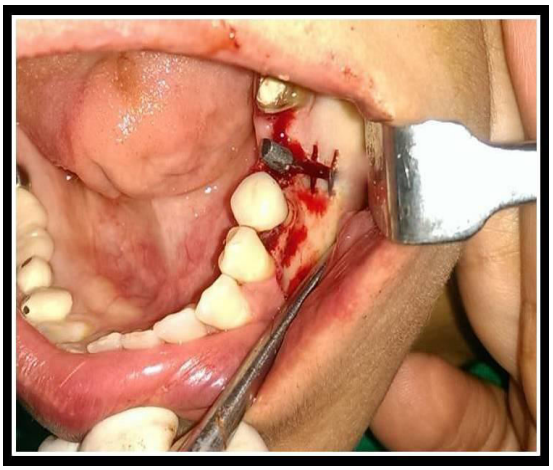

Fig 5: Surgical implant placement

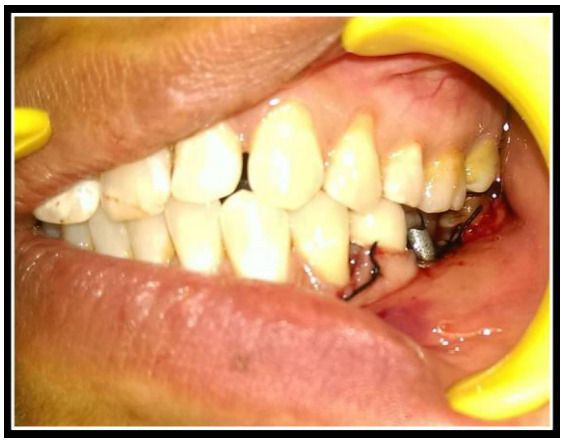

Fig 6: Post surgical view(sutures placement)

Immediately post surgery, the crestal bone levels around the implant were evaluated using RVG.(Figure7)

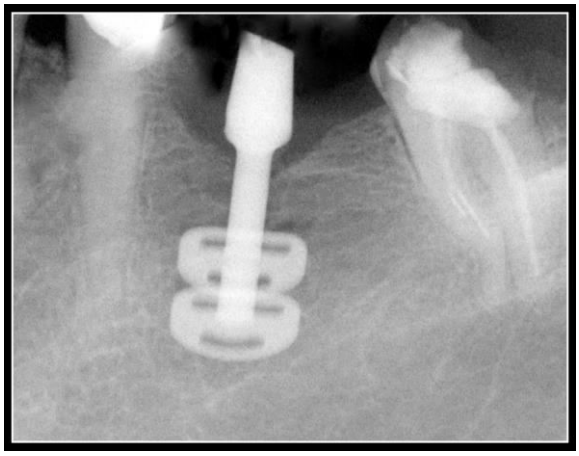

Fig7: Post operative radiographic view

Implant stability evaluation was done by means of damping capacity assessment with the help of Periotest (Medizintechnik Gulden e. K. .Modautal/Germany)(Figure 8). The implants were then loaded immediately i.e, within 72 hours the implant was restored with a provisional acrylic resin restoration (Protemp – 3M) by using the implant impression made at the time of surgery . The provisional restoration was adjusted in the conventional manner to be free of all centric and eccentric contacts. The provisional restoration was then cemented with eugenol free temporary cement (freeginol – GC) for a period of 12 weeks. (Figure 9) thus nonfunctional immediate loading was so achieved.

After 12 weeks of uninterrupted healing ,the provisional restoration was replaced by a permanent porcelain fused to metal restoration. Occlusal adjustments were made , passivity of the fit was ensured and cementation was done using conventional Glass Ionomer type I luting cement (GC corporation, Tokyo Japan) (Figure 10).

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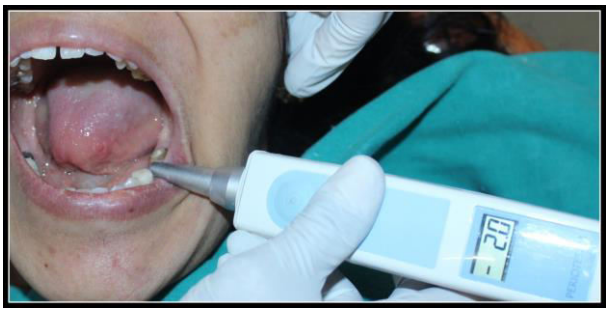

Fig 8: Periotest values immediately post implant placement

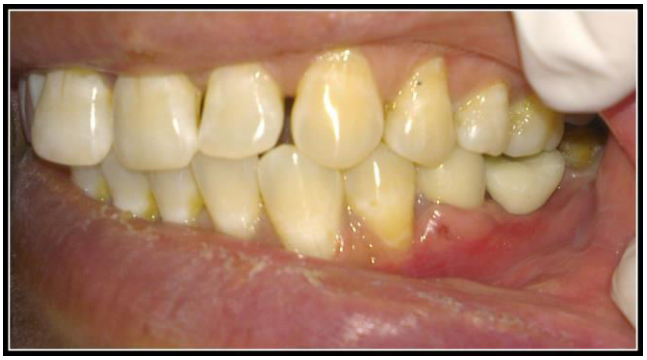

Fig 9: Temporization

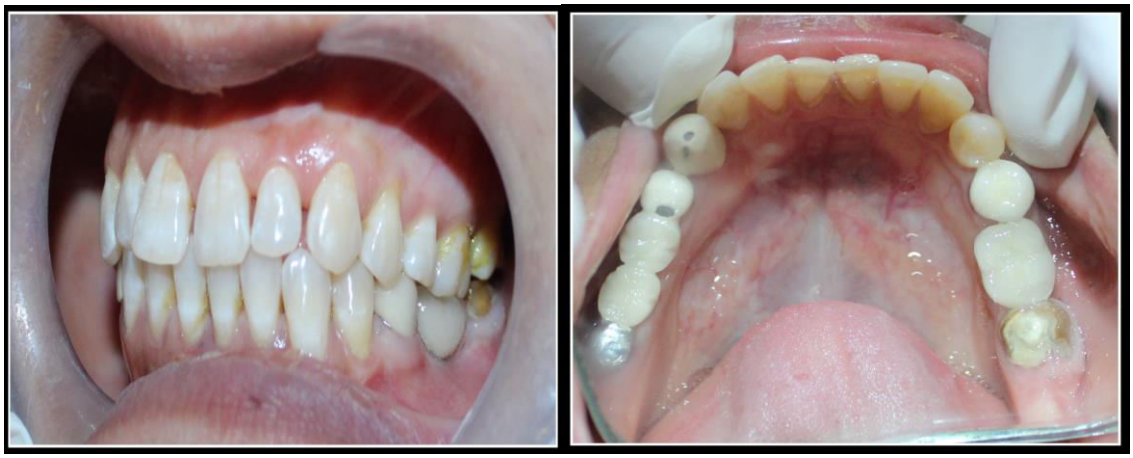

Fig 10: Post operative view of final prosthesis

DISCUSSION

Dental implants have revolutionized dentistry. They are prosthetic devices, made of alloplastic materials inserted into the oral cavity to provide retention and support to removable and fixed dental prostheses. Implants have commonly been used to replace teeth. Thousands of years ago, ivory teeth were implanted in the jaws of Egyptian mummies. Modern dental implantology began somewhere around the 1940's, with the discovery of screw type implants by Formiggini et al. The introduction of the concept and the biology of osseointegration, by Branemark et al, added another milestone in the history of dental implantology [2]. The accidental discovery of osseointegration has popularized dental implantology to such an extent that it has now become the treatment of choice for patients with missing teeth.

Basal implantology utilizes the basal cortical portion of the jaw bones for retention of the dental implants which are uniquely designed to be accommodated in the basal cortical bone areas[3]. It is also known as bicortical implantology or just cortical implantology is a modern implantology system which

Basal implants have many advantages over conventional root form implants, One major advantage that is often documented is immediate loading of a basal implant. Basal implants can be done loaded within 72 hours of surgery saving both time and cost. Conventional implants placed in combination with bone augmentation or grafting procedures, the total treatment time will be about 6 months to 1 year[4]. Thus, the need for interim dentures or provisionals is totally eliminated. These implants are single piece implants in which the implant and

the abutment are fused into a single unit. The rationale is that this design minimizes failure of implants due to interface problems between the connections which exist in conventional two and three piece implants[5].

These implants utilize the available bone in the best possible manner to avoid bone augmentation procedures[6]. With conventional implants, the available bone has to be modified (by using bone – grafts, bone substitute grafts etc.) to suit the implants[7]. Basal implants integrate in basal cortical bone, the biomechanical loads (masticatory forces etc.) are distributed to the strong cortical bone which is highly resistant to resorption and have very high repairing capacity[8].

CONCLUSION

Basal implants can be used to support restorations in the lower jaws[9]. They can be placed immediately post extraction in extraction sockets and also in healed bone. Their structural characteristics allow placement in deficient bone [10].Hence, unlike conventional implants basal implants are a boon for patients with excessive resorption however, a thorough understanding of the facial anatomy is a must for successful basal implantology.

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A Rare Case of Severe Thrombocytopenia due to Plasmodium Vivax Malaria

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ABSTRACT
A serious worldwide health issue is malaria. According to the World Health Organization (WHO), there are 247 million cases of malaria annually, and one million people die from the disease. [1]. Malaria continues to be endemic in many parts of India. Hematological alterations are common in malaria in the form of anemia, leucopenia, and thrombocytopenia.1 Profound thrombocytopenia is common in Plasmodium falciparum malaria[1–3] but rare in Plasmodium vivax malaria, with only a few case reports.[4,5] We report on this rare presentation in a 35 years old female.

Keywords: Thrombocytopenia, malaria, Plasmodium vivax

INTRODUCTION

Malaria is an endemic disease in several regions of India. Hematological changes are common in malaria in the form of anemia, leucopenia, and thrombocytopenia.1 Profound thrombocytopenia is common in Plasmodium falciparum malaria [2, 3] but rare in Plasmodium vivax malaria with only a few case reports. With the implementation of molecular diagnosis, It became clear that P. vivax mono-infection, like P. falciparum infection, may also be responsible for severe life-threatening illness and numerous organ dysfunction [4, 5]. We report on this rare presentation in a 35-year-old female patient.

CASEREPORT

A 35-year-old female patient, resident of Ghaziabad, Uttar Pradesh (northern part of India), presented with complaints of fever with chills for five days, vomiting, and pain abdomen for three days duration. Fever was high grade, intermittent, and associated with chills and rigors. On examination, the patient was conscious and febrile (temperature 101.5◦F). She also complained of vomiting 4-5 episodes per day and pain abdomen in the upper quadrant. The liver was palpable just below the costal margin and the spleen was palpable 1 cm below the left costal margin. There was no cardiac and respiratory system involvement. The tourniquet test was negative. On investigation, the patient had a hemoglobin of 10.6 mg/dl, a total leukocyte count of 4480/mm3, a differential leukocyte count (neutrophils, 72; lymphocytes, 25; monocytes, 3; eosinophils, 0), and a platelet count of 40* 109/l. Blood film examination by thick and thin smear revealed a ring from the P. vivax malarial parasite. Gametocytes of P. falciparum were not seen. Dengue serology (both IgG IgM and NS-1) was negative. The stool for occult blood was negative. Ultrasonography showed moderate hepatosplenomegaly where the liver was 18.6cm and spleen enlarged to 16.2*6.8cm. The patient had a persistent fever, but episodes of vomiting decreased and platelet count continued to fall. The patient became afebrile, and there was no fresh petechiae or bleeding from any site. Her platelet count was 0.37 lac/cumm on the second day and 0.45 lac/cumm on the third day. In view of persistent thrombocytopenia, a peripheral smear was also done, which showed no immature cells and leucopenia. A complete hemogram was done on the fifth day, which started showing improvement in platelet count to 0.73 lac/cumm with a hemoglobin level of 7.2 g/dl. Injection of Artesunate 120mg Twice daily was started on day one and once daily on day two due to poor oral intake, followed by a combination of Tab. Artemether 80 mg and Lumefantrine 480 mg day three onwards. Tab. Primaquine 30mg was given for 14 days starting from day 2 after getting G6PD deficiency ruled out. One unit of PRBC transfusion was done on day five. After seven days Platelet count improved to 1.81 lac/cumm. The patient was discharged after treatment with artemether and lumefantrine for a total of 5 days. At one month follow-up, platelet counts were normal, and the patient was afebrile.

DISCUSSION

Thrombocytopenia is usually mild in cases of P. vivax malaria.[1,3] Profoundly low platelet count has been reported in very few cases, e.g., in a 43-year-old the platelet count was .50 lac/cumm, and in another case it was .80 lac/cumm.[6,7] A platelet count of .40 lac/cumm was observed in our case. The diagnosis was confirmed on blood films. Since the patient presented during the ongoing dengue hemorrhagic fever epidemic, the possibility of dengue hemorrhagic fever was ruled out by a negative tourniquet test, absence of hemoconcentration or capillary leak, and a negative dengue serology. The exact mechanism of thrombocytopenia in malaria is not known. Only a small number of studies have thus far documented mortality due to P. vivax infection; others have documented various sequelae; however, none of these

research focused solely on adult populations [13-16]. Involved mechanisms include both immunological and non-immunological ones. Mohanty, et al.[8] have demonstrated an inverse relationship between the platelet count and platelet antibody levels in serum, supporting the view that thrombocytopenia in malaria may be immune-mediated. Immune complexes play a role in the peripheral destruction of platelets and red blood cells, and it has been demonstrated that specific IgG binds directly to malaria antigens in platelets through Fab terminus. It is observed that eosinopenia with elevated immunoglobulin E and complement 4 could be an important indicator of P. vivax malaria. There have been conflicting reports about the relationship between peripheral parasitemia and platelet count. There is a negative link, according to several studies [12]. Elevated serum levels of pro- and anti-inflammatory cytokines have been seen in cases of P. vivax malaria with thrombocytopenia. In a 2012 study a Children's platelet counts of less than 2 lac/cumm were significantly associated with severe malaria, according to Tanwar et al2012 .'s report [10]. In a 2009 study of adult patients, Kochar et al. described all sequelae in Plasmodium vivax malaria patients [11].

We treated our patient with anti-malarial drugs.

Mechanisms implicated in thrombocytopenia are decreased life span of platelets in peripheral blood and elevated macrophage colony-stimulating factors increasing macrophage-mediated platelet destruction. Ultrastructural changes such as centralization of dense granules, glycogen depletion, formation of pseudopods, and microaggregation have been implicated in thrombocytopenia.[8]

Our case is a rare presentation and highlights that a possibility of P. vivax malaria should be considered in a patient presenting with fever and thrombocytopenia in malaria-endemic regions. Further studies are required to elucidate the exact mechanism of thrombocytopenia and therapy.

CONCLUSION

The prevalence of P. vivax malaria is fluctuating. Presently, thrombocytopenia is reported at comparable rates in patients with vivax and falciparum malaria. Although thrombocytopenia may not be a direct cause of death, it might be a sign of increased severity and the need for prompt treatment. Reexamination of the clinical spectrum and severity of P. vivax malaria is necessary, particularly in light of thrombocytopenia. We also advise the creation of distinct management guidelines for P. vivax patients with platelet counts below 1 lac/cumm in light of their severity profiles.

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NMDA Receptors Targeting: A Key Role for Controlling Blood Glucose in Diabetic Patient

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ABSTRACT
NMDA receptors (NMDARs) play a role in signal transduction in the nervous system and regulate the survival **of neurons. In contrast, the function of NMDARs in β cells and the insulin-secreting beta cells, whose** dysfunction leads to diabetes, is little understood. Here, we discovered that inhibiting NMDARs improved the glucose-stimulated insulin secretion (GSIS) and islet cell survival in mouse and human islets. Additionally, glucose-stimulated beta cells spent more time than usual in a depolarized state with elevated cytosolic Ca2+ concentrations when NMDAR inhibition was present. Dextrorphan, the primary metabolite of DXM, boosted the stimulatory impact of exendin-4 on GSIS in vitro. We also observed that the NMDAR antagonist dextromethorphan (DXM) improved glucose tolerance in mice when used in vivo. Long-term administration of DXM enhanced islet insulin content, islet cell mass and blood glucose control in a mouse model of type 2 diabetic mellitus (T2DM). Additionally, we discovered that those with T2DM treated with DXM had improved serum insulin concentrations and glucose tolerance in a short clinical trial. Our findings suggest that NMDAR antagonists can be a valuable supplementary therapy for diabetes. With more than 350 million sufferers worldwide, type 2 diabetes mellitus (T2DM) is the most prevalent metabolic disease, and both its incidence and prevalence have been rising. Peripheral insulin resistance is frequently a precursor to overt T2DM and is frequently linked to obesity and inactivity. 2, 3.Increased insulin release from their pancreatic beta cells is thought to counteract peripheral insulin resistance in non-diabetic persons with obesity because these individuals typically have larger islet mass or islet function4. 2, 3. Increased islet mass or function in non-diabetic obese people is hypothesized to counteract peripheral insulin resistance. 2,3. In contrast, those who have type 2 diabetes experience beta cell place through the process, a progressive loss of islet function, and a reduction in beta cell mass (5, 6). These individuals frequently need a progressive escalation in their treatment, which may include sulfonylureas, incretins, and finally insulin suitable replacement in addition to the standard first-line drug, metformin. (7)

INTRODUCTION

One of the major health challenges confronting WHO African Region states is the growing burden of diabetes and other non-communicable diseases [10]. Diabetes is characterized by an abnormality in insulin synthesis or secretion, as seen in Type 1 diabetes mellitus (T1DM) and pancreatic duct stenosis, or by the development of insulin resistance or subnormal insulin production, as seen in Type 2 diabetes (T2DM) and certain secondary diabetes. A key step of diabetes is insulin resistance and hyperinsulinemia, which precede the onset of metabolic abnormalities and result in anomalies in glucose metabolism. According to studies, Asian Indian patients with type 2 diabetes who are not insulin-dependent are more insulin resistant than their European counterparts. 4 India now has the highest percentage of diabetics. According to a 1995 estimate, 19.4 million Americans have diabetes, and that number is predicted to rise to 57.2 million by the year 2025. 3 However, there may be 25 million diabetics worldwide today. Various terms have been used to describe diabetes (type 2 diabetes), including "lifestyle disease," "metabolic illness," "vascular disease," and "cardiovascular disease."A chronic condition of the metabolism of proteins, lipids, and carbohydrates is known as diabetes mellitus. A hallmark of diabetes mellitus is an abnormal or insufficient insulin secretory response, which translates into impaired utilization of carbohydrates (glucose) and the ensuing hyperglycemia. [1] The most prevalent endocrine condition is diabetes mellitus (DM), also known as "sugar." It typically happens when there is an inadequate amount of insulin, an absence of insulin, or, less frequently, when insulin activity is impaired (insulin resistance) [2]. According to the International Diabetes Federation (IDF), there are currently 40.9 million diabetics in India, and that figure is expected to increase to 69.9 million by the year 2025 [3]. Neither erythrocytes nor neural tissue requires insulin to use glucose, but alpha while alpha () cells play a crucial role in managing blood glucose by generating glucagon, which raises blood glucose levels by accelerating glycogenolysis, neural tissue and erythrocytes do not need insulin to use glucose [4,5]. Type II diabetes mellitus accounts for 80% to 90% of all occurrences of diabetes mellitus, in addition to the increased risk of obesity, metabolic and cardiovascular problems, and cancer in the future life of the fetus after delivery [6]. Additionally,

those with diabetes who engage in modest physical exercise have a noticeably lower risk of passing away than those who are inactive [24]. It is now well-accepted that such an occurrence requires a particular genetic makeup [9]. The rising burden of disease is one of the primary health issues states in the WHO African Region are facing. The rising prevalence of diabetes and other non-communicable diseases is one of the biggest health concerns facing the WHO African Region states [10]. The establishment of insulin sensitivity or subnormal insulin production, as seen in Type 1 diabetes mellitus (T1DM) and pancreatic duct stenosis, or through aberrant insulin synthesis or secretion, as shown in Type 2 diabetes (T2DM) and some secondary diabetes, are the characteristics of diabetes.

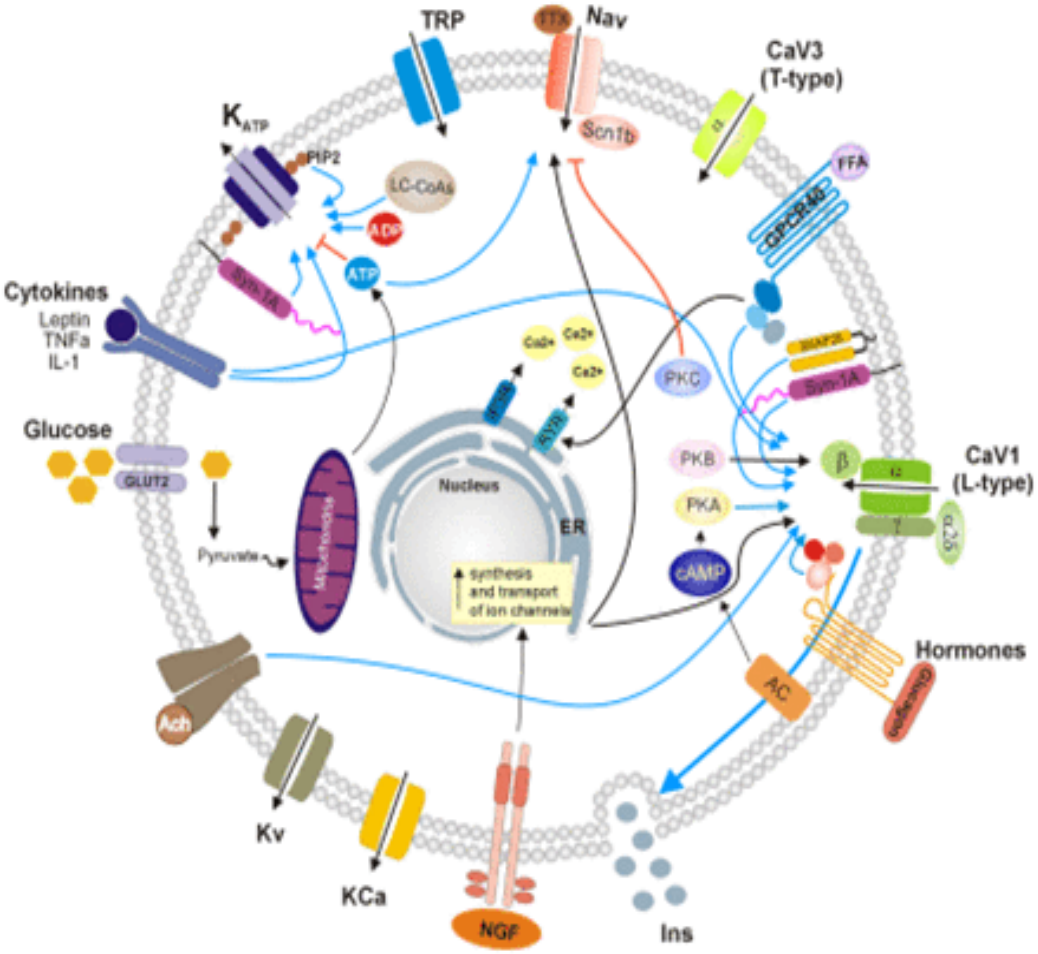


Figure: 1 Beta cells in pancreatic cells dx.doi.org/10.1124/mol.116.103861.

Treatment through NMDA Target

The most prevalent metabolic condition in the industrialized world now types 2 diabetes mellitus (T2DM), which poses a serious risk to public health and has a high personal and societal financial burden [1]. The goals of current therapy approaches include increased insulin production, insulin replacement, pharmacological or nutritional improvement of insulin sensitivity, and direct decrease of plasma glucose. Beta cells in pancreatic islets generate and emit insulin. With 60–80% of the islet volume taken up by them, they constitute the predominant endocrine cell type [2]. Insulin is the single most significant anabolic and anti-catabolic hormone that regulates the storage of all energy-rich foods after meals and their consumption between meals [3]. Adequate plasma glucose concentration is the primary need for beta cells to secrete insulin. Glucose has pleiotropic effects on beta cells at stimulatory plasma levels, which ultimately cause an increase in cytosolic Ca2+ concentration that starts and further controls insulin secretion [4]. The Ca2+-dependent mechanism can be amplified by additional neurohormonal pathways that involve protein-kinase A (PKA) and protein kinase C (PKC)-dependent activities, or insulin secretion can be activated independently [5,6]. Beta cells have intricate homo- and heterotypic functional connections with nearby endocrine cells in an islet [2, 5, 7–10]. Strong evidence exists that beta cells engage in interactions with one another and with non-beta cells in their dynamic environment. A functioning cell collective made up of several hundred beta cells can be found in an average mouse islet of Langerhans. Inherently nonlinear and extremely heterogeneous beta cells' increased three-dimensional architecture and interconnectivity are essential for healthy group behavior and hormone release

[11–15]. According to descriptions of the primary synchronization mechanism [16–22], electrical coupling through connexin36 (Cx36) gap junctions, presumably in conjunction with other forms of intercellular communication, is responsible. This guarantees that oscillatory membrane potential depolarizations and consequent [Ca2+]ic shifts can occur in a well-synchronized manner and disseminate across an islet [23,24], coordinating the coordinated cell activity and pulsatile insulin release [5,25,26]. Biological noise and beta cell heterogeneity are both known to be constrained by coupling [12,19,27,28].

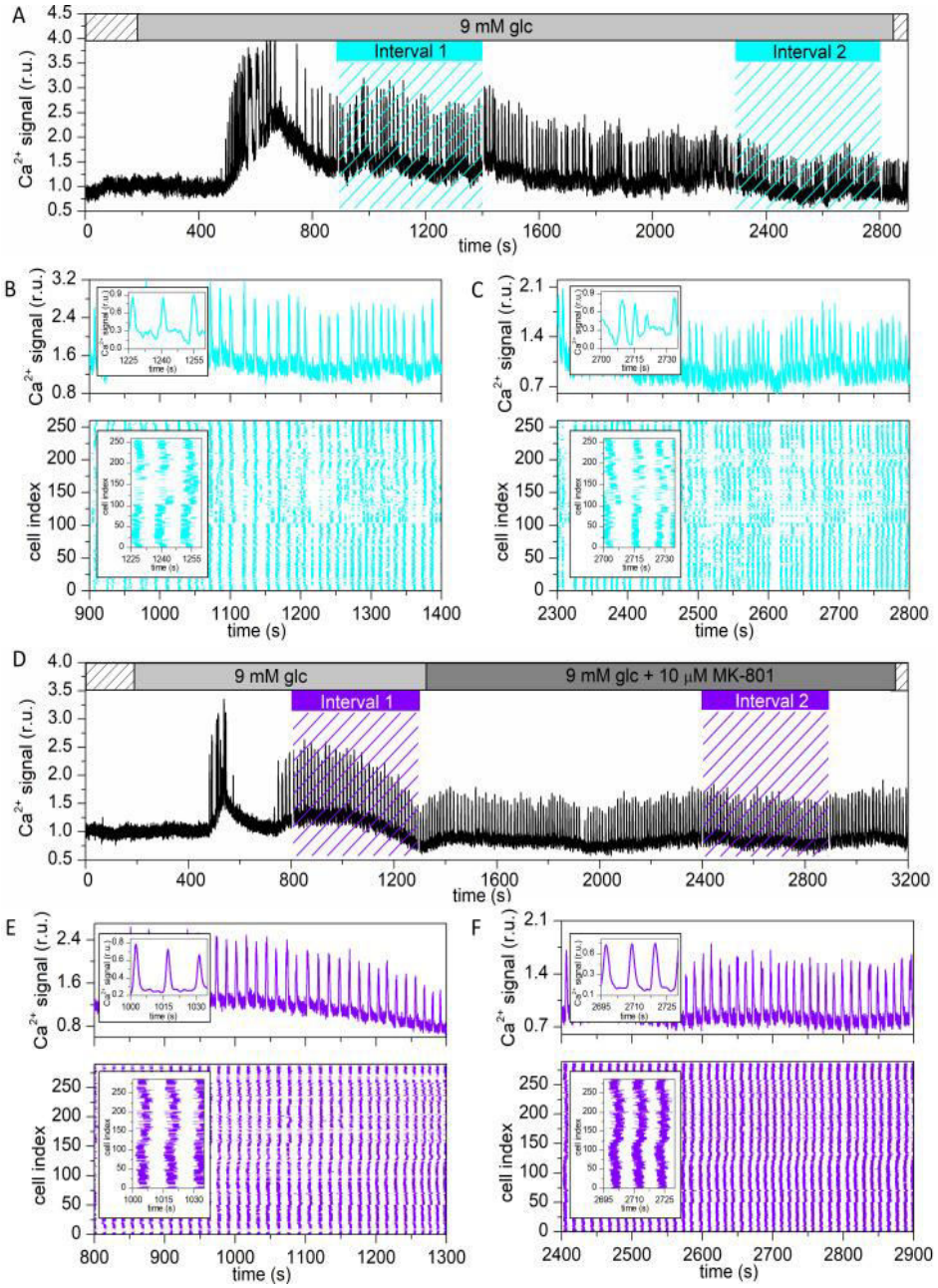
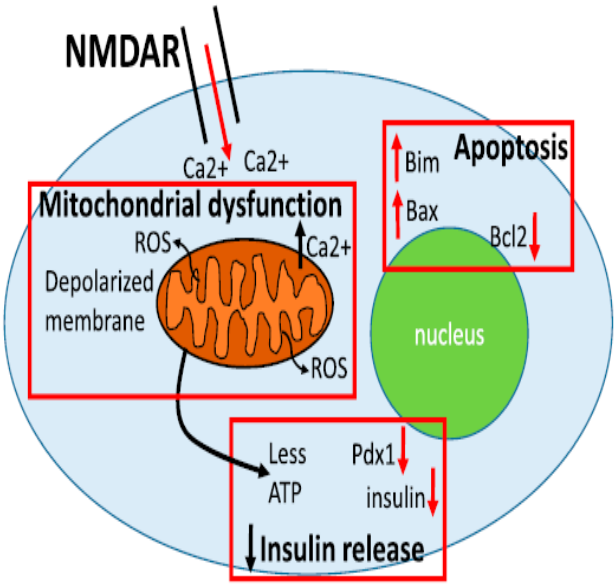


Figure 3 shows the activity of beta cells during various stimulation procedures. In a recording using protocol G (9 mM glucose only) (A) and protocol MK (9 mM glucose + 10 MMK-801) respectively, representative [Ca2+]ic signals and raster plots were produced (D). With light grey and dark grey bars, respectively, the two MK protocol phases are denoted. Dashed bars represent the 6 glucose sub-stimulatory phase. For protocol G and protocol MK, the intervals 1 and 2 that were employed for additional analysis are denoted in cyan and violet, respectively. Outtakes of the calcium signal of a single cell (upper part) and the binarized signal of every cell in the islet (bottom part) for both methods are shown, respectively, in Panels (B)–(C) and (E)–(F).

Conversely, alterations in islet morphology and disrupted intercellular communication pathways cause a loss of synchronized beta cell activity, leading to an impairment of normal oscillatory patterns of insulin secretion elicited by glucose, a defining characteristic of obesity and T2DM [9,12,19,29–33].



NMDAR stimulation that lasts for a long time causes mitochondrial malfunction, decreased insulin synthesis and release, and increased apoptosis. Reactive oxygen species (ROS) and increased calcium input cause the mitochondrial membrane potential to become depolarized, which lowers the rates of ATP synthesis. While NMDAR also lowers insulin and pdx1 gene expression, less ATP results in less urge to release insulin. The mitochondrial-dependent cascade of apoptosis, which includes up-regulation of the protective protein Bcl2 and down-regulation of the proapoptotic genes Bim and Bax, is also triggered by mitochondrial failure. Gene expression changes are depicted by red arrows. Proteins or ions are shown by black arrows. (doi: 10.1210/en.2017-00832).

This is because it has been demonstrated that glutamate signalling via N-Methyl-D-Aspartate Receptors (NMDARs) is crucial for beta-cell stimulus-secretion coupling [35, 36]. There is still a lack of a thorough mechanistic understanding of its effects. The majority of our current understanding of how NMDARs function comes from research on neurons, but pancreatic beta cell glutamate signalling patterns are also being studied more and more [37]. NMDARs have a role in neuronal survival, brain plasticity, and cell-to-cell communication throughout the nervous system. A malfunction of NMDARs, such as changed subunit expression, trafficking, activity, or localization, can cause harmful cognitive deficits, such as Alzheimer's disease, Parkinson's disease, depression, schizophrenia, and autism [38]. They mediate both glutamates produced by astrocytes and extrasynaptic NMDA receptors, which mediate rapid excitatory neurotransmission between neurons in hippocampal slices [39].
NMDARs can activate KATP channels in subthalamic [16] and dopamine midbrain neurons, according to studies on neurons [40]. Additionally, they can open SK channels in dendritic spines [41]. Studying these issues will help us better understand how the endocrine pancreas uses NMDA biologically. Nevertheless, the current study provides evidence that NMDAR may be a target for diabetes medication (5, 6) and outlines a potential mechanism by which inhibiting NMDAR in the It was specifically demonstrated that activating NMDARs at and near synaptic loci strengthens weak electrical coupling of neurons [49] and that glutamate induces [Ca2+] waves in cultured astrocytes that spread between neighboring astrocytes in confluent cultures, forming networks and mediating a long-range signalling system [50]. Additionally, it has been demonstrated that NMDARs play a role in the developmental uncoupling of neuronal gap junctions throughout the postnatal development of the mammalian central nervous system, with connexin 36 (Cx36) being gradually down regulated with aging. The gap junction uncoupling has been stopped by blocking NMDARs [51]. In the present research, we examined how NMDAR inhibition impacts the overall activity of beta cells because uncoupling and down regulation of Cx36 both significantly affect beta cell communication and function.

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A Systematic Review of Antihypertensive Agents and Physicians' Prescribing Pattern

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ABSTRACT
Hypertension is a major health issue around the world. Several of the consequences of hypertension that significantly improve performance mortality is arterial & renal disease. This research aims to discuss how antihypertensive medications are often prescribed to people with hypertension. The study is about the various pharmacological classes, concepts and factors affecting the prescription pattern of antihypertensive agents.

To better understand the different antihypertensive drugs and their prescription pattern, further study is needed in the future.

Keywords: Antihypertensive, Prescription, Pattern, Hypertensive, Medication

I. INTRODUCTION

Antihypertensive drugs are often prescribed, and between 8% and 35% of adults take them(Kantor et al., 2015). "Thiazide diuretics, angiotensin-converting enzyme (ACE) inhibitors, angiotensin II receptor blockers (ARBs), beta-blockers, and calcium channel blockers (CCBs)" are the five primary groups. (Jung et al., 2020). Those courses have been sanctioned for a very long time. In 1995, ARBs were the most recent first-line class to hit the market(Blak et al., 2009) Even though antihypertensive drugs have been prescribed for a long time, the number of prescriptions has not been searched in depth. Also, there is evidence that different antihypertensive drug classes may be prescribed differently to men and women in primary care settings (Zhao et al., 2020). The evolution of hypertension management has led to younger patients initiating medication earlier in the disease's progression. (Gu et al., 2012).To understand better such concerns, large country-specific investigations that describe the various patient subgroups receiving these drugs and the changes in antihypertensive drug use are needed.

Systemic arterial hypertension is defined by consistently elevated blood pressure (BP) in the systemic arteries (subsequently referred to as hypertension). Blood pressure during the systolic (heart's contraction) phase is a percentage over the diastolic (heart's relaxation) phase.(Oparil et al., 2018).

II. ANTI ANTIHYPERTENSIVE AGENTS

BP medications, often known as antihypertensives, are drugs that lower BP in a number of different methods(Ram, 2002). As a side effect of several hypertension drugs, blood vessel dilation occurs, allowing for more efficient blood flow. Certain medications lower BP by reducing fluid retention, while others prevent the release of hormones that might elevate BP in some people.

In addition to your age, race, and gender/sex, your healthcare practitioner will evaluate the severity of your other health conditions and your BP when determining which BP medicine to prescribe you (Schellack & Naicker, 2015). Your therapy will vary from that of your neighbour or sibling since every one of you has a unique circumstance.

To get your BP levels down, you may need to take more than one kind of medicine to treat your high BP(Laurent, 2017). In order to get your BP down, your healthcare professional may begin treatment with one antihypertensive medicine and then gradually add a second or third medication. They may also begin or discontinue antihypertensive medication if it is determined that the treatment is ineffective, you are experiencing severe adverse effects, or there has been an unsafe change in your bloodwork (Jarari et al., 2015). The healthcare expert you see may request that you monitor your BP daily at home before consuming any caffeine.

The majority of individuals take BP medicine in the form of a tablet that they consume every day. However, your doctors may choose to administer specific antihypertensive drugs to you using an IV (intravenous) in your arm if you are admitted to the hospital.

Hypertension, or high BP, is treated with medicine in the hopes that the patient will maintain cardiovascular health and avoid complications, including heart failure, heart attack, renal failure, and stroke (Varghese et al., 2016). The effects of hypertension (HTN) are taxing on the cardiovascular system. When BP is reduced, the

heart has an easier time supplying blood to the body's critical tissues and organs at all hours of the day and night.

III. PHARMACOLOGICAL CLASSES OF ANTI-HTN

1. **Thiazide Diuretics:** Diuretics, or "water pills," are a class of prescription medications that reduce blood volume by increasing urine production. When treating hypertension, thiazide diuretics are typically the first line of defense (Kavya SR, 2015). Diuretics in the thiazide class include hydrochlorothiazide (Microzide) and chlorthalidone, among others.

Talk to your doctor about adding a diuretic to your treatment plan or switching to a different drug if your BP doesn't decrease after taking other measures. For blacks and the elderly, diuretics or calcium channel blockers may prove more effective than ACE inhibitors alone. Diuretics often cause users to urinate more frequently.

2. **Beta-Blockers**: These medications relax the heart tissue and dilate the blood vessels, resulting in a softer, lower-pressure heartbeat. Examples of beta blockers are acebutolol (termed as Sectral) and atenolol (known as Tenormin).

Beta-blockers may effectively lower BP when used with other medications rather than being prescribed alone.

3. **Angiotensin-Converting Enzyme (ACE) Inhibitors:** Drugs such as lisinopril (Zestril), benazepril (Lotensin), and captopril (Captoten) relax arteries by inhibiting the production of a naturally occurring chemical that constricts blood vessels. ACE inhibitors have shown promise as a potential treatment for chronic renal disease patients.

4. **Angiotensin II Receptor Blockers (Arbs):** Most drugs work by inhibiting the release of a natural molecule that constricts blood arteries rather than directly blocking the chemical itself. Candesartan (Atacand), losartan (Cozaar), and some other drugs fall into the ARB category. Having an ARB as part of a treatment regimen for a chronic renal disease may improve health outcomes.

5. **Calcium Channel Blockers**: These drugs, such as diltiazem (Cardizem, Tiazac, as well as a number of others), amlodipine (termed as Norvasc), and some others, relax the nerves in your blood arteries, might help prevent blood clots. Certain things may slow down your heart rate. Calcium channel blockers are probably more effective than ACE inhibitors for elderly persons and individuals of color. Grapefruit juice has been shown to interact negatively with some calcium channel blockers, leading to increased drug levels in the blood and an increased likelihood of adverse consequences.

6. **Renin-Inhibitors:** The kidney-produced enzyme renin triggers a series of chemical reactions that raise BP; aliskiren (Tekturna) inhibits these reactions. Tekturna is effective because it inhibits renin's ability to kick off this process. Combining Aliskiren through an ACE inhibitor or an angiotensin receptor blocker (ARB) raises the chance of severe adverse effects, such as stroke. (van Kleef & Spiering, 2017).

A. Sometimes Additional Drugs are Used to Treat Hypertension

If you are having problems achieving the desired BP using combinations of the drugs listed above, your specialist can recommend the following treatments for you:

- **Alpha-Blockers:** These medications reduce nerve impulses into the blood vessels, which reduces the effects of the natural chemical that leads to narrow the blood vessels. Alpha blockers comprise to doxazosin (Cardura), prazosin (Minipress) and many more.
- **Alpha-Beta Blockers:** Along with lowering nerve impulses into the blood arteries, it delays the heartbeat to lessen blood pumping through vessels. Carvedilol (Coreg) and labetalol (Trandate) are two alpha-beta blockers
- **Central-Acting Agents:** These drugs stop the human brain from sending signals to their neurological system, which would otherwise cause the heart rate to speed up and blood vessels to become more constricted. Clonidine (marketed under Catapres and Kapvay), guanfacine (marketed under Intuniv and Tenex), and methyldopa are a few examples. **Vasodilators:** Medications like hydralazine & minoxidil target the artery-wall muscles to reduce BP. As a result, these muscles are prevented from contracting, preventing your arteries from becoming more constricted.
- **Aldosterone Antagonists:** Spironolactone (also known as Aldactone) & eplerenone are good instances (Inspra). The action of a naturally occurring substance that may cause salt & fluid retention, which could relate to high BP, is prevented by using these pharmaceuticals. (Hall et al., 2021).

IV. PRESCRIPTION PATTERN CONCEPT

The "Drug and Pharmacies Regulation Act" defines pharmaceuticals as "medications" under Section1 (1). Prescribing drugs is restricted under the Regulated Health Professions Act (1991), as stated in Section 27. On the other hand, it did say that the local prescription act included the writing of prescriptions and their authorization. When a doctor orders the distribution of a drug or combination of drugs, they are said to have prescribed that medication. It is acceptable to give instructions orally, in writing, or electronically.

Most doctors' practices include the dispensing of medication as a regular service. It's a crucial part of the profession that calls for expert-level understanding, proficiency, and discretion (Karande et al., 2005). Prescribers are held to certain standards for patient well-being and safety under this policy. Therefore, doctors must follow the Physicians' Prescription Pattern, a collection of interrelated elements for prescribing medications to patients that demonstrates promptness, professionalism, a sense of obligation to the patient, and the proper exercise of any privileges to which the doctor is entitled.

(Davari et al., 2018) A complex set of laws also controls prescriptions. In addition to what is expected of them in this policy, doctors must also know and follow the law when it comes to drugs and prescriptions. This involves, but is not restricted to, performance standards in the "Food and Drugs Act (1985)", "the Controlled Drugs and Substances Act (1996)", "the Narcotics Safety and Awareness Act (2010)", and the "Drug and Pharmacies Regulation Act" (Codification, 2012).

I. PRESCRIBING PATTERN OF ANTI-HYPERTENSION AGENTS

A doctor's ability to choose the medications most helpful for their patients is reflected in how they prescribe them. (Cidda et al., 2014) . Communicating with patients through written prescriptions requires both scientific precision and artistic flair. The exchange of prescriptions between a doctor and a patient is a significant interaction. A prescription is a written request for a specific drug dose to be administered to a specific patient at a specified time. (Shrestha & Prajapati, 2019). It concentrates the doctor's skills in diagnosis and treatment into a set of guidelines for relieving the patient's symptoms or restoring their health. (Brunton et al., 2008). Research on prescription habits is an integral part of any medical audit, intending to make it better in the quality & efficiency of patient treatment through evidence-based practice. (Gupta & Mishra, 2014). Proper drug utilization investigations are essential for determining if drugs are being used correctly in terms of how well they work, how safe they are, how easy they are to use, and how much they cost at all points in the chain of drug use. (Hannan et al., 2021).

As a part of pharmacoepidemiological methods, prescribing trend studies give a fair picture of how doctors prescribe and help locate insufficient prescribing that requires additional exploration. Such analytical studies are the most effective way to compare how drugs are used and prescribed in terms of how well they work. Medication reconciliation (Medrec) could be considered surveys of how long-term medications are prescribed and if they can be done regularly. (Chiatti et al., 2012) It was said that routinely looking at how prescriptions are lined saved more than 307.4 USD million per year.

In the outpatient setting in north Ethiopia, the outcome of prescription patterns (PP) on BP control has not been thoroughly investigated. Few studies have been done on psychotropic, narcotic, and anticonvulsant drugs (Tesfaye et al., 2012), while others involved hospitalised pediatric populations (Teni et al., 2014). Also, these studies did not examine how PP affected the treatment's effectiveness. The primary objective of this research was to analyze and contrast the impact of various prescription patterns for antihypertensive medication on the degree to which blood pressure was managed at the centre.

V. FACTORS AFFECTING THE PHYSICIANS' PRESCRIPTION PATTERN

About 25% of the total 5.3 trillion USD spent on health care went toward the cost of pharmaceuticals (World Health Organization, 2004). WHO claimed in 2011(World Health Organization, 2011) that about world's half population lacks access to affordable healthcare. According to WHO estimates, by 2015, health initiatives like national critical medication policies might avert over 10 million deaths annually.

In 1977, WHO developed the idea of "essential medicines," which are pharmaceuticals that meet accessibility, safety, effectiveness, and appropriate usage criteria. The World Health Organization's recommendation on "essential medicines" has been ratified by its member states(Dugani et al., 2018). Doctors who are allowed to prescribe medication should, of course, be held accountable for their patients' responsible drug use. (Greenhalgh, 1987) argues that the disparity of medical information often leads to doctors' improper prescribing patterns encouraging patients' inappropriate self-medication. As (Kun YU, Jianwen CAO, and Hua FU., 1996)

emphasized, doctors' prescribing habits are not fixed or uniform but rather fluid and specific to each practitioner.

According to (Adebayo & Hussain, 2010), research into medications is more concerned with complex social concerns than medical themes. To boost prescription quality and rationale, there is a need to examine both the internal and external elements that influence doctors' prescription habits. Both prescription models and descriptive analyses of doctors' prescribing habits have been offered by researchers.

VI. REVIEW OF LITERATURE

(Rouette et al., 2022) Objectives: In light of changes to the UK's HTN treatment guidelines, look at the progression of antihypertensive medications from first-line to third-line for hypertensive patients and explain the prescribing patterns for primary care patients. Plan Cohort research on a large population scale. Context and actors for this study, we used the United Kingdom's nationally representative electronic primary care database, Clinical Practice Research Datalink. Between 1988 and 2018, they tallied up all adult patients who had ever filled a prescription for a thiazide diuretic, ACE inhibitor, ARB, or CCB. Identifying Primary as well as Secondary result Measures over 31 years, they assessed the annual prevalence of individuals having antihypertensive medication prescriptions. Patients with HTN who had just begun using an antihypertensive medication were used to evaluate treatment trajectories. A shift in therapy was defined as the addition or substitution of a different class of medication. Important developments in the treatment of HTN in the United Kingdom occurred in 2007, prompting the stratification of this cohort before and after that year. **Results** There were 2,709,241 people in the cohort. All main classes of antihypertensive drugs, except for thiazide diuretics, have seen a rise in the proportion of primary care patients who fill a prescription for the medicine between 1988 and 2018; the proportion is now 21.9%. Before 2007, the majority of people suffering from HTN were treated with thiazide diuretics (36.7%) & beta-blockers (23.2%); following that year, the majority of patients were treated with ACE inhibitors (39.99%) & CCBs (31.8%). Guideline-recommended first-line drugs were not given to 17.3% of patients after 2007. The secondline of therapy was recommended for a median of the 2 classes following the first course of treatment. **Conclusion** By the conclusion of the research period, over a quarter of patients in primary care, had been given antihypertensive medication. The majority of patients with HTN should start on first-line medications, as suggested by guidelines. Furthermore, not all patients, especially females, were administered the indicated medications, which may have resulted in less-than-ideal cardiovascular results. The significance of this result should be investigated further in future studies.

(Canoy et al., 2022) Objective: There is a paucity of data gleaned from randomized clinical trials of pharmacological therapies for lowering BP over the long term. We examined results across a wide range of participant characteristics in an effort to assess the long-term impact of antihypertensive medication on BP. **Methods:** Patient-level data from 52 large-scale randomized clinical trials were examined using mixed models for the BP Lowering Treatment Trialists' Collaboration. The purpose was to assess treatment's influence on BP throughout four years of follow-up. **Results:** At the beginning of the study, the age range of 363 684 participants was 65, and their mean systolic/diastolic blood pressure was 152/87 mm Hg. Nineteen percent of the participants were current smokers, 49 percent had heart disease, 28 percent had diabetes, and 69 percent were taking medication for high blood pressure. The effects of the medications on reducing BP peaked after 12 months and then gradually diminished. There was an 11.1 (11.3 to 10.8)/5.6 (5.7 to 5.4)mm Hg (95% CI) difference in systolic/diastolic BP between more intensive and less intensive BP-lowering treatment and a 1.4 (1.5 to 1.8)mm Hg (95% CI) difference between active and control No matter the patient's age, gender, baseline BP value, or prior treatment with antihypertensive medications, and all saw a reduction in BP. **Conclusion:** These results demonstrate that medication to control BP successfully decreases BP for an average of 4 years in patients with varying features. Sustaining significant long-term reductions in BP requires appropriate treatment options for the individual.

(Arshad et al., 2021) HTN is very common, but low- and middle-income countries haven't done enough research on how to treat it with drugs (LMICs). This review looked at how antihypertensives are prescribed in LMICs. Information was taken from 26 studies that were done between 2000 and 2018. Ten researchers suggest that between 33 and 72 percent of patients with high BP utilized calcium channel blockers (CCBs). Six research indicate that some of the most frequent medications utilized treat high BP were renin-angiotensin system (termed RAS) blockers (which range from 25% to 83%), diuretics (which range from 39% to 99%), and -blockers (BBs; range = 26% to 49%). Three studies also said sedatives and giving captopril under the tongue were used to control high BP. Only 10 studies indicate how their results fit national or international standards.

This review calls for more studies on how antihypertensive drugs are used and given out, as well as a better understanding of how clinicians in LMICs see and use guidelines for controlling hypertension.

(Esam et al., 2021) This study was to investigate the frequency with which systematic reviews (termed as SRs) of randomized controlled trials (termed as RCTs) of antihypertensive medicines are published, as well as to describe the characteristics of such reviews and evaluate their quality (AHTDs). For the previous three decades (10 in 1996, 35 in 2006, and 116 in 2016), 1,173 SRs were issued (1985-2017). Most drugs are angiotensin-converting enzyme (ACE) inhibitors and angiotensin II receptor blockers. One-fourth of SRs had a published protocol or were pre-registered before they were conducted. 3/4 of the SRs didn't give a comprehensive strategy, and forty-five percent did not produce a PRISMA or similar schematic. In the last decade, there have been a total of 34 SRs published among five prestigious publications. Of them, 15% posed an unknown danger, 21% posed a low risk, and 65% posed a high risk. The number of systematic reviews, randomized controlled trials, and updated meta-analyses of AHTDs that have been published has been steadily increasing. But the number of people who follow standard ways of acting and reporting remains low.

(Paudel et al., 2021) Background and Objectives: Worldwide, HTN is a major public health concern. Premature death is greatly increased by hypertension's associated health problems, such as cardiovascular disease and renal illness. Therefore, this research aims to better understand the prescribing practices for antihypertensive agents at CMC & to identify any emerging trends. **Material and Methods:** In order to examine the prescription pattern of antihypertensive drugs, a descriptive study (cross-sectional) was performed among 290 patients with HTN who satisfied the inclusion criteria and attended the medicine OPD of CMC throughout the study period. Social context and antihypertensive medication use were recorded using a standardized prospectus. The 16th version of the SPSS tool was used for all data gathering and analysis stages. **Result:** According to the findings, only 89 individuals, which represents 30.7% of the total number of prescribed medications, were given combination therapy. CCBs and ARBs were often administered alone, whilst angiotensin receptor blockers and diuretics were typically combined as a combination therapy. ARBs & CCBs were the antihypertensive medicines most often given in this research when used alone to treat hypertension.

I. CONCLUSION

The present study concluded "a systematic review of antihypertensive agents and physician's prescribing pattern." The prescription pattern for these anti-HTN agents' medications or agents was determined to be considered in accordance with the guidelines for HTN prevention, detection, assessment, and treatment.

This paper discussed the concepts, factors affecting the physicians' prescription pattern, and various pharmacology classes of anti-HTN agents.

Also, the PP of drugs changes over time, and many new drugs are always found. So, there will constantly be a need for more research to improve anti-HTN drugs' PP.

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Vol. 7 No. 1 (January - March, Special Issue - IV 2022) **UGC CARE APPROVED JOURNAL**

Allergic Rhinitis: An Overview of Current Guidelines and Recent Advances in Treatment

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ABSTRACT
Introduction: - allergic rhinitis is the common allergic disease world wide. It occurs when the immune system overreacts to allergens in the air and causes inflammation in the nose. It is an atopic disease.It negatively affects the quality of life as it can affect the ability to work, study, sleep, fatigue, depressed mood, and cognitive function compromise.The prevalence of AR is increasing day by day. The prevalence of AR is more in children but it affects adults also. The prevalence is more in boys than in girls in 80% of cases AR is diagnosed before the age of 20.Classification of allergic rhinitis based on duration and severity. Current guidelines for the treatment of AR is by ARIA (allergic rhinitis and its effects on asthma). For seasonal AR and severe seasonal AR, intranasal corticosteroids or a combination of intranasal corticosteroids and oral antihistamines are recommended. For persistent AR, alone intranasal corticosteroids are recommended. DOC for mild intermittent AR is Second-generation antihistamine.Intranasal antihistamines are indicated in children of age >6yrs. Treatment approaches includes allergen avoidance/barrier methods, pharmacotherapy, immunotherapy and biologics. Further pharmacotherapy includes antihistamine, intranasal steroid, leukotriene receptor antagonists. Immunotherapy includes SCIT and SLIT. Biologics include omalizumab, dupilumab and mepolizumab. The oldest non-clinical approach is Allergen avoidance/ barrier methods that minimize the effects of AR. Pharmacotherapies are the main modality of management and the first line of treatment are second-generation antihistamines and intranasal steroids for minor cases of AR. The second-line treatment includes Leukotriene Receptor Antagonists which reduce symptoms of AR. The most recent treatment approach found to be most effective for the treatment of AR is immunotherapy and biologics.

INTRODUCTION

Allergic rhinitis (AR) occurs when the immune system overreacts to allergens in the air and causes inflammation in the nose. It causes watery eyes, itchy eyes, sneezing, cough, and other symptoms. It is an atopic disease. It is the most common allergic disease worldwide. The frequency of association of allergic rhinitis with asthma is high. It negatively affects the quality of life as it can affect the ability to work, study, sleep, fatigue, depressed mood, and cognitive function compromise (1).

In research, it was found that allergic rhinitis can be associated with co-morbid conditions like asthma, atopic dermatitis, nasal polyps, conjunctivitis, sinusitis, otitis media, eustachian tube dysfunction, post nasal drip, dental malocclusion, and facial deformities (1).

The incidence of AR is between 1.4% to 39.7% in western countries (1). AR affects 400 million people in the world and it is the most common atopic disease globally. The prevalence of AR is increasing day by day. The prevalence of AR is more in children but it affects adults also. The prevalence is more in boys than in girls in 80% of cases AR is diagnosed before the age of 20. (2)

Risk factors for AR are may include a family background history of asthma and genetics, Environmental factors such as exposure to pollutants, and climate change. Also, allergens like dust, mites, cockroaches, pets, weeds, and smoke are associated with this disease (3).

Recently, the classification of allergic rhinitis by ARIA (Allergic Rhinitis and its Impact on Asthma) (4) guidelines is on the basis of: -

1. Duration:

a) Intermittent

b) Persistent

2. Severity of symptoms and quality of life: -

a) mild

b) moderate-severe

This review paper goals to show the recent advances in treatment approaches to this disease and current guidelines for the treatment.

CURRENT GUIDELINES

Guidelines by ARIA (allergic rhinitis and its impact on asthma) for allergic respiratory illness: -

1. For seasonal AR and severe seasonal AR , intranasal corticosteroids or a combination of intranasal corticosteroids and oral antihistamines are recommended.
2. For persistent AR, alone intranasal corticosteroids are recommended.
3. Antihistamines either oral or nasal are less effective in AR to control its all symptoms than intranasal corticosteroids.
4. 1st generation oral antihistamines are sedating and long use of nasal alpha sympathomimetics should be avoided.

Pediatric Guidelines

1. DOC for mild intermittent AR is Second-generation antihistamine.
2. Intranasal antihistamines are indicated in children of age >6yrs.
3. Oral decongestants are not indicated in children.
4. Controlled medicine of choice is intranasal steroids.
5. Immunotherapy is also indicated in children having moderate to severe persistent AR.

TREATMENT APPROACHES

Allergen Avoidance / Barrier methods

The first move in the management of allergic rhinitis should be avoiding allergens and other triggering factors., as recommended by ARIA (Allergic Rhinitis and its Impact on Asthma) guidelines. Still, full environmental remedy or complete avoidance of allergen exposure can't be entirely possible always.

Designing a mechanical barrier over the sinonasal mucosa to achieve complete avoidance can restrict or reduce the contact between allergens, irritants, pathogens, triggering factors, and the mucosa.

A nonpharmacological intranasal cellulose powder is one of the barrier measures which binds with water and mucosal gel is formed. [and lipid microemulsions, showed that there is a reduction of the symptoms of Allergic Rhinitis.

PHARMACOTHERAPY

Pharmacotherapy consists of different treatment methods such as antihistamine drugs and intranasal steroids.

Newer methods of treatment including immunotherapy and biologics are approved for the treatment of AR.

Antihistamines

They are the first line of treatment and they provide quick relief from symptoms such as sneezing, itching, and having a runny nose which is induced by histamine. Antihistamines (first and second generation), are more effective if used repeatedly rather than intermittently. Antihistamines work by blocking histamines. First – Generation crosses the blood-brain barrier and acts on histamine receptors of the brain leading to drowsiness (5). Second-generation antihistamines should be used to relieve the symptom by penetrating less into the brain therefore the risk of side effects is less and also has negligible anticholinergic effects. One well-known example of a non-drowsy antihistamine is fexofenadine. These are a few common side effects of all types of antihistamines like headache, tiredness, nausea, dizziness, and drowsiness (6).

Intranasal Steroids

Intranasal corticosteroids (INCS) are used for improving nasal obstruction and also conjunctival symptoms. Nasal inflammation is effectively reduced by INCS. They are the initial treatment for nasal blocking. They reduce cytokine production by cells in the nasal passages and hence reduce eosinophil recruitment (7). Pre-treatment with INCS demonstrates significant inhibition of basophils, eosinophils, and neutrophils nasal thereby reducing the symptom of AR. There are very few side effects, drying, and bleeding of the nose. Commonly used nasal sprays are mometasone and fluticasone (7,8).

Leukotriene Receptor Antagonists
Leukotrienes are released into the nose to produce allergic inflammation by mast cells following allergens (9). Leukotriene receptor antagonists inhibit the production of leukotrienes and reduce allergic inflammation. The Leukotriene receptor antagonists like Montelukast/Zafirlukast reduce symptoms of AR (10) and are mostly used as second-line treatment. It is mostly used for moderate-severe cases only (11). It also decreases the recruitment of eosinophils and reduces allergic inflammation (10).

Immunotherapy
"Allergen immunotherapy has been modified over time based on new developments." Immunotherapy is a method by which our body learns to tolerate allergens by receiving frequent sets of a small amount of the allergen. Over time, the immune system of the body stops giving reaction to the allergen (12). It also reduces the production of mast cells, basophils, and eosinophils in the skin, nose, eyes, and bronchial mucosa which block basic (sneezing, headache, nausea, or itching) and severe (anaphylaxis) allergic responses (13).

There are two phases of immunotherapy: -

1) The build-up phase (duration of treatment is three-six months)
2) The maintenance phase (after reaching the effective dose, the next dose is administered over a longer period determined by the immunologist) (14).

This immunotherapy has been effective for AR specific for pollens and dust mites and is not effective for indoor/outdoor molds and animal dander (13).

SCIT and SLIT
The most commonly used method of administering immunotherapy currently is Subcutaneous immunotherapy (SCIT).

Sublingual Immunotherapy (SLIT) and SCIT are similar but are administered sublingually, therefore no injection is required (15) but not FDA-approved (in the United States) and increasing in popularity (15). However, in rare cases, within the first 30 minutes of the injection administration, a patient may have a serious anaphylactic reaction to the allergy shot. So as a precautionary measure, the patient is kept under observation for 30 minutes after receiving treatment (14,16).

Biologics
Biologics comprises newer drugs that are being used for patients with severe uncontrollable AR or persistent AR. The three most commonly used biologics for AR are (17): -

1. omalizumab (targets the IgE receptor)
2. dupilumab (targets the IL-4 receptor)
3. mepolizumab (target the IL-5 receptor)

Though Omalizumab, Mepolizumab, and Dupilumab are supposed to be safe, but in a few cases, patients experience side effects like burning, hives, pain, swelling, redness at the site of the injection, and headache. Some people also experience fever and joint pains (18).

Omalizumab
It is a monoclonal antibody and is directed against the high-affinity receptor-binding province of IgE (19). "Omalizumab forms complexes with free IgE and blocks its interaction with mast cells and basophils which results in lowering free IgE levels in the circulation" (20). Omalizumab was initially created and FDA-approved for the management of allergic asthma but has recently received FDA approval for moderate to severe cases of AR.

Dupilumab
Dupilumab, a subcutaneous drug, is a human monoclonal antibody, IgG4 subclass, targets the IL-4Rα subunit, and disrupts IL-4 and IL-13 (17,21). The administration of Dupilumab blocks both cytokines and thereby reduces inflammation of AR. Dupilumab has been recently approved by FDA for chronic rhinosinusitis with nasal polyp. In AR, dupilumab is only used for perennial AR (17,21).

Mepolizumab
Mepolizumab is administered subcutaneously or intravenously and is a human monoclonal (IgG1) antibody which targets interleukin 5 (IL-5) or the IL-5 receptor α subunit on eosinophil and white blood cells (17,21). IL-5 increases eosinophil counts, thus inhibiting IL-5 helps in reducing symptoms of AR.

Mepolizumab is also FDA-approved for chronic rhinosinusitis with nasal polyps.

CONCLUSION

Million people suffer from AR worldwide and it is a very burdensome disease. AR is an overlooked and underdiagnosed disease, leading to an increased health burden for individuals and society. Pharmacotherapy is clinical whereas allergen avoidance is non-clinical so pharmacotherapy is explored in more detail. Also, pharmacotherapy comprises more recent treatment than allergen avoidance as avoidance is just an old precautionary measure to prevent AR from happening.

Few treatments have been used for years to manage and reduce the severity of symptoms in patients. The oldest non-clinical approach is Allergan avoidance/ barrier methods that minimize the effects of AR. Pharmacotherapies are the main modality of management and the first line of treatment are second-generation antihistamines and intranasal steroids for minor cases of AR. The second-line treatment includes Leukotriene Receptor Antagonists which reduce symptoms of AR. The most recent treatment approach found to be most effective for the treatment of AR is immunotherapy and biologics.

Biologics on the other hand have benefits; however, they are very costly and is very little FDA approval as of now, which means that Biologics are still comparatively new and need time to be used in full force. In short, AR is the commonest atopic disease and is a big burden on both a patient and the government this is the reason why the recent advances in treatment approaches for this disease are so important.

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Technologies in Diabetes: Improving Self-Care

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ABSTRACT
Diabetes is one of the most common diseases on the planet and due to its common nature and disastrous effect on human lives, technology in diabetes has been leaping joys and bounds. Most of the technologies allow the chance to people afflicted to enable themselves to conduct self-care thereby ensuring empowerment of the patient. Even more so advantageous for medical professionals. However, new technology can always have drawbacks and therefore may serve as a burden to the entire process. To ensure smoother coherence between medicine and technology for better results, it is important to perceive the current problems faced by diabetic patients. It is important to understand the various facets of the current "self-care" technological solutions, especially after the advent of various self-testing products after the Covid-19 pandemic. It is necessary to inculcate these technologies to ensure not only effectiveness but also efficiency of the fight against diabetes. The linchpin to achieve said goals lies in training and education. This article aims to understand the current perspectives of patients and practitioners of the existing technologies and the evaluation of the technological solutions. The key to understanding the effectiveness and the efficiency of such technology lies in the methods ability to empower patients and ensure a cost-effective method.

INTRODUCTION TO THE TOPIC

Diabetes complications can be reduced by optimising glycemic control. Glycated haemoglobin (HbA1c) has been found to be effective in long-term glucose management, but it is useless on a daily basis since it does not offer information regarding glucose fluctuations. Diabetes care continues to be a big burden on a daily basis. Glycemic management optimization comprises essential and continual decision making for the majority of diabetics, as well as a perpetual struggle between hyperglycaemia and hypoglycaemia due to glycemic fluctuation. Impotence and futility, as well as concern about chronic complications, hypoglycaemia risk, and stigma in the professional and social milieu, are all common causes of diabetes misery in this setting. These apprehension sources are common barriers.

Studies have noted that technology inculcation in diabetes have improved the outcomes. It is important to understand the advancements of these technology as they have aided in safety and discretion. Lack of knowledge of proper usage of these technologies may become a burden. The paper thus aims to understand the different perspectives of the various stakeholders in this field and suggest methods to ensure improvement of self-care technologies. However, there is a numerous number of potential technological solutions and therein lies the limitation of this paper as only the most relevant self-care technologies would be discussed.

The Various Perspectives on Technological Advances in Diabetes

Diabetic technologies in general do not ensure the decrease or increase in diabetes stress scores. However, the inculcation of user-friendly technology has created a sense of relief for all the users of such technologies.

The ability to customise diabetic devices is a strong selling factor for most patients. In interviews, diabetics said a useful diabetes device is one that can be easily integrated into daily activities. A diabetic technology or device should also be beneficial enough to warrant the learning curve and other costs. Among the possible benefits are disregard, safety, accuracy, and access to new glucose and performance data. Adherence is more likely if a device or technology provides these benefits and the individual believes the learning curve is low. Using diabetic technologies and gadgets improves glycemic control. Adherence is still difficult to achieve, especially among teens, according to research. Diabetes technology requires daily, weekly, and monthly duties. Examples of behaviours and activities include responding to CGM alerts, administering insulin boluses, refilling or changing insulin cartridges, inserting or replacing sensors, and charging batteries. As a consequence of easier and more automated technologies, some of these responsibilities have been reduced or abolished. adherence, therapeutic results, and overall patient contentment. Individual characteristics and treatment methods impact the use of technology. Researchers found that users of multiple insulin doses (MDI) and blood glucose metres (BGM) were less favourable to diabetes technologies than users of insulin pumps and CGMs. When it comes to diabetes technology, doctors are most concerned about costs, adherence, and patient and provider learning curves. A study comparing professionals and patients found discrepancies in the difficulties highlighted. The study found that younger doctors prescribed and used more diabetes technologies with their patients and had more favourable opinions of diabetes technology than older doctors. Patients and experts agreed that the most

prevalent hurdles were cost and lack of insurance coverage. There were large variations in patients' inclination to wear a device or lack of understanding with how to operate it. Doctors reported more adjustable barriers to using diabetic technology than did adult patients with type 1 diabetes. James and colleagues recently discovered similar discrepancies in educators' planned and actual use of diabetes technology.[4]These data demonstrate that healthcare providers should be taught in diabetes technology usage and prescribing. Diabetes technology has gradually grown in North America and Europe during the last decade. However, the country's healthcare system structure and resources have influenced the techniques and rates of coverage.[4] Large transatlantic registry studies show variations in metabolic outcomes despite similar demographics, partly due to varying rates of diabetes technology usage. The cost-effectiveness of diabetes treatment choices is influenced by several factors, including technology, environment, healthcare system structure, and results.[4] In terms of healthcare expenditures, non-adherence or early termination might be costly. Diabetes technology and equipment can only be fully utilised if it is patient specific. Diabetes education is critical to maximising diabetes technology advantages.[4]The team should be led by diabetic educators and clinicians who are patient centered. Most challenges with diabetes technology may be overcome with psychological techniques like motivational interviewing and direct inquiry.[7]

The Effect of the Pandemic on Self Care Diabetes Technologies

Consider this as a silver lining in the midst of the COVID-19 dark cloud: The pandemic has strengthened at-home digital health solutions. Telehealth visits, remote patient monitoring, and digital medicines may improve patient care in a world where social distance is frequent.

In two major trials, the Diabetes Control and Complications Trial and the UK Prospective Diabetes Study, researchers revealed that glycemic control (i.e. keeping glucose levels within a range) is the key to successful diabetes therapy. Numerous studies have demonstrated that aggressive blood glucose management with regular monitoring can delay the onset and progression of diabetic eye, kidney, and nerve damage. Despite technological advances in blood glucose monitoring and medicine delivery, many still struggle to regulate their glucose levels. According to study, less than half of Type 2 diabetes patients on long-acting insulin get their expected glycemic outcomes. Among the many contributing factors, one of the most mystifying is that maintaining glycemic control remains an onerous and time-consuming burden for most diabetics (PWDs). The "role model" diabetic patient will eat well, exercise often, follow and monitor different pill and insulin regimes, test blood glucose levels frequently, and track and record behaviours, including emotions. In certain cases, even if patients follow all directions to the letter, clinicians lack timely information (or the time and resources) to assist.

RPM Platforms for Virtual Diabetes Care

The ability to track and report on blood glucose levels, insulin injections, physical activity, prescription use, and food consumption can tremendously help diabetics. Then they may use telehealth coaching to provide just-in-time treatment to their patients. Remote monitoring and more frequent interventions should be employed in conjunction with medical office visits to enhance patient outcomes beyond the existing standard of care of quarterly visits.

Providers and patients should be able to easily access and exchange data from a number of sources, including EHRs, insulin delivery devices, and patients' health/fitness equipment, to offer the best possible care for PWDs at home. These technologies should also automate tracking and reporting and encourage patients to enhance self-care. Currently, diabetic RPM systems can do all of this and more. Multi-device RPM systems can enable tailored dose modifications, interventions, and follow-up care for PWDs. They should also enable participants to upload and exchange data remotely or in the clinic, and all patient information should be securely accessed by physicians, health systems, and patients. Clinical Studies also show that RPM can help maintain Glycemic Control. RPM platforms and tools may help healthcare practitioners dealing with diabetic patients improve glycemic outcomes, according to early evidence. A diabetes management smartphone app synced blood glucose, medication, and lifestyle data for PWDs participating in RPM trial programmes around the US. Remote RPM care teams kept an eye on this data and provided guidance. Many glycemic outcomes improved rapidly and consistently for up to a year compared to SMBG data collected at enrolment. The app-based self-titration tool was based on a physician's pre-configured treatment plan or published clinical guidelines in a randomised clinical research. The app users had more SMBG readings in the target range of 70-180 mg/dL and less high SMBG readings (>250 mg/dL) than the control group (who used an upgraded paper titration tool with diabetes educator supervision).

Glucose Monitoring Has Mostly Taken the Place of Finger Pricking.

Since 1999, DexCom of San Diego has been developing continuous glucose monitoring technologies. The FDA authorised the Dexcom G6 in March, and it does not require finger pricks or blood draws. This continuous glucose monitor is comparable to others on the market. Diabetics can monitor their blood sugar levels under the skin throughout the day and night. Apple and Dexcom collaborated to link the Apple Watch with the Dexcom G6 system. Experts anticipate the product's introduction in the near future. Verily collaborated with DexCom to upgrade the G6 to the G7. Google evaluated a non-invasive glucose monitoring system based on smart contact lenses. However, this was attempted and failed. The technology industry appears to have learnt their lesson and now acknowledges that they require the assistance of health sector professionals in order to develop safe gadgets that fulfil regulatory requirements. CGMs are also manufactured by other firms, notably DexCom. Abbot's FreeStyle Libre glucose monitor utilises flash technology to determine blood glucose levels. The gadget is worn on the upper arm and detects glucose levels in the "interstitial fluid" of the body. In October 2018, the CE Mark authorised the Freestyle Libre 2 with customisable warnings and Bluetooth connectivity.

These recent technological advancements will significantly benefit diabetics. Constant glucose monitoring, cheaper expenses, and continuous insight into life with Type 1 diabetes — not just blood tests — are the most significant advancements for Type 1 diabetes patients. Recent advancements in diabetes research have prompted some diabetics to choose an artificial pancreas over a pump or MDI. Consider digital patches, artificial pancreases, and other methods of monitoring blood glucose.

Digital Skin Patches that Are Irreversible[12]

Long-term continuous glucose monitors, such as the Eversense sensor, can now be implanted beneath the skin. This sensor continuously measures blood sugar levels for 90 days following implantation. Interstitial fluid emits a strong signal in response to changes in blood sugar levels. Numerous individuals elect for non-invasive alternatives to having a sensor implanted in their body. POP! One was just authorised by the FDA. This device enables on-the-go glucose testing. It is attached to the back of a smartphone through sensors, a lancet, and other components and provides results in less than 30 seconds. Following the test, the results will be shown on the smartphone app that comes with the device. SugarBEAT CGM, a non-invasive glucose monitoring device created by Nemaura in the United Kingdom, is expected to receive FDA approval shortly. SugarBEAT takes a little quantity of glucose from the interstitial fluid. Dexcom and other glucose monitors were shown to be more accurate in early trials such as SugarBEAT. Apart from that, it is an economical solution. The interstitial fluid glucose sensor developed by the University of Bath was recently tested in the absence of a blood sample.

Insulin pumps vs. Smart Pens

Insulin pumps are programmed to provide a predetermined amount of insulin at a predetermined rate throughout the day. They are less patient-friendly due to the fact that they must be linked to the body.[12] Pens, on the other hand, are unobtrusive and inexpensive. Many diabetics opt for insulin pens for these reasons. Initially, these devices were incapable of being programmed or collecting data.[14]

These are the most recent technological developments in diabetes care. Bluetooth devices like as the InPen and Gocap can be used to monitor insulin dosage and timing. InPen was developed by Companion Medical and became accessible in the United States in December 2017. The gadget has remained mostly unchanged since its introduction, save for the addition of Bluetooth, which enables users to monitor their glucose levels using their smartphones. This device can track up to 800 injections (3 months' worth of days) and may be used in conjunction with other diabetic monitoring devices to provide more accurate therapy. The NovoPen 6 was supposed to be on sale in 2019 but has yet to enter the market. In any case, the gadget is designed to connect the company's disposable pre-filled injectable pens in the present and future. Additionally, the organisation wishes to expand its personalised therapeutic advice options. Automatic bolus calculators are used in all diabetes mobile applications and insulin infusion devices (ABCs). ABCs and advanced carbohydrate counting have been shown to enhance HbA1c and treatment satisfaction, as well as to decrease hypoglycaemia and hypoglycaemia fear. Adaptations for certain circumstances, such as exercise, menstruation, stress, or illness, are also beneficial. However, it lacks long-term data, uniformity, and is reliant on carbohydrate counting precision.

The availability of insulin-dosing pens with ABCs is a significant advancement. To minimise insulin dosage stacking, these "smart pens" keep track of and account for previously administered insulin doses. Another notable feature is the ability to monitor the temperature and expiration date of insulin. Controlling treatment is made simpler for both patients and clinicians. This novel technology may enable insulin pump users to adjust their insulin dosages just as precisely as MDI users do.

CONCLUSION

To empower diabetics and increase their abilities to care for themselves, diabetes technology offers the capability In addition to safety, support, self-efficacy, and ease of use, diabetes technology provides a range of options for empowerment. Two of the most common roadblocks consumers and providers encounter are the costs involved and the extent of the insurance coverage. Individualized plans that focus on the patients' needs are essential to getting the most out of these devices for both patients and healthcare providers. Adequate utilisation of diabetic devices and technology, as well as their settings, outcomes, and methodology, are all necessary for cost-effectiveness. It is difficult to stop persons with diabetes from utilising technology because of the benefits it provides in terms of better self-care.

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Utility of Foot Length for Identification of Preterm Neonates: A Hospital-Based Cross-Sectional Study

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ABSTRACT
The aim was to find-out the effectiveness of foot length as a simple screening tool for gestational age assessment in neonates so that it can be used at peripheral level for timely referral and thereby reducing neonatal mortality.

Methods: A cross sectional observational study was conducted during February 2022 till September 2022.Total 800 new-borns, all delivered in the study hospital, situated in urban area of western Uttar Pradesh were included. New-borns with chromosomal anomalies, intrauterine infections, twins, or born to mothers unable to recall LMP or with some serious evident medical conditions were excluded. Foot length was measured by calliper.

Results: The mean gestational age was 38.0(SD,2.39) weeks, ranging from 26−42 weeks. Mean foot length in term and pre-term babies were 7.42cm (SD + 0.57) and 6.69 cm (SD + 0.56) respectively (p value < 0.0001). Pearson's correlation coefficient between gestational age as assessed by new Ballard score and foot length, birth weight, crown heel length and head circumference showed significant positive correlation in the decreasing order (r = 0.812,.765, 0.721 & 0.720) respectively. Linear regression analysis for gestational age with foot length also had highest coefficient of determination R^2= 0.781 (P < 0.001).

Conclusion: As foot length has strong corelation with the gestational age so it can be used as a simple yet accurate way to predict gestational age.

Keywords: foot length, gestational age, prematurity, Ballard score,

INTRODUCTION

Neonatal deaths account for 45% of all under 5 mortalities and majority are due to premature birth. To decrease neonatal mortality, it is imperative to identify whether a just born thin looking baby is preterm or term but small for gestational age (SGA) as the complications and prognosis of the two differs. For many decades the gestational age is being assessed antenatally by LMP, per abdominal examination of pregnant mother for uterus size and USG evaluation. After birth the gestational age assessment is done by anthropometry of new-born or by Ballard score, but most of these need sophisticated instruments, round the clock power supply and most importantly clinical expertise & time of the health care provider(1). Even today many places in rural locality, urban slums, hilly and remote areas have population who have no or inadequate antenatal check-up, do not get USG done in pregnancy and mothers not knowing exact LMP especially if conceived during lactational amenorrhea(2–4). The ASHA workers are burdened too much with a long list of responsibilities, trained specialists or qualified medical persons providing round the clock service are scarce, health care setups/facilities in periphery lack sophisticated equipment's(5,6). All these shortcomings emphasise the need of a quick and simple parameter which can be a useful surrogate marker (7–9) for identifying preterm low birth weight baby in need of timely referral and appropriate intensive care(7,10).Some researchers have developed a colour coded calliper for ease of peripheral health workers(11),some are trying to develop an app. Anthropometric parameters relatively less popular used to know gestational age (GA) are foot length, chest circumference(12) and distance between right nipple and umbilicus.

Foot length has been claimed to be one such parameter by many researchers, which fulfil all criteria of a convenient surrogate marker of gestational age of new-born (7,13–17) to be used by primary health care workers. There are many studies reporting close positive correlation between foot length (FL) and GA(18). New-born foot is usually readily accessible & least disturbing to the baby, unlike other anthropometric parameters especially in sick neonates. There are some studies comparing various devices used to measure foot length and reported that simple plastic ruler, impression of foot on paper are as good as delicate digital callipers or plastic Vernier's callipers(19–21). There are studies refuting the claims of usefulness of foot length in neonates and concludes that none of the postnatal gestational age assessment method like Ballard score, foot length, anterior lens vascularity, last menstrual period or non-structured assessment by a clinician can confidently predict a gestational age within a week and have little utility in practice(15).Another study

supporting this conclusion by Lee et al(22) reported that neonatal anthropometry is poor parameter to identify preterm new-borns.

These contradictory claims about usefulness of foot length were the reason to undertake the present study.

METHODS

A cross sectional hospital based observational study was conducted between October 2021 till July 2022. All the new-borns delivered in the study hospital, situated in urban area of western Uttar Pradesh were included after parental consent. New-borns with chromosomal anomalies, intrauterine infections, twins, or born to mothers unable to recall LMP or with some serious evident medical conditions were excluded. Foot length was measured by a simple calliper. Total 800 new-borns were included in the study. Within 24 hours of birth, all anthropometric parameters including baby's FL were measured. Foot length was measured using Vernier sliding calliper from the heel midpoint to the longest toe, caution was taken to avoid the pressure on the soft tissues while taking measurements. The foot was positioned in lateral direction while holding the ankle. A finger was placed on the dorsum of foot to counteract the plantar grasp reflex which would have minimised the FL. The measurement of FL was done in right foot. GA was assessed by new Ballard score which was done within first 24 hours of life. Other anthropometric parameters were taken with electronic weighing scale, non-stretchable measuring tape and infantometer. FL measurement and Ballard scoring was performed by principal investigator post graduate resident. Data was compiled using Microsoft excel and Stata software were used for its analysis. To investigate the linearity between gestational age and anthropometric parameters variables, Pearson correlation and regression analysis was performed was performed.

RESULTS

Present study enrolled 800 new-borns; 420 (54.67%) were male babies and 380(45.33%) were female babies; 604(75.5%) were term,124(15.5%) were preterm &72(9%) were post-term babies. Low birth weight babies were 203(25.4%), with higher proportion of pre-terms as compared to small for gestational age (SGA)babies. Large for gestational age (LGA) babies were 3.2%. Descriptive statistics of anthropometric variables of recruited new-borns are tabulated in Table I. Mean foot length (FL) in term new-born babies was 7.42 cm (SD + 0.57) while it was 6.69 cm (SD +0.56) in pre-term AGA babies and 6.15 cm (SD+ 0.70) in pre-term SGA babies. The difference between term & preterm FL was statistically significant ($p < 0.0001$). Pearson correlation coefficient & Linear regression analysis for GA with all anthropometric measurements is shown in the table II.

Table I: Descriptive statistics of anthropometric variables of study population (n = 800)

Variable	minimum	maximum	Mean	SD	95% CI of Mean, Lower bound - upper bound
Gestation (weeks)	26	42	38	2.39	38.28-38.61
Foot Length (cm)	4.5	8.8	7.42	0.57	7.38-7.46
Birth weight (Kg)	0.9	4.5	2.68	0.56	2.64-2.72
Crown Heel length(cm)	32	52	46.29	2.88	46.09-46.49
Head circumference (cm)	21.5	38.0	32.45	1.90	32.32-32.58

Table II: Pearson correlation and linear regression analysis between GA and anthropometric variables for study population (n=800)

GA (weeks) vs Anthropometric Variables	Correlation coefficient, r	Correlation coefficient, r p-value	coefficient of determination, R^2	P value of R^2
Foot length(cm)	.812	0.001	0.781	<.001
Birth weight (Kg)	.765	0.001	0.665	<.001
CHL (cm)	.721	0.001	0.636	<.001
Head Circumference(cm)	.720	0.001	0.618	<.001

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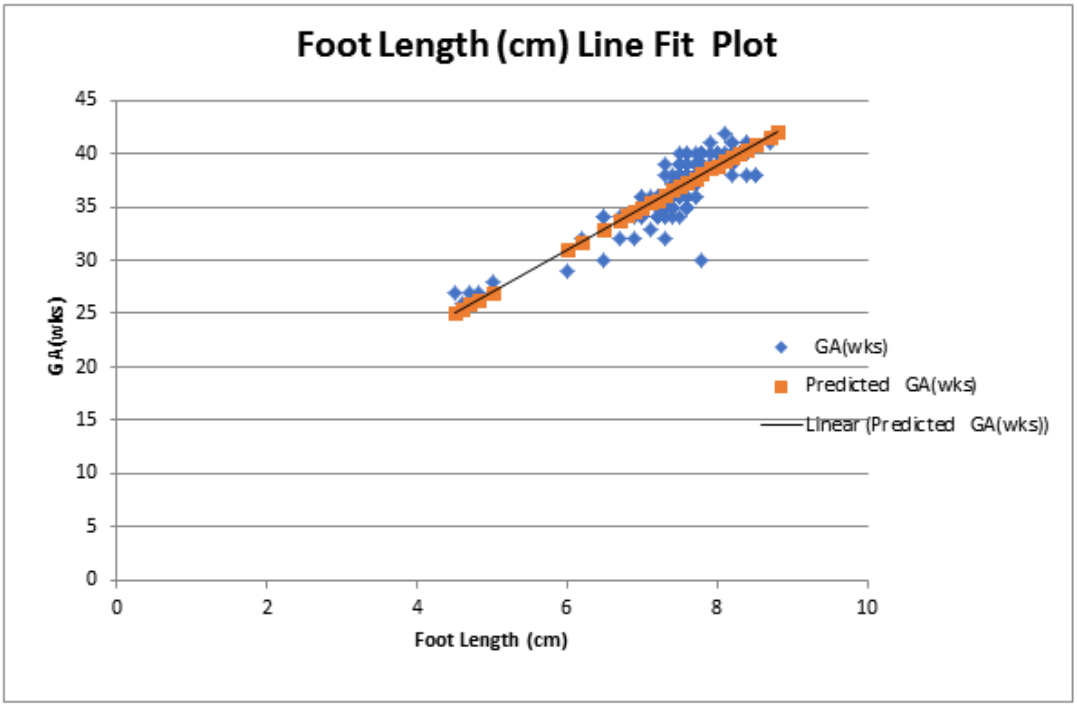

Figure 1: Scattergram showing the correlation between foot length and gestational age in overall study population

This is evident from the table that the gestational age (GA) has significant ($p < 0.05$) correlation with anthropometric parameters like foot length (FL), birth weight, crown heel length (CHL) & head circumference. Correlation coefficient (r) of all the parameters were positive. Highest Pearson correlation coefficient (r) was observed with foot length (r = 0.810) which indicates strong positive association between foot length & GA. The linear regression had highest coefficient of determination $R^2 = 0.781$ ($p < 0.001$) with FL. R^2 of 0.781 implies that in 78% of babies, GA can be predicted by the equation using foot length.

DISCUSSION

In present study 800 new-borns were included of which 75.5% were term,9% and 15.5%were post term& preterm respectively. Statistically significant difference was seen between Mean FL in the pre-term and term babies [6.69cm (SD + 0.56) and 7.42 cm (SD + 0.57) respectively ($p < 0.0001$)]. Pearson's correlation coefficient between GA versus FL, birth weight, length and head circumference showed significant positive correlation in the decreasing order [maximum with FL (r = 0.812)]. Linear regression analysis for GA with FL also had highest coefficient of determination R2 = 0.781 ($P < 0.000$).

The results in present study are drawn from overall new-born population while previous studies have reported stronger correlation between GA and anthropometric parameters in preterm than in post term & term babies. Foetal growth and thus FL can be affected in SGA and LGA babies and corelation becomes less evident in them as compared to AGA babies(19,20,23).Tenali et al. reported that FL correlates well with the with gestational age in neonates but it is most prominent in pre-terms than term IUGR babies(24).In their study Tenali et al documented that FL measurement was useful for quick estimation of gestational age in preterm and term neonates for early referral of new-borns requiring special care and can even be done by basic healthcare personnel.

Corresponding to GA of 37 weeks, the cut-off value of FL found by different studies range from 7.7 cm(9),7.37 cm(20) to 6.83cm(8) which can be explained by the difference in population characteristics in these studies. Mukherjee et al. reported that foot length < 7.75 cm had 92.3% sensitivity and 86.3% specificity, for preterm new-born identification(14).They reported that for LBW babies (<2500 gm) a foot length less than 7.85 cm has 100% sensitivity and 95.3% specificity the while Foot length less than 6.85 cm has 100% sensitivity and 94.9% specificity for identification of VLBW babies (<1500 gm).

In present study the high correlation between GA & FL is in concordance with the observations of Senthil et al(1)they demonstrated the positive correlation between FL and gestational age determined by LMP (r = 0.965) and ultrasound (r = 0.964).

An important finding of present study was that all the four anthropometric measurements correlated well with GA. This is in concordance with the results of a study from rural part of India, in which enrolled over 1000 babies of 28 to 43 weeks GA to find the best parameter for GA assessment. They reported that amongst all anthropometric parameters individually, FL had maximum positive correlation (r = 0.878) with GA followed by BW (r = 0.799), HC (r = 0.766) and crown to heel length (r = 0.764) respectively.

Contrary to our result, Lee et al showed that neonatal anthropometry had poor performance to classify preterm new-borns. They concluded that new-born foot length < 75 mm had only 64% sensitivity and 35% specificity for diagnosing preterm status.

CONCLUSION

Foot length measurement in neonates is a simple, feasible alternative measurement to identify premature neonates with good sensitivity and specificity.

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An Epidemiological Evaluation of Presence of Hypertension in Glaucoma Patients

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ABSTRACT
Background: Glaucoma is regarded as an optic neuropathy that causes vision loss and is typically asymptomatic until advanced stages. The objective of this study was to determine if patients with primary open-angle glaucoma experienced systemic hypertension (POAG).

Methodology: Patients which were known cases of glaucoma and age >40 years, taking regular drugs or receiving anti-glaucoma therapy were included in the study. The measurement of intraocular pressure was made using Goldmann tonometry.

Result: There were 61 males and 53 females out of 114 POAG patients in the study. Out of 61 males 72.1% had hypertension whereas 49.1% out of 53 females hypertension. A Highly significant association was observed between hypertension and IOP.

Conclusion: There was no major correlation between fundamental hypertension and IOP expansion. There was no clear correlation with systemic hypertension in any of the other clinical and diagnostic measures of POAG.

Keywords: Glaucoma, intraocular pressure, hypertension

INTRODUCTION

Glaucoma is the world's second most common cause of blindness and accounts for 15 percent of global blindness. In India (23.5 percent) of global blindness, the regional blindness burden is largest, with at least 5.8 million blind due to Glaucoma. It accounts for at least 12.9 percent of the world's primary open angle Glaucomatous blindness in India, and these estimates are projected to be double the amount today by 2020A.D.[1] While it predominantly affects the elderly age group, glaucoma occurs at all levels of our society, with a substantial economic effect on health. Glaucoma causes permanent visual loss, no known therapy can recover the vision lost. However, blindness is preventable from glaucoma in all cases; early diagnosis and careful management are needed for this prevention. Diagnosis relies on the capacity of multiple glaucoma to detect early clinical signs. Open-angle glaucoma is caused by multiple components and very few variable risk factors, such as systemic blood pressure. Hypertension is one of the modifiable risk factors that can be adjusted to avoid the development of glaucomatous optic atrophy. There is a disturbance of the pressure in the choroidal arteries supplying the optic disc and the retrolaminar portion of the optic nerve, resulting in vascular insufficiency in the optic disc and the retro-laminar part of the optic nerve, as well as visual field defects and pathological diseases.[2] By 2010, the overall prevalence of 1.96 percent was estimated to represent 44.7 million people affected by POAG and 4.5 million were expected to be bilaterally blind.

Glaucoma was used to characterize blindness by advancing age to explain by Hippocrates. Increased occurrence of primary open angle glaucoma that is considered to have hypertension, hypotension, coronary artery disease etc [3] in patients with systemic vascular diseases is seen as Al-Tabari [10th century], which is written in Arabic script in his book of Hippocratic care, the first concept of a disease with elevated IOP comparable to what is known as glaucoma. Open-angle glaucoma patients have been shown to have elevated blood pressure [3].Several studies have shown that there is no significant intraocular pressure diversion in the general population of patients with systemic hypertension.[4]

METHODS AND MATERIALS

The present Interventional study was carried out in the Department of Ophthalmology, Santosh Medical College and Hospitals, Ghaziabad, UP after getting approval of the Institutional Ethical committee over the period from January 2019 to July 2020. Details of the procedure were explained to all the patients and written informed consent was taken. This study comprised 114 POAG-diagnosed participants who were over 40 years old.

Patients were selected on the basis that they were already diagnosed cases of glaucoma and was on regular medications or anti-glaucoma therapy for glaucoma. As we know glaucoma is a group of degenerative disease in this study patient already knew about their diagnosis about glaucoma. So, we had selected those patients who were above 40 years of the age and had glaucoma and were inform about the nature of the study.

RESULTS

A total of 114 patients meeting the inclusion criteria were enrolled in the study. All subjects were POAG patients of which 70 patients had hypertension. There were 61 males and 53 females in the study whereas the mean age was 57.74 ± 10.64 years.

Table 1: Age and sex distribution of POAG

Age	Sex		Total
	Male	Female	
40-49 years	16 (26.2%)	11 (20.8%)	27 (23.7%)
50-59 years	20 (32.8%)	16 (30.2%)	36 (31.6%)
60-69 years	16 (26.2%)	18 (34%)	34 (29.8%)
>70 years	9 (14.8%)	8 (15.1%)	17 (14.9%)
Total	61 (53.5%)	53 (46.5%)	114 (100%)

Table 1 describes the demographic characteristics according to age and sex of all participants during the study period. In this study, a total of 114 cases of POAG were included. Majority of males (20) were from 50-59 age group while higher number of females(18), were in the age group 60-69 years.

Table 2: Clinical characteristic of patients with primary open angle glaucoma

	Maximum	Minimum	Mean ± SD
IOP (R/E)	17	35	26.16 ±4.62
IOP (L/E)	17	35	26.18 ± 4.57
SBP	110	180	137.72 ± 17.348

Table 2 showed clinical characteristic of POAG patients. The mean intra ocular pressure for right and left eye was 26.16±4.62 mmHg and 26.18±4.57 mmHg respectively. The mean systolic blood pressure was 137.72±17.348 mmHg ranging from 110-180 mmHg. Mean diastolic blood pressure observed among POAG patients was 80.53±8.07.

Table 3: Association between IOP and Hypertension among POAG patients

		Hypertension		p-value
		Yes	No	
IOP (R/E)	**≤ 21 mmHg**	1 (1.4%)	29 (65.9%)	<0.0001
	>21 mmHg	69 (98.6%)	15 (34.1%)	
IOP (L/E)	**≤ 21 mmHg**	2 (2.9%)	28 (63.6%)	<0.0001
	>21 mmHg	68 (97.1%)	16 (36.4%)	

Table 3 shows highly significant association between hypertension and intra ocular pressure among POAG patients.

DISCUSSION

The population should be screened for glaucoma to help identify cases early. The entire population may not be financially viable to screen, though. Identification of the risk factors will make it easier to choose high-risk patients for screening, which should lead to a general decline in the visual impairment caused by this illness and the morbidity associated with it.

Patients with primary open angle glaucoma who were seen at the outpatient department at Santosh Medical College, Ghaziabad, participated in this cross-sectional study. In this investigation, the presence of concomitant systemic hypertension in 114 patients with primary open angle glaucoma was assessed. In our study of 114 patients 61 were males and 53 females. Systemic hypertension was found in 70 of the 114 patients which amount to 61.4%. The average intra ocular pressure (IOP)for right eye among subjects was 26.16 mmHg and for left eye was 26.18 mmHg whereas the range of IOP being 17 – 35 mmHg with goldmanapplanation tonometry.

There is difference in relation between hypertension and glaucoma which are conducted in different places of the world and even in India. The prevalence of hypertension in glaucoma in is 61.4% percent which is comparable to studies done by **EgnaNeumarkt et al** [5], **Blue mountain et al** [6], **Latin eye disease** [7],**Mitchell et al** and **Baltimore et al** [8]who found the prevalence rate respectively 27.9%,45.7% ,17% and 49.3%.

Accessible information recommends that the commonness of POAG shifts from competition to race and is affected by different variables like age, sexual orientation, and other related danger factors. The prevalence assessed for POAG in East Asia differs from 0.5% to 2.3% and from India is between 0.41% to 2.56%. [9]

In our study, the total number of male subjects was 61 out of 114, which corresponds to 53.5% prevalence in males and 53 out of 114 were females, which accounts for 46.5% among females. In proportion to increased blood pressure, the mean intraocular pressure increased. A positive association between I.O.P. and POAG was suggested in the Blue Mountains eye study [6]. It showed a 3mm linear increase in I.O.P across the range of blood pressure levels, as seen in the graph.

There was also no major gender difference between patients with and without POAG in population-based studies conducted in rural [6] and urban south India [10]and in Central India [11]. The study of blue mountain eye disease showed a higher prevalence of POAG in women than in men, [12] and similar results were seen in the study of Andhra Pradesh eye disease, [10], where the chances of women with POAG were 1.3 (95% CI, 0.7, 2.6), although this was not statistically important. This was contrary to other research, such as the Aravind Comprehensive Eye Survey[9] and the analysis conducted in BarbadosbyLeske et al [21],which showed that POAG was more likely for males.

In our sample, there was no statistically significant association between systemic hypertension and the incidence of POAG (p=0.81), which is consistent with results from the Barbados eye study [13], the Weih et al [14]study, and the Aravind eye survey [37].This was contrary to some population-based research, such as the11th Blue Mountain eye study [6], the 15th Egna-Neumarkt study [5], and the 47th Baltimore eye study[8].

CONCLUSION

POAG is multi-factorial and has distinct hazard variables. It has a vague-relation to basic hypertension, and this has been tested in this investigation. No vital interaction with POAG or any of the numerous clinical and symptomatic markers of POAG was found to have fundamental hypertension.

There was no major correlation between fundamental hypertension and IOP expansion. These results were not exactly the same as those that occurred in a large number of other population-based reviews carried out in various nations, but were like the findings contained in India's considerations.

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A Cross- Sectional Hospital Based Study for Treatment Outcome of Tuberculosis Cases (Age 1 To 18 Years) Under RNTCP in Urban Ghaziabad

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ABSTRACT

Background: Almost one in three people globally are affected by tuberculosis (TB), making it one of the most prevalent infectious diseases. Despite significant socioeconomic growth and improvements in medical research over the years, tuberculosis (TB) remains a public health issue of the utmost concern.

Aim and Objective: The present study aimed at evaluating the treatment outcome of tuberculosis cases (age 1 to 18 years) under RNTCP in urban Ghaziabad

Methodology: This cross-sectional analysis was carried out on paediatric TB cases during 1year study period from 1st Jan 2019- 30th Dec 2019 at the Paediatric department, Santosh Medical College and Hospital, Ghaziabad, UP.

Result: In this study, majority of paediatric TB cases aged above 10 years (39.16%) followed by 5-10 years (30.83%), and 2-5 years (25.83%). Only 4.16% patients aged below 2 years. Approximately 61 percent of patients were males. The most common type of TB was pulmonary (38.3%) followed by CNS (23.3%). TST was positive in 67.5% of the pediatric cases. 46.7% of the paediatric cases received daily TB treatment while remaining got intermittent therapy.

Conclusion: In conclusion, we discovered that men in the study population had a somewhat higher tendency for disease. The most prevalent type of TB with the highest prevalence of CNS tuberculosis was extra-pulmonary TB.

Keywords: Pulmonary Tuberculosis, CNS TB, Tuberculin skin test (TST), RNTCP.

INTRODUCTION

Tuberculosis (TB) affects almost 1 in 3 individuals across the world making it one of the most common infectious diseases worldwide. TB remains a leading cause of death annually despite the relatively cheaper and accurate diagnostic tools and well-established effective treatment regimens. However, if diagnosed and treated appropriately, mortality in children due to tuberculosis approaches nearly zero.

India accounts for one of the highest TB burdens globally, accounting for roughly 20% of the new 8.6 million TB cases. [1,2] While the burden of childhood TB in India is unknown, regional data from the World Health Organization (WHO) indicate that sputum microscopy smear-positive TB in children (<14 years old) accounts for 0.6%– 3.6% of all reported cases.[3] The burden of TB in the pediatric population is seldom well accounted for and remains underestimated roughly contributing to about 10-20% of all TB in the countries accounting for larger burden of the disease and approximately 8% of total deaths. [4-7]

Mycobacterium tuberculosis (Mtb), which is the pathogen causing TB, is said to infect up to one-third of the entire world's population.[8] TB is primarily a disease of the lower respiratory tract but can lead to infection almost anywhere in the body. Latent TB infection (LTBI) is defined as immune sensitization to Mtb without apparent clinical signs or symptoms of tubercular disease.[9] Latent TB infection occurs when an individual has a positive immunologic test for TB infection but is asymptomatic and has a normal physical examination and chest radiography (CXR).

India has launched the ambitious program to make India TB free by 2025 and this obviously cannot happen without a focused strategy for children with TB. Most common childhood illnesses are dealt under child survival and child health programs. Revised National Tuberculosis Control Programme (RNTCP) manages and implements the national policy for tuberculosis control. The infectious adults with TB form the focus of programme policy, strategies, and interventions. Such cases can be easily identified by a point of care staining for Acid fast bacilli (AFB) of sputum, even at the periphery. The public health strategies used for managing TB among adults are often not suited for children as the disease process and diagnostic pathways may be different e.g., inability to provide an easily testable specimen like spontaneously produced sputum, poor sensitivity of the commonly employed tests for diagnosis like smear for AFB, reliance on chest radiology, etc.

Despite all these odds, in our country, RNTCP has made efforts to include childhood under its fold and has to its credit many initiatives like the very first joint guideline in 2004 with Indian Academy of Pediatrics (IAP)[10] which has subsequently been updated several times; introduction of pediatric patient wise boxes for treatment; and, more recently, introduction of upfront testing of pediatric samples by newer tests like cartridge based nucleic acid amplification tests (CBNAAT). The present study evaluated treatment outcome of tuberculosis cases (aged 1-18 years) under RNTCP in urban Ghaziabad.

MATERIALS AND METHODS

This prospective study was conducted in department of paediatrics of Santosh Medical College & Hospital over one year study period from January 2019 to December 2019. The cases were enrolled in the proposed study from both General Paediatric OPD as well as DOTS Unit, a part of RNTCP DMC (designated microscopic centre) situated at Santosh Medical College and Hospital, Ghaziabad, UP. All tuberculosis patients aged 1-18 years eligible and willing to participate in the study will be enrolled after written informed consent. Doubtful cases due to incomplete workup were excluded from the study.

Data collection was started after obtaining clearance from ethical committee, respective authorities from Santosh Medical College and Hospitals. Patients were enrolled after obtaining informed consent from the parents/guardians till the sample size was reached. Data regarding socio demographic profile and type of TB of the paediatric TB patients registered under RNTCP was collected using a structured proforma during their visit to hospital/health centre from the attenders accompanying them. The patients were assessed at the start of enrolling them and at the end of treatment for treatment outcome as per RNTCP.

RESULTS

An Crossisectional study involving 120 cases of paediatric TB was conducted to study treatment outcome of TB cases under RNTCP in an urban hospital of Ghaziabad. The results were analyzed, represented as frequency and percentage, and a conclusion was drawn from them.

Table1: Demographic data distribution of study participants. (n=120)

Demographic Distribution		**Frequency (Percentage)**
Gender	Male	73 (60.83%)
	Female	47 (39.16%)
Age	<2 years	5 (4.16%)
	2-5 years	31 (25.83%)
	5-10 years	37 (30.83%)
	>10 years	47 (39.16%)

In this study, majority of paediatric TB cases aged above 10 years (39.16%) followed by 5-10 years (30.83%), and 2-5 years (25.83%). Only 4.16% patients aged below 2 years. Male to female ratio was 1.55:1. Approximately 61 percent of patients were males. (Table 1)

Table 2: Symptoms and the most common types of Tuberculosis

Symptoms and the most common types of TB		**Frequency (Percentage)**
Symptoms	Fever	45 (37.5%)
	Cough	28 (23.33%)
	Altered sensorium	17 (14.16%)
	Swelling	11 (14.16%)
	Cold	10 (8.3%)
	Breathlessness	5 (4.16%)
	Cutaneous lesions	2 (1.66%)
	Vomiting	1 (0.83%)
	Convulsion	1 (0.83%)
	Abdominal pain	0 (0.0%)
	Total	120 (100.0%)
Type of TB	Pulmonary	46 (38.33%)
	CNS Tuberculosis	28 (23.33%)
	Abdominal Koch's	19 (15.83%)
	TB Lymphadenitis	17 (14.16%)
	Skin Tuberculosis	5 (4.16%)

	Disseminated Koch's	2 (1.66%)
	Miliary TB	2 (1.66%)
	Psoas abscess of tubercular origin	1 (0.83%)
	Total	120 (100.0%)

The most common symptom in our study was fever (37.5%) followed by cough (23.3%) and altered sensorium (14.2%). None of the patients had abdominal pain. The most common type of TB was pulmonary (38.3%) followed by CNS (23.3%), abdominal Koch (15.8%), lymphadenitis (14.2%), and skin TB (4.2%). (Table 2)

Table 3: Distribution of Test

Test	**Frequency (Percentage)**		
	Positive	**Negative**	**Total**
TST	81 (67.5%)	39 (32.5%)	120 (100%)
X-ray	56 (46.66%)	64 (53.33%)	120 (100%)
AFB examination	14 (11.66%)	106 (88.33)	120 (100%)

As shown in Table 3, in this study, TST was positive in 67.5% of the paediatric cases. X-ray findings were positive in 46.7% of the paediatric cases. AFB examination was positive in 11.7% of the paediatric cases.

Table4: Distribution of Contact history and BCG vaccination.

	Frequency (Percentage)	
Contact History	Present	30 (25%)
	Absent	90 (75%)
	Total	120 (100%)
BCG Vaccination	Yes	46 (38.33%)
	No	74 (62.66%)
	Total	120 (100%)

In this study, contact history was present in 25% of the paediatric cases. While 38.3% of the paediatric cases received BCG vaccination. (Table 4)

Table5: Outcome of Treatment Category

Outcome	**Frequency (Percentage)**
Expired	6 (5.0%)
Abscond	4 (3.33%)
Cured	78 (65.0%)
Failure	5 (4.16%)
Lost to follow-up	27 (22.5%)

Majority of the children were cured with therapy (65%) followed by 22.5% lost to follow-up. Four percent patients were absconded.

DISCUSSION

Tuberculosis (TB) is a public health problem of paramount importance, despite considerable socio-economic progress and advances in medical science over the years. . It is a curable disease if early and timely management is instituted, yet millions of people suffer each year from this infectious disease, resulting in devastating social and economic outcome. The real burden of paediatric tuberculosis is unknown because of the diagnostic difficulties but it has been estimated that 10% of total tuberculosis burden is found in children.

The proportion of paediatric tuberculosis cases that have been registered over the last five years under RNTCP have been constant. In 2013, 63919 new tuberculosis cases that were notified accounted for 5% of the total number of cases which was in tune with the expected results according to the annual WHO report. [11] The present study was aimed to evaluate treatment outcome of TB cases under RNTCP in an urban hospital of Ghaziabad. During the period of 1 year from 1st Jan 2019- 30th Dec 2019, 120 paediatric TB cases were studied at Department of Paediatrics, Santosh Medical College and Hospital, Ghaziabad, UP.

In our study, majority of the patients were from age group of above 10 years (39.16%) with a range from 8 months to 17 years. There were approximately 30% children aged up to 5 years. It has been proposed that mortality under 5 years is maximum owing to lesser immunity when compared with other age groups. However,

children with higher age are more prone to get exposure to the infections.[12] In our study, there was a similar kind of distribution of TB among all age-groups. Jain et al reported that the median age of the enrolled children was 31 months (IQR 14 to 44 months).[13] However, in our study, mean age of the children was 8.71 years this is because they included children aged below 5 years. Male (61%) predominated females (39%) in our study with a ratio of 1.55:1. This distribution is in concordance with a study conducted in Bhutan which had 57% males and 43% females.[14] Also, another study in Nepal had similar distribution with 58.5% males and 41.5% were females.[15]

In our study, fever (37.5%) was the most common symptoms followed by cough (23.3%), altered sensorium (14.2%), and swelling (9.2%). Marais and Schaaf reported that symptoms and signs of early disease include fever, listlessness, apathy, anorexia, and/or failure to thrive and headache (in older children). Study from North India had largest number of children presenting with non-specific symptoms of tuberculosis such as anorexia (95%), fever (84%), weight loss (63%) and cough (44%).[16] Another study from Chennai, India had predominant symptoms as fever and cough (47%), loss of weight (41%) and a visible glandular swelling (49%).[17]

In this study, pulmonary TB was the most common type (38.3%) followed by CNS TB (23.3%), Abdominal Koch's (15.8%), and lymphadenitis TB (14.2%). PSOAS abscess of tubercular origin was of the least common type (1.66%). A study from Nepal had 51% patients with extra-pulmonary TB and 49% patients with pulmonary TB and TB lymphadenitis (54%) was most common form of extra-pulmonary TB.[18]

In our study, 46.7% children showed X-ray findings. Chest X-ray (CXR) remains a pertinent and critical tool for diagnosing intra-thoracic tuberculosis which is the most common presentation of TB in children. [19] In this study, AFB examination was positive in 11.7% of the paediatric cases. It is suggested that demonstration or isolation of acid-fast bacilli from anybody fluid or tissue is confirmatory of diagnosis of tuberculosis.

In our study, contact history was positive in 25% patients while remaining 75% patients did not have any known contact history of tuberculosis. History of contact with patients of active tuberculosis was reported in total 10 (18.18%) cases in study done at Sangli, India. [20]

In our study, 38.3% of the paediatric cases received BCG vaccination. Another Indian study conducted by Gupta et al also states that there is no statistically significant difference between BCG vaccination and the type of tuberculosis (pulmonary or extra pulmonary). In our study, majority of the children were cured with therapy (65%) followed by 22.5% lost to follow-up and 4% patients were absconded. In an Iranian study, 91.7% were successfully treated and 8.3% had poor treatment outcome. [21] Ohene et al reported treatment outcome of 214 children enrolled in the study out of which outcome could be documented for (97.7%) of patients. Eighteen children (8.4%) died, and the mortality was noted to be significantly higher among the 1–4 year age group ($p < 0.001$) in the said study.[22]

Kumar et al. conducted a randomized controlled trial to compare intermittent vs daily short course chemotherapy for childhood tuberculosis and concluded that overall efficacy of both regimens was almost similar and greater than 95% in patients with good compliance.[23] In Sharma et al study, they found the overall success rate to be 95.4% and for new and re-treatment cases it was 82.6%, respectively, and 3% were defaulters, 1.9% failure, and 1% for death.[24]

CONCLUSION

In conclusion, we found that there was slightly higher propensity of disease in males in the study population. Extra-pulmonary TB was the most common form in which CNS Tuberculosis was highest. Non-specific symptom like fever was the commonest presenting symptom. Most common presenting complaint among patients of pulmonary Koch's were cough while altered sensorium was the most common presenting complaint among tubercular meningitis patients.

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A Study to Assess Psycho-Social Variables in Children with Nocturnal Enuresis in Between 8-12 Years of Age

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ABSTRACT

Background: Enuresisis often interchangeably used with Urinary Incontinence. Where as enuresis implies complete evacuation of the bladder causing complete soaking of clothes, incontinence means continuous dribbling. The causes for the two are entirely different.

Aim and Objective: The present study aimed to assess psycho-social variables in children with nocturnal enuresis in between 8-12 years of age.

Methodology: This Cross sectional observational study in urban Ghaziabad was conducted at Santosh Medical College and Hospital. Children in the age group of 8-12 years presenting at the pediatric Out Patient Department (OPD) were recruited for the study over the period of 12 month from September 2014 to September 2015.

Result: Out of a total of 50 patients 25 cases each were primary and secondary. The mean age for the entire study group was 9.44±1.08 yrs. It was observed that 54% of the study group was between 10-11 yrs. parental marital discord was almost equal in both (12% in Primary Nocturnal Enuresis vs. 8% in Secondary Nocturnal Enuresis) and the difference was not significant.

Conclusion: There was a stronger correlation between psychosocial factors and childhood enuresis. But there was no discernible difference between primary and secondary enuresis. Nocturnal enuresis has several different causes.

Keywords: Nocturnal enuresis, Psycho-social behavior, Pediatrics.

INTRODUCTION

Bedwetting is one of the most common childhood complaints [1] and one of the most common pediatric health issues [2]. Enuresis is defined as an involuntary and undesirable bedwetting beyond the age of anticipated bladder control. It is seen worldwide across all races and cultures.[3] The DSM-III and ICD-10 require a bed-wetting frequency of twice per month in the past 3 months for children ages 5 and 6 years, and once per month in thepast3monthsforchildrenages7yearsor older [4-6]

The cause of enuresis is almost functional, while that of continuous or daytime incontinence is usually organic. Bed wetting can be classified into two different types. Primary nocturnal enuresis, this is the recurrent involuntary passage of the urine during sleep by a child aged 5 years or older, who has never achieved consistent night time dryness. This may be further subdivided into children who have enuresis only at night and those who also have day time symptoms. Secondary nocturnal enuresis, this refers to passage of urine during sleep by a child who has previously been dry for at least 6 months. It can be a sign of an underlying medical or emotional problem. The child will more likely show other symptoms such as day time wetting. [7-10]

2nd – 5th year is a sensitive time for development of nocturnal bladder control and anxiety-producing episodes during this period can affect the bladder control causing nocturnal enuresis.

The symptom of wetting might become a chronic stress, and if persistent might have a negative effect on the child's personality and on the child's self- concept. Some studies, e.g. by Haegglof et al.[11]and Moffatt et al.[12], indicate that self-esteem is impaired among children with wetting symptoms.

Other bedwetting social problems include teasing and bullying by siblings, domestic violence punishment by parents and friendships in children.

Nocturnal enuresis has diverse aetiologies. Maturational delay, genetic, familial, urinary infections etc. A few authors have highlighted this problem but Indian literature on this aspectis very scant. This study aims at associations of psychosocial factors with the causation of disease especially secondary nocturnal enuresis.

Another significant observation is the lack of self-esteem and emotional, disturbances that these children develop as a result of this problem. This aspect has also been touched upon by few western authors but again untouched in India. Hence another aspect this study would look into is the psychological impact of Nocturnal

Enuresis. Hence this study is a comprehensive study on Nocturnal Enuresis looking into etiology and psychological impact

MATERIALS AND METHODS

This Cross sectional observational study in urban Ghaziabad was conducted at Santosh Medical College and Hospital. Children in the age group of 8-12 years presenting at the pediatric Out Patient Department (OPD) were recruited for the study over the period of 12 month from September 2014 to September 2015. 50 patients, 25 cases each of primary and secondary nocturnal enuresis during study period were enrolled.

Children with degenerative progressive neurological disease, Mental retardation, learning disability, any structural or functional urinary abnormalities and diabetes Mellitus or Diabetes not included in the study.

A detailed psychological history was elicited in them with reference to scholastic performance, any parental conflicts, and any adjustment problems at home etc. All the patients would were subjected to the following investigations -Urine – Routine and Microscopy, R.B.S, Ultrasound of the Abdomen (ifnecessary), I.Q Testing and Test for Personality Assessment.

C.P.Q test was administered for personality assessment. It was performed as a semi structured questionnaire with yes/no answers. Each child was asked in front of its parents. On the basis of answers the child‘s personality was assessed. Any medication being taken by the child during this period was withdrawn. In case if the child was found to have evidence of UTI on urine examination and confirmed by Urine Culture. Appropriate management was given to the patient for UTI and the child was recruited in the study if the symptoms of secondary enuresis persist. All the methods used to complete the study were approved by ethical committee.

Statistical analysis was done using SSPS software and p value, were calculated using fisher exact test and chi-square test as found applicable.

RESULTS

50 patients, 25 cases each of primary and secondary nocturnal enuresis during study period were enrolled. A detailed psychological history was elicited in them with reference to scholastic performance, any parental conflicts, and any adjustment problems at home etc.

Table1: Demographic data distribution of study subject. (N=50)

Demographic Distribution		Number (Percentage)
Gender	Male	27 (54%)
	Female	23 (46%)
Age	8-8 yrs.-11months	13 (26%)
	9-9 yrs.11months	7 (14%)
	10-10 yrs.11 months	27 (54%)
	11-11 yrs.11 months	3 (6%)

According to table 1, Out of a total of 50 patients 25 cases each were primary and secondary. The mean age for the entire study group was 9.44±1.08 yrs. It was observed that 54% of the study group was between 10-11 yrs.

Table2: Psychosocial factors association in nocturnal, psychosocial effect on children with nocturnal enuresis and parental attitude towards a child with nocturnal enuresis

Psychosocial Factors		Number (Percentage)			p value
		Primary Nocturnal Enuresis (N=25)	Secondary Nocturnal Enuresis (N=25)	Total (N=50)	
Association in Nocturnal	H/O arrival of new baby	8 (32%)	15 (60%)	23 (46%)	p = 0.047
	Transfer within last 5 yrs.	6 (12%)	25 (100%)	31 (74%)	p = 0.001
	Parental Discord	3 (12%)	2 (8%)	5 (10%)	p = 0.193
Effect on Children With Nocturnal	Nagging by parents	21 (84%)	12 (48%)	33 (66%)	p = 0.007
	Physical and emotional abuse	16 (64%)	15 (60%)	31 (62%)	p = 0.771
Parental	Anger	15 (60%)	15 (60%)	60%	p = 1.000

Attitude	Punishment	13 (52%)	10 (40%)	46%	p = 0.395
	Rejection	4 (16%)	1 (4%)	10%	p = 0.157
	No Effect	3 (12%)	5 (20%)	16%	p = 0.440

Few psychosocial factors were studied. All 3 factors arrival of new baby and transfer within five years was found to be more in secondary enuresis group and the difference was statistically significant. However parental marital discord was almost equal in both (12% in Primary Nocturnal Enuresis vs. 8% in Secondary Nocturnal Enuresis) and the difference was not significant.

The effect of nocturnal enuresis in children was studied. Nagging by parents was seen more in primary nocturnal enuresis (84%) as compared to be secondary nocturnal enuresis (48%) and the difference was statistically significant (p=0.007). Physical and emotional abuse by parents was observed almost equal in both groups (64% in primary nocturnal enuresis and 60% in secondary nocturnal enuresis) and the difference was statistically insignificant (p=0.771).

Parental attitude towards the child‘s problem was studied. Anger was observed in 60% each of primary nocturnal enuresis and secondary nocturnal enuresis (p=1.00), punishment was observed in 52% of cases of primary nocturnal enuresis and 40% of secondary nocturnal enuresis. Rejection was seen in 16% of primary nocturnal enuresis and 4% in secondary nocturnal enuresis, no effect was seen in 12% of primary nocturnal enuresis and 20% of secondary nocturnal enuresis. There was no statistically significance in parental attitude in both enuretic groups.

Table 3: CPQ factor score case and average score distribution in primary and secondary nocturnal enuresis cases. (N=25)

		Primary Nocturnal Enuresis			**Secondary Nocturnal Enuresis**		
		Low Score (1-4)	**Average Score (5-6)**	**High Score (7-10)**	**Low Score (1-4)**	**Average Score (5-6)**	**High Score (7-10)**
CPQ Factor Case (N=25)	A	24	1	0	25	0	0
	B	17	8	0	23	2	0
	C	13	12	0	10	15	0
	D	10	13	2	8	15	2
	E	1	8	16	1	9	15
	F	5	12	8	7	14	4
	G	25	0	0	23	2	0
	H	3	18	4	4	19	2
	I	14	10	1	24	1	0
	J	9	13	3	2	20	3
	N	13	8	4	6	16	3
	O	4	13	8	16	6	3
	Q3	18	6	1	25	0	0
	Q4	10	13	2	9	16	0
CPQ Factor Average Score	A	2.6			1.33		
	B	4.2			3.00		
	C	4.4			4.67		
	D	4.6			5.00		
	E	5.00			6.67		
	F	6.2			5.33		
	G	3			3.00		
	H	5.6			5.33		
	I	4.6			3.00		
	J	3.00			5.67		
	N	5			5.33		
	O	6.2			4.33		
	Q3	3.2			3.00		
	Q4	5.2			4.67		

For better understanding, we divided scores for 14 dimensions of CPQ into low score, average score and high score for primary and secondary enuresis each. Following characterstics were found pronounced in each group. At ground level, cases with primary and secondary enuresis seem to have alike personality. But there is remarkable difference incertain dimensions, secondary enuresis cases were found to be more reserved, detached, critical coolalo of i.e. sizothymic and dull, less intelligent as compared to primary cases. Also, cases with secondary enuresis were more tough minded, self reliant, realistic, non on sense as compared to primary enuresis. This fact reflects better case compliance with intervention especially behavioural therapy and counseling.

DISCUSSION

Thestudy_Toassesspsycho-socialvariablesinchildrenwithnocturnalenuresis in between 8-12 years of age‘ was conducted in the department of pediatrics and department of clinical psychology, Santosh medical college & hospital, Ghaziabad. A total of 50 children with nocturnal enuresis between the age group of 8-12yrsof either gender were enrolled. 25 each of which were primary and secondary nocturnal enuresis.

The Male: Female ratio amongst children with primary enuresis was 1.5:1, for secondary it was 0.9:1 and for the total group the M:F ratio was 1.17:1. This is in concordance with the studies published on nocturnal enuresis which also demonstrated a higher prevalence amongst males. Diurnal enuresis is more common in girls. However in our study all 50 children had both daytime and night time symptoms.

Few psychosocial factors have been positively correlated to development ofenuresis especially secondary enuresis [13-14].We have studied arrival of newbaby, frequent transfers and parent discord as few of the psychosocial factors.The results showed a significant difference between primary and secondary nocturnal enuresis in terms of arrival of new baby ($p=0.047$) and frequent transfers ($p<0.001$). However no statistical difference was observed in the parental discord.

Parents react differently to the problem of nocturnal enuresis in their children. Some may be supportive while others may show a negative reaction in the form of punishment. This is important in the treatment of enuresis in children. Supportive parents would facilitate the recovery faster than non cooperative.

Parents who continue to be impatient while treatment is going on. 66% of parents of patients with nocturnal enuresis nagged about their Child‘s problem (84% in primary nocturnal enuresis versus 48% in secondary nocturnal enuresis, $p=0.007$) while physical and emotional abuse was demonstrated by 62% patients (64% in primary nocturnal enuresis versus 60% in secondary nocturnal enuresis, $p=0.771$). A further elaborate version of their attitude towards their enuretic children was elicited. 60% of parents showed anger 46% gave punishment, while 10% parents showed rejection, and only 16% of parents had no effect of the child‘s problem on them.

The fact that the problem was primary or secondary had no significant appearance in the attitude of parents towards their child's illness. Children‘s personality questionnaire (CPQ) for assessment of personality was used. It was found that cases with primary and secondary enuresis seem to have same personality dimensions. But there is remarkable difference in certain dimensions, like secondary enuresis cases were found to be more reserved, detached, critical coolalo of i.e. sizothymic and dull, less intelligent as compared to primary cases. Also, cases with secondary enuresis were more tough minded, self reliant, realistic, no non-sense as compared to primary enuresis. This fact reflects better case compliance with intervention especially behavioural therapy and counseling in children with secondary enuresis.

CONCLUSION

Parental anger was the most common attitude shown by parents. Poor scholastic performance along with poor social adaptation is common in enuretic children. It may be either a result or a cause of enuresis. Childhood enuresis showed a higher association with psychosocial factors.

However no significant difference observed in primary and secondary enuresis. The causation of nocturnal enuresis is multifactorial.

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A Study of Association of Nutritional and Socio-Demographic Factors with Anaemia in Children between 1 Year to 5 Years of Age in Urban Ghaziabad

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ABSTRACT

Background: Age group 1-5 years is a critical period for growth and development. India has the highest prevalence of iron deficiency anemia in children aged 1 to 5 years. Poor dietary habits are quite prevalent and important modifiable predictor of nutritional anemia.

Aim and Objective: To study the nutritional and socio-demographic factors with anaemia in children between 1 year to 5 years of age.

Methodology: The Santosh Medical College and Hospital in Ghaziabad, Uttar Pradesh, hosted this observational analytical cross-sectional study from April 2013 to April 2014 (a period of 12 months). Children between the ages of 1 and 5 who come to the paediatric outpatient department (OPD) for a checkup, an immunisation, or to attend a well-baby clinic.

Result: Prevalence of anemia was found to be 78% with 17% mild, 58% moderate and 3% severe anemia. Anemia was significantly seen with following dietary habits- vegetarian diet (P<0.001) , low intake of calories (P<0.001) and iron deficient diet (P<0.001).Anemia was significantly associated with malnutrition (100% of moderately wasted and stunted children were anemic. Association was found with SES and co morbidities like Pica & h/o worm infestation.

Conclusion: The high prevalence of anaemia (78%) and the fact that the majority of subjects had inadequate dietary intakes of calories and iron highlight the significance of sound dietary guidance in the fight against nutritional anemia.

Keywords: illiteracy, ignorance, nutritional , cultural taboos, superstition , Nutritional , inadequate dietary.

INTRODUCTION

Iron lacks the glitter of gold or sparkle of silver but outshines both in biological importance [1]. India is home to more than a third of the world's undernourished children with under-nutrition level remaining around 45 percent for children below 3 years [2] . Anemia is attributed to dietary inadequacy due to, illiteracy, ignorance regarding nutritional value of available cheap food, cultural taboos, superstition, large families & poor purchasing power etc [3,4,5] . Globally Iron deficiency is the most common form of malnutrition, being most prevalent and severe in young children (6months-5 years)[6].In India also, Iron deficiency anemia (IDA) is the commonest nutrient deficiency with prevalence of about 75% in children under the age of 5 years [7]. Hemoglobin is necessary for transporting oxygen from the lungs to other tissues and organs of the body. Anemia in young children is a serious concern because it can result in impaired cognitive performance, behavioral and motor development, coordination, language development, and scholastic achievement, as well as increased morbidity from infectious diseases. One of the most vulnerable groups is children age 6 months-5 years [8,9]

Anemia is the most common hematological disease in the pediatric age group. Highest prevalence of anemia is seen in developing countries [10]. Anemia is widely prevalent in India and affects both sexes and all age groups [11] In India prevalence of anemia is 74.3%. The prevalence of anemia is highest (78%) in Bihar and lowest in southern states (Kerala 45%). In Uttar Pradesh the prevalence of anemia is second highest i.e. 74% in children of 6-59 months of age [8]. So, anemia is one of the most common nutrient deficiencies in India with prevalence of around 75% in children below 5years of age [12].

For infants anemia is caused due to combination of limited iron stores at birth, timing of umbilical cord clamping, timing and types of complementary feed intake and frequency of childhood illness [3] . Many other factors as analysis of NFHS-2 prevalence rate is highest among children with illiterate mother ,low standard of living, working mother, belonging to SC (schedule caste) and whose mothers are anemic. [21]

The prevalence is highest (78%) in Bihar and lowest in southern states (Kerala 45%). In Uttar Pradesh the prevalence is 74% in children of 6-59 months of age 8 . Some studies also have shown that severe iron deficiency causes neurological impairment and this impairment may be irreversible.[7,10,11,12] In India, The National Program for prophylaxis of IDA was started in 1975 and is continuing to provide 100 pediatric tablets

per year of iron and folic acid (20mg iron + 100mcg folic acid) to infants more than 6 months and children up to 5 years of age. Therefore knowing the nutritional and socio-demographic determinants of anemia become enormously important and the need to look for the parameters and/or predisposing factors which may lead to anemia in children may be imperative. Most of the studies were focused on socio-demographic factors which are non-modifiable. The studies related to nutritional aspects covers only one or few parameters only. So the present study is being undertaken with main focus on majority of nutritional determinants that affect the growing child and leads to anemia in them. Nutritional determinants being modifiable factors, our aim is to identify them, so that evidence based recommendations can be made for prevention of anemia in children 1 year to 5 years of age.

MATERIALS AND METHODS

This observational analytical cross-sectional study was conducted in the Santosh Medical College and Hospital, Ghaziabad, U.P. from April 2013 to April 2014 [12 months]. Children in the age group of 1 year to 5 years presenting at the pediatric Out Patient Department (OPD), for a routine checkup, immunization or in well baby clinic.

Children free from any acute or chronic illness and Parents willing to give consent and to undergo Hb level estimation of their children. Informed consent was taken in all the consecutive cases during study period who satisfied the inclusion criteria and were willing to participate in the study were enrolled. Nutrient intake of children was computed using the food composition tables of the Indian Council of Medical Research [13] . Data will be collected in accordance to the predesigned Proforma. The patients diagnosed with nutritional anemia were prescribed iron in therapeutic doses for desired duration besides appropriate dietary advices.

RESULTS

Table 1: Socio-demographic distribution of the sample group

Socio-demographic Data Distribution		Number (Percentage)	
		Normal	Anemic
Age (Months)	12-17	24 (8%)	276 (92%)
	18-23	18 (6%)	282 (94%)
	24-35	36 (12%)	264 (88%)
	36-47	90 (30%)	210 (70%)
	48-60	120 (40%)	180 (60%)
Gender	Male	30 (10%)	270 (90%)
	Female	84 (28%)	216 (72%)
Socio-economic Status		67 (22%)	233 (78%)

The prevalence of anemia ranged from 58% to 92% & was highest (92%) among children aged 12-24 months. Contrary to expectation there was insignificant difference in prevalence of anemia between boys & girls (male=78.33%; female=76.67%). Odd's ratio and p value were insignificant. Prevalence of anemia was commoner in nuclear families (82.11%) than joint families (57.41%).In the study population (94%) children belong to middle and lower class (grade IV & III), 6.33% children belonged to SES grade II. None of the subject belonged to grade I & V. As expected, prevalence of anemia was higher in SES Class IV (95.74%) & III (72.73%). Anemia was relatively low in class II (36.84%).

Table 2: Distribution of Magnitude of Anemia

Magnitude of Anemia		Number (%)
Anemia in relation to severity	No Anemia	66 (22%)
	Mild Anemia	51 (17%)
	Moderate Anemia	174 (58%)
	Severe Anemia	9 (3%)
Anemia in relation to Morphological types	MCHC	267 (88.84%)
	MNC	18 (6.01%)
	DM	14 (4.72%)
	NNC	1 (0.43%)

In Table 2, Out of 300 cases 233(78%) were anemic. Majority 175(58%) were moderately anemic. Mild anemia was present in 50(17%) while severe anemia was seen in only 8 (3%) children. 88.8% of anemic children had Microcytic hypochromic (MHC) anemia. Macrocytic normochromic (MNC) anemia was found in 6% of anemic children, whereas, 4.72% were having Dimorphic (DM) picture & only 0.4% were having Normocytic normochromic (NNC) picture.

Table 3: Anemia in relation to vegetarian/non-vegetarian and Anthropometric data distribution.

		Non-anemic		Anemic		p-value
		n	%	n	%	
Diet	Veg	45	18.37%	200	81.63%	<0.001
	Non-veg	22	40.00%	33	60.00%	<0.001
Wasting	None	65	50.78%	63	49.22%	<0.001
	Moderate	2	1.25%	158	98.75%	<0.001
	Severe	0	0.00%	12	100.00%	0.029
	TOTAL	67	22%	233	78%	
Stunting	None	67	23.84%	214	76.16%	0.008
	Moderate	0	0.00%	11	100.00%	0.035
	Severe	0	0.00%	8	100.00%	0.062
	TOTAL	67	22%	233	78%	
Comorbidities	Worms in stool	3	12.50%	21	87.50%	0.114
	PICA	4	8.33%	44	91.67%	0.006
	TOTAL	7	10%	65	90%	

In Table 3, As expected, more vegetarian children (81.63%) were anaemic than non-vegetarian children (60%) were. Only one fifth of the examined children (55 of 233) were not vegetarians. Complementary feeding was started timely in 147 (49%) children while it was delayed beyond 6 months in 153(51%) children. Yet the prevalence of anemia was higher (91.50%) in later group (63.30%).Overall wasted children were 57.30%, of which only 4% were severely wasted. Almost all of the wasted children had anemia. 42% children were not wasted yet nearly half (49%) of them were anemic. Overall stunted children were 19(5.67%), of which only 8(2.67%) were severely wasted whereas 281(93.67%) children were not stunted. All of the stunted children had anemia, also in non-stunted children prevalence of anemia was found to be 76.16%.Overall prevalence of worms infestation was 8% of which majority (87.50%) was anemic. Overall prevalence of pica was only 16% but 91% of these children were anemic.

DISCUSSION

In the present study, the prevalence of anemia was highest among the subjects aged between 12-24 months (90%). It was observed that prevalence of anemia was decreasing with increasing age (58% in age group 48-59 months). This variation in anemia can be explained by delayed complimentary feeding. In contrast to expectations no statistically significant difference was observed in prevalence of anemia on the basis of sex. Nearly equal members of males & females were affected by anemia (Males 78%: Females 76%) in the present study. So, the present study also shows that in pre-school children sex is not an indicator of anemia. No difference between both the sexes can be explained by the limitation of the study which was high number of males (180) as compared to females (120) who were enrolled into the study. Similar data was obtained by Deshmukh et al [15] which showed no major differences in prevalence of anemia on basis of sex.

We also found that 40% of the anemic children received exclusive breastfeeding till or before 6 months of age. A significant increase in anemic percentage was noted in children who were exclusively breastfed for more than 6 months of age i.e. of total anemic children 60% were exclusively breastfed for more than 6 months. In a study by Sultan Ali N et al [11], who found that late weaning, more than 6 months was the most important predictor of Iron deficiency anemia in 1-2 years of age.

CONCLUSION

High prevalence of anemia (78%) along with presence of poor dietary intake of calories and iron in majority of subjects point towards the importance of proper dietary advice to combat nutritional anemia. Anemia is still a public health problem in our country. The overall prevalence of anemia in our study was higher as compared to other studies and nearly similar to WHO data. Iron deficiency state was significantly present as detected by Low serum ferritin and iron levels. Similarly, megaloblastic anemia was detected by low levels of serum vitamin B12 and folate levels. Major factors which influence the prevalence of anemia were undernutrition and low

socioeconomic status. The overall improvement in prevalence of anemia in children could be attributed to proper dietary advice to the parents, regular deworming, Iron and Folic acid supplementation.

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To Assess the IQ, Adjustment & Personality of Institutionalized Orphaned & Abandoned Children between 12-15 Years of Age and Compare them with their Counterpart's Staying in Intact Families

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ABSTRACT
Background: The child's personality, development, and maturation are influenced by a number of factors, including genetic, physical, cultural, and, in particular, interpersonal factors. The bond between a child and their parents is crucial in this aspect since it serves as the child's source of stability and an anchor in the choppy waters of life.

Aim and Objective: To study the IQ, adjustment & personality of institutionalized orphaned & abandoned children between 12-15 years of age and compare them with their counterpart's staying in intact families.

Methodology: This case-control observational study was carried out from May 2016 to April 2017 at a children's home in the NCR that provides a safe haven, nourishing food, and education, as well as the paediatrics and clinical psychology departments of Santosh Hospital in Ghaziabad, Uttar Pradesh. Children who are either orphans or who have been left by their parents or relatives for at least two years and are now living in an institutional setting. Thirty of these individuals who agreed to participate in the study were enlisted.

Result: The mean RSPM score for the cases and controls was 42.97 ±8.1 and 42.5±5.1 respectively .The difference was not statistically significant. 76.7% had very unsatisfactory adjustment, 20% had unsatisfactory adjustment, only 3.3% had good adjustment &none of the cases had average or excellent adjustment.

Conclusion: Interventions and upcoming research must keep offering these kids a lot of chances for 70 their best development. The best case scenario is adoption into stable homes, however this may not always be available. As a result, various cultures and nations need to create solid solutions with scientific backing that are most effective in a given situation.

Keywords**:** emotional instability, cognitive development , personality , admiration, imitation, alienation and rejection.

INTRODUCTION

The child's Personality, growth and maturation are affected by a variety of forces- heredity, somatic, culture and particularly interpersonal ones. In this regard, the relationship between the child and parents assumes central importance, as it forms a source of permanence of the child, an anchor in the stormy sea of life.[1,2] The child's optimum development rests largely on satisfaction of his needs in all dimensions during infancy and childhood. In this connection, the role of parents in the personality development of the child can never be over emphasized. Love and affection from the biological parents are regarded as a foundation stone for the development of an adequate personality.

Parents provide physical, psychological and intellectual environment to their offspring. Parent's goals, values and style of life have a great effect on growing children and can lead to either admiration and imitation, or alienation and rejection. As the earliest and most durable source of security, the child's parents are the first people with whom he/she identifies and they remain the straight influence on his/her development.[1,4] Effect of parental loss: Death of a parent is always hurtful and harrowing. [5] Destitution sets up a process by which the child steadily loses confidence not only in himself, but also in society.[1,3] Like adults, children are grieved by the loss of their parents. This untouched situation can be very stressful as it poses new demands and constraints to children's life.[4,6] Lack of family support makes a child feel lonely & open gateways to many concerns & fears. This stress may be evident in symptoms of confusion, anxiety, depression, and worries. The same symptoms may cause learning problems, school failure and early dropouts, poor verbal communication and may lead to the behavioral problems, such as disobedience, nail biting, thumb sucking, bed wetting, sexual problems, lying, stealing, truancy etc. Failure to recognize these symptoms will aggravate the child's psychological problems.[7.9]

Institutional care has been considered the last resort for caring of the OACs. However, if we improve the care in the institution and provide them with the similar facilities .The OACs may not remain as disadvantaged as they

would be if left uncared for.[10-14] The main purpose of this study is to assess the IQ, personality development and adjustment capacities of children reared in a children's home compared to children grown up in intact families. With this aim, the above traits of institution-reared and home-reared children (12-15 yrs.) were compared with the help of a demographic data and structured questionnaire to measure the cognitive level of children. The present study attempts to compare the development of orphaned children reared in the children's home of a prestigious educational institution with that of family-reared children of decent socio-economic background who study in the same school.[15] The interesting part of the study is that apart from the lack of a family setting, the 7 children brought up in the child-care home are not discriminated in terms of comforts of life and standards of education and learning; they are given all the amenities of living and education at par with their counterparts brought up by their biological families. The study fills the gap in the literature and will help to frame guidelines for researchers, educationists, administrators and counsellors to guide such children in a proper way so as to provide an environment where they would be accommodated and their self-concept, mental health and academic achievement may improve.

MATERIALS AND METHODS

This case-control observational study was conducted in the Department of Paediatrics and department of clinical psychology at Santosh hospital, Ghaziabad, UP & a children's home in NCR which offers quality shelter, food & education from May 2016 to April 2017.Orphaned children or children who have been abandoned by their parents or family for 2 years or more & are now living in an institutionalized set up. There were 30 such cases who gave their consent for enrolling in the study were recruited.

Consent to carry out the study was obtained from the principal of the school. In case of institutionalized children, the consent was taken from the manager of the children's home .In case of controls the consent was obtained from the parents. The study was approved by the institutional ethical committee.

Based on the results , the mean scores were calculated for cases and controls for all the 3 tests performed and the statistical analysis was done by student t test (unpaired).P value of <0.05 was considered as significant . The analysis was carried out using SPSS version 22.

RESULTS

Table 1: Demographic data distribution

Demographic data distribution		**Number (Percentage)**		
Age	**Cases**	**Male**	**Female**	**Total**
12y-13y11m	Case	5	8	13(43.3%)
	Control	7	6	13(43.3%)
14y-15y11m	Case	10	7	17(56.6%)
	Control	8	9	17(56.6%)

In Table 1, there were total 13(43.3%) subjects of age group 12y-13y11m followed by 17(56.6%) of age group 14y-15y11m.

Table 2: Comparison of IQ amongst cases and control (RSPM) and Emotional Adjustment between cases and control (AISSE)

	Category	**Grade**	**CASE (n=30)**	**CONTROL (n=30)**	**P-value**
Comparison of IQ amongst cases and control (RSPM)	Intellectuallysuperior	I (95&ABOVE)	6(20%)	0(0%)	0.7889
	Above average	II+(90&ABOVE)	1(3.3%)	5(16.6%)	
		II(75&ABOVE)	4(13.3%)	2(6.6%)	
	Average	III+(50&ABOVE)	9(30%)	10(33.3%)	
		III(25&ABOVE)	3(10%)	6(20%)	
	Below average	IV+(<25)	4(13.3%)	4(13.3%)	
		IV(10&BELOW)	3(10%)	3(10%)	
	Intellectually deficit	V(<5)	0(0%)	0(0%)	
		Mean score	42.97±8.1	42.5±5.1	
Comparison of Emotional Adjustment	Excellent	A(1&BELOW)	0(0%)	0(0%)	0.2870
	Good	B(2-4)	1(3.3%)	0(0%)	
	Average	C(5-7)	0(0%)	5(16.7%)	

between cases and control (AISSE)	Unsatisfactory	D(8-10)	6(20%)	4(13.3%)	
	Very unsatisfactory	E(11& ABOVE)	23(76.7%)	21(70%)	
		Mean score	15.33±6.7	13.8±3.99	

In Table 2, On assessment of I Q by RSPM ,score amongst cases 23.3% were below average ,40% were average, 16.6% were above average & 20% were intellectually superior. While, in controls 23.3% were below average, 16 53.3% were average, 23.3% were above average & none of the control group children were intellectually superior. The average RSPM score for cases and controls was 42.97±8.1 & 42.5±5.1 respectively. This difference was statistically not significant (p=0.7889). On assessment of AISS (emotional) scores 76.7% had Very unsatisfactory adjustment, 20% had unsatisfactory adjustment, only 3.3% had good adjustment &none of the cases had average or excellent adjustment. While, in controls 70% had very unsatisfactory adjustment, 13.3% had unsatisfactory adjustment, 16.7% had average adjustment, none of them had good or excellent adjustment The average AISS (emotional) score for cases and controls was 15.33±6.7 &13.8±3.99 respectively. This difference was statistically not significant (p=0.2870).

Table 3: Comparison of Social Adjustment between cases and control (AISSS) and Educational Adjustment between cases and control (AISSEd)

	Category	**Grade**	**CASE (n=30)**	**CONTROL (n=30)**	**P-value**
Comparison of Social Adjustment between cases and control (AISSS)	Excellent	A(2&BELOW)	0(0%)	0(0%)	0.3204
	Good	B(3-4)	0(0%)	0(0%)	
	Average	C(5-7)	0(0%)	1(3.3%)	
	Unsatisfactory	D(8-10)	6(20%)	4(13.3%)	
	Very Unsatisfactory	E(11&ABOVE)	24(80%)	25(83.3%)	
		Mean score	15.4±3.77	14.33±4.47	
Comparison of Educational Adjustment between cases and control (AISSEd)	Excellent	A(2&Below)	0(0%)	0(0%)	0.0001
	Good	B (3-4)	0(0%)	1(3.3%)	
	Average	C(5-7)	0(0%)	7(23.3%)	
	Unsatisfactory	D (8-10)	1(3.3%)	6(20%)	
	Very unsatisfactory	E(11&Above)	29(96.6%)	16(53.3%)	
		Mean	17.06±3.2	11.73±5.17	

In Table 3, On assessment of AISS (social) scores 80% had very unsatisfactory adjustment, 20% had unsatisfactory adjustment & none of the cases average , good or excellent adjustment. While, in controls 83.3% had Very unsatisfactory adjustment, 13.3% had unsatisfactory adjustment, 3.3% had average adjustment, none of the controls had good or excellent adjustment. The average AISS (social) score for cases and controls was 15.4±3.77 & 14.33±4.47 respectively. This difference was statistically not significant (p=0.3204). On assessment of AISS (educational) scores 96.66% had Very unsatisfactory adjustment,3.34% had unsatisfactory adjustment & none of the cases had average , good or excellent adjustment . While, in control 53.3% had Very unsatisfactory adjustment, 20% had unsatisfactory adjustment, 23.3% had average adjustment, 3.3% had good adjustment & none of the controls had excellent adjustment. The average AISS (educational) score for cases and controls was 17.06±3.2 & 11.73±5.17 respectively. This difference was statistically significant (p=0.0001) Meaning thereby that cases who were living in institutions were poorly adjusted on the educational parameter as compared to the controls who were staying in intact families and this difference was statically significant.

Table 4: Comparison of Personality Traits between cases and control (HSPQ)

FACTOR	**CASE**	**CONTROL**	**P-value**
	Mean±SD	**Mean±SD**	
A	3.9 ±1.7	5.16 ±1.6	0.0045
B	3.86 ±1.9	4 ±1.7	0.7647
C	5.7 ±1.7	6.5 ±1.6	0.0656
D	5.3 ±1.6	5.73 ±1.4	0.2725
E	5.1 ±1.9	5.5 ±2.12	0.4447
F	5.2 ±1.50	5 ±1.95	0.6578
G	4.3 ±1.76	6.1 ±1.76	0.0002
H	5.3 ±1.67	5.03 ±1.69	0.5361

I	5.33 ±2.12	5.9 ±1.67	0.2521
J	6.2 ±1.83	6.63 ±1.69	0.3483
Q	5.57 ±1.45	5.73 ±1.9	0.7152
Q2	6.06 ±1.63	6.83 ±1.76	0.08
Q3	5.06 ±1.96	5.8 ±1.76	0.1293
Q4	4.76 ±1.69	5.06 ±1.07	0.4147

On assessment , 10% were found to be on the higher side of sten score for factor Q2 , which signifies only 10% of cases were self sufficient where as this figure relatively high in controls which was 40%.This clearly suggested that 56 number of children who were self sufficient were significantly higher among controls than cases The average HSPQ (Factor Q2) score for cases and controls 6.06 ±1.63 & 6.1 ±1.76 respectively. This difference was statistically not significant (P=0.08).

DISCUSSION

The study to assess the IQ, Adjustment and Personality in institutionalized orphaned children between 12 -15 years of age and compare it with their counterparts staying in intact families was conducted in the Department of Paediatrics and Clinical Psychology, Santosh Hospital, Ghaziabad. 30 children between the age group of 12 - 15 years who were staying in institution for more than 2 years were selected randomly. 30 age and sex matched controls were picked from the school run by the same institution, but staying with the intact families. The present study attempts to compare the personality of orphaned children reared in the children's home of a prestigious educational institution with that of family-reared children of decent socio-economic background who study in the same school. The interesting part of the study was that apart from the lack of a family setting, the children brought up in the child-care home are not discriminated in terms of comforts of life and standards of education and learning; they received all the amenities of living and education at par with their counterparts brought up by their biological families.

43.3% children were between 12-13 years and 11 months of age in both cases and controls while 56.7% children were between 14-15y11m of age .There was a 50% distribution 61 each of males and females in both cases and controls. Hence, cases and controls were perfectly matched. When the personality traits were correlated with intelligence (RSPM & HSPQ). The positive correlation in cases with intelligence was found with factor B, C, E & Q2. If intelligence is increased, their thinking level will be vast with cognitive richness .They will be much more stable, assertive & self-sufficient .While the correlation value are not strictly high, rather intended to be positively correlated. So, this group's capability of adjustment may get enhanced by regular counselling .It means its correct, children who are brought up in orphanages are needed to carry above traits. POFO study goes a long way to state that institutional care per se shouldn't be categorically described as damaging or inappropriate for all children .The results of their analysis cast doubt on generalization of past studies indicating that institutions are universally associated with poor outcomes .

CONCLUSION

Research has gone a long way in focussing and identifying socio-demographic factors linked with institutionalisation,but at the same time basic known factors associated with the effects of institutionalisation are ignored. This refers to orientations for children placed in such institutions. They should be educated about foster care and their relationship to the foster care and institution they are placed in. Such orientation or anticipatory guidance helps children with their questions, legitimises their traumatic experiences and lets them know what they could expect while they are under this particular care. In the absence of such interventions, some children struggle alone to make sense of their surroundings.

Education that helps a child interpret their world and adjust to their new environment can decrease factors such as confusion, helplessness, stress, anxiety and fear; associated with institutionalisation. Institutionalisation represents an atypical rearing environment for infants and children that also increases the risk for atypical development. Thus, interventions and future research must continue to provide significant opportunities 70 for optimal development in these children. Where adoption into stable homes is the most ideal situation, it may not be always possible. Therefore different cultures and countries must develop robust and scientifically backed interventions that work best with the particular environment.

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Study of the Effect of Maternal Nutritional Status on the Birth Weight of the New Born

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ABSTRACT

Background: Low birth weight has many different, interrelated reasons, but one major modifiable aspect is the mother's nutritional state as shown by her anthropometric indices and nutritional intake.

Aim and Objective: To study the effect of maternal nutritional status on the birth weight of the new born.

Methodology: The study included 365 moms who gave birth at Santosh Medical Hospital in Ghaziabad and were sequentially admitted during the study period. From August 2011 to June 2012, a hospital-based retrospective observational study was carried out.

Result: The majority of mothers (58%) consumed less than 40 g of protein daily. 48.3 7.2 grammes of protein were consumed on average. The prevalence of LBW was significantly higher (42%) in mothers who consumed less than 40 g of protein per day compared to those who consumed more than 40 g of protein per day (8%).

Conclusion: The birth weight of the newborn is significantly influenced by maternal anthropometry and dietary intake, which may be amenable to nutritional intervention and supplementation. In order to produce healthy offspring, it is crucial to take care of females' health both before and after pregnancy.

Keywords: premature delivery, intrauterine , anthropometry, dietary intake , nutritional status

INTRODUCTION

A child has only one chance to develop normally and the protection of that one chance therefore demands the kind of commitment that will not be superceded by other priorities. The quality, character and health of the child depends upon the mother that bears the child. A multi-factorial relationship exists between the environment, health, nutritional status, social status of a woman and the growth of the fetus. All women need good quality maternal health services during pregnancy, delivery and in the post-partum period to ensure their health and that of their infant. In India, only 40-50% of pregnant women receive antenatal care. The birth weight of the new born is the single most important determinant of the chances of the newborn to survive and to experience healthy growth and development. Low birth weight leads to risk of a higher infant mortality [1] , increased morbidity [2] , impaired mental development [3], and the risk of chronic adult disease4 . Infants who weigh 2000-2499 g at birth have a four-fold risk of neonatal death as compared to those who weigh 2500-3499 g^2.There is, therefore, an urgent need to determine ways and means to prevent LBW and its consequences [1].

According to WHO, globally about 25 million low birth weight babies are born each year. Reported incidences of LBW babies in India in 2000-2007 equals 28% of live births. Its public health significance may be ascribed to its high incidence, and its association with socio-economic underdevelopment. The causes of low birth weight are complex and interdependent, but the nutritional status of the mother reflected by her anthropometric indices and nutritional intake is an important modifiable factor [5,6]. Dietary intake is intricately related to SES of the women [7,8] . A healthy woman can produce a healthy child [9]. Nutritional requirement of a normal woman increases during pregnancy in order to meet the needs of the growing fetus and of the maternal tissues associated with pregnancy. So during pregnancy, a proper dietary intake is necessary to ensure sufficient energy, protein and micronutrients supply to the growing fetus without drawing on the mother’s own tissues to maintain her pregnancy [10] .

Goldenberg et al [12] showed that Low birth weight, can have lifelong consequences for development, quality of life, and health care costs. Low birth weight is defined as a birth weight less than 2500g; it can result from premature delivery, intrauterine growth failure or disruption or a combination of the two. Low birth weight is an important secondary factor in 40%-80% of neonatal deaths, 98% of which occur in developing countries, as shown by Bhutta Z.A. and others [13]. Again, Goldenberg et al.[12] showed that in both developed and developing countries, low birth weight is strongly associated 18 with perinatal morbidity and increased risk of long term disability. Villar J et al [14] showed that Low birth weight is one of the most serious challenges in maternal and child health. Its public health significance may be ascribed to factors like -its high incidence, its association with mental retardation and a high risk of perinatal and infant mortality and morbidity (one half of all perinatal and infant deaths are due to low birth weight) and its association with socio economic

underdevelopment. According to UNICEF (2009)15, globally about 25 million low birth weight babies are born each year. Reported incidence of low birth weight babies in India in 2000-2007 equals 28% of live births. LBW remains an unresolved important national concern for India. As per Chaudari S. and others, twenty-nine percent of infant mortality rate is associated with LBW in India. Twenty three percent of newborns in India have LBW. The prevalence is slightly higher in rural areas (24.1%) than in urban areas (21%), as concluded in the National Family Health Survey . The prevalence has remained almost static over the last one decade. In a rural area of Haryana, LBW prevalence was 25.3% in 1982-84 (Walia, I.)18, and 25% in 1997-98 (Aggarwal, A.K. et al) [15].

MATERIALS AND METHODS

A total of 365 mothers and their babies admitted consecutively during the study period, who delivered at Santosh Medical Hospital, Ghaziabad, during the study were enrolled. A hospital based retrospective observational study was conducted from August 2011 to June 2012.

Data was collected through the process of a personal interview (recall-based) and was filled up in the proforma attached. SES was assessed using Kuppuswamy (2007) scale. Babies born with birth weight less than 2.5 kgs were considered as low birth weight cases. Statistical analysis was done using SPSS package. A univariate analysis was carried out to explore the variables one by one. A qualitative analysis was carried out to find out the mean birth weight and the standard deviation of the babies born to mothers falling under separate categories.

RESULTS

A total of 365 newborns-mother pairs who fulfilled the inclusion criteria were included in the study. The prevalence of LBW babies was 27%. The overall mean (SD) birth weight was 2532 gm (245 gm). For boys it was marginally more at 2537 gm (301 gm) while for girls it was 2528 gm (149 gm) (Table 1). Among LBW babies, 27.1% were pre-term, while the rest were IUGR.

Table 1: Demographic data distribution of study population

Demographic data distribution		**Number (Percentage)**
Gender	Females	202 (55%)
	Males	163 (45%)
	Total	365 (100%)
Maternal Age	<19	49 (13%)
	19-23	104 (28%)
	24-28	153 (42%)
	29+	59 (16%)
	Total	365 (100%)
Parity	1st	227 (62%)
	2nd	66 (18%)
	3rd	72 (20%)
	Total	365 (100%)
Education	≤11 yrs.	288 (79%)
	>11 yrs.	77 (21%)
SES	<3	269 (74%)
	≥3	96 (26%)
Antenatal Visits	< 3 AN Visits	321 (88%)
	>=3 AN Visits	44 (12%)
	Total	365 (100%)

In Table 1: 202 (55%) were females followed by 163 (45%) males in our study. Among all the subjects maximum 42% had maternal age between 24-28.

Table 2: Demographic data distribution of study population by birth weight (g)

		Birth weight (g)			**p value**
		Observation	**< 2500**	**>= 2500**	
Gender	Females	202 (55%)	71 (35%)	131 (65%)	<0.001
	Males	163 (45%)	29 (18%)	134 (82%)	
	Total	365 (100%)	100	265	
Maternal	<19	49 (13%)	43 (88%)	6 (12%)	<0.001

Age	19-23	104 (28%)	53 (51%)	51 (49%)	
	24-28	153 (42%)	3 (2%)	150 (98%)	
	29+	59 (16%)	1 (2%)	58 (98%)	
	Total	365 (100%)	100	265	
Parity	1st	227 (62%)	71 (31%)	156 (69%)	0.001
	2nd	66 (18%)	15 (23%)	51 (77%)	
	3rd	72 (20%)	14 (19%)	58 (81%)	
	Total	365 (100%)	100	265	
Education	≤11 yrs.	288 (79%)	86 (30%)	202 (70%)	<0.001
	>11 yrs.	77 (21%)	14 (18%)	63 (82%)	
SES	<3	269 (74%)	85 (32%)	184 (68%)	0.016
	≥3	96 (26%)	15 (16%)	81 (84%)	
Antenatal Visits	< 3 AN Visits	321 (88%)	91 (28%)	230 (72%)	0.005
	>=3ANVisits	44 (12%)	9 (20%)	35 (80%)	
	Total	365 (100%)	100	265	

In Table 2 , Incidence of LBW was higher in female babies (35%) than in males (18%). Bivariate analysis showed that female gender was a significant predictor of LBW (p<0.001). In the present study, 62% of the women were primigravida whereas 18% and 20% were gravida 2 and gravid 3 respectively. Statistical analysis showed that rate of LBW was significantly higher in the first born. The maximum difference in mean birth weight was observed between first and third parity, i.e. 111 gm. Significantly greater proportion of mothers from low SES had LBW newborns (32%).The mean birth weight was higher is ANC visits were more than three. The prevalence of LBW was less in such mothers (p=0.005).

Table 3: Demographic data distribution of study population by birth weight

		Birth weight (g)			
		< 2500	**>= 2500**	**p value**	**Mean ±SD**
Calorie Consumption	< 1500 kcal/d	93 (48%)	101 (52%)	<0.001	2433±278
	> 1500 kcal/d	7 (4%)	164 (96%)		2645±142
	Total	100	265		
Protein Consumption	< 40 g/d	88	124	<0.001	2463±278
	> 40 g/d	12	141		2627±142
	Total	100	265		
Consumption of Vegetables	< 2/d	65 (59%)	46 (41%)	<0.001	2397±305
	> 2/d	35 (14%)	219 (86%)		2591±185
	Total	100	265		
Consumption of Fruits	<0-1/d	58 (38%)	96 (62%)	<0.001	2487±266
	> 1/d	42 (20%)	169 (80%)		2565±223
	Total	100	265		
Consumption of Milk	< 2 times/d	90 (41%)	129 (59%)	<0.001	2466±275
	> 2 times/d	10 (7%)	136 (93%)		2631±141
	Total	100	265		
Consumption of Eggs	0-1/d	90 (41%)	129 (59%)	<0.001	2469±277
	> 1/d	10 (7%)	136 (93%)		2627±140
	Total	100	265		
Consumption of Meat	< 2 times/d	90 (28%)	236 (72%)	0.795	2528±245
	> 2 times/d	10 (26%)	29 (74%)		2569±239
	Total	100	265		

In Table 3, Majority of mothers (58%) were getting protein less than 40 gm per day. The mean protein intake was 48.3±7.2 gm. The prevalence of LBW among mothers with protein intake of less than 40 gm was significantly higher (42%) as compared to 8% among those consuming more than 40 g protein per day. Only 40% women were getting milk and eggs. Meat was consumed more than twice/week by only 11% mothers. These figures reflect poor consumption of animal protein by mothers in the study group. Calorie and protein intakes were significantly related to the birth weight even after multiple regression, and turned out to be among the strongest predictors of LBW in the present study. The consumption of vegetables (Table 13) more

frequently was significantly associated with the birth weight of the babies. The frequency of consumption of fruits was significantly related with birth weight. 59% women in present study were consuming fruits daily and had lower prevalence of LBW (20%). Consumption of milk in majority (60%) of the mothers was minimal (as tea only). They rarely consumed milk or milk products. Milk consumption was significantly related with the LBW even on multiple regression (p=0.004).

Out of total 365 enrolled mothers, 52% were underweight and had BMI< 45 kgs. 42% of the mothers were shorter than 145 cm. Although on bivariate analysis, all the three indices were formed to be significant predictors of LBW, but on multivariate analysis, only weight, followed by height were found relevant. 42% babies born to mothers having a BMI of less than 19 kg/m2 were LBW (Table 18) and the mean birth weight (SD) of the babies born to mothers in this group was 2457 gm (282 gm). The corresponding value for mothers having a BMI higher than that was 2613 gm (162 gm).

Table 4: The distribution of birth weight by BMI, weight & height of mother

Birth weight by BMI		**Observation**		**< 2500**		**>= 2500**		**p value**	**Mean ±SD**
BMI	< 19 kg/m2	189	52%	80	42%	109	58%	<0.001	2457±2613
	> 19 kg/m2	176	48%	20	11%	156	89%		282±162
	Total	365		100		365			
Weight	< 45 kgs	189	52%	80	42%	109	58%	<0.001	2445±2628
	>45 kgs	176	48%	20	11%	156	89%		298±132
	Total	365		100		265			
Height	<145 cms	159	43%	67	42%	92	51%	0.035	2397±2591
	>145 cms	206	57%	33	16%	173	84%		304±182
	Total	365		100		265			

Table 4 shows the Odds ratio and Risk Ratios for different factors for predicting LBW by bivariate analysis. Among the studied socio-demographic, maternal and anthropometric factors, mother's age and weight had highest OR and risk ratio. Both turned out to be pivotal factors in predicting the birth weight of the baby. Similarly, from dietary factors, Calorie and Protein intake are the stand out factors with a risk ratio of 10.137 and 5.292 respectively. Consumption of milk and eggs, which, in a way, is related to protein and calorie intake also had high OR and RR. Fe and Ca supplementation during pregnancy was also found to have high OR.

Table 5: Odds Ratio and Risk Factor for 20 studied predictor variables on birth weight of the new born by bivariate analysis

	Risk Factor	**χ^2**	**p**	**Odds Ratio (OR)**	**95% CI for OR**	**Risk Ratio(RR)**	**Ranking based on RR**
Neonate Factors	Sex – Female	13.6	<0.001	2.5	1.5-4.1	1.9	15
	Period of Gestation < 37 wks	49.9	<0.001	5.8	3.4-9.7	3.6	12
Maternal Factors 1. Anthropometry	Mother's Weight < 45 kgs	257.5	<0.001	178.9	74.1-432.2	27.3	2
	Mother's Height < 145 cm	445.8	0.035	2.1	1.0-4.4	1.8	18
	BMI < 19 kg/m^2	47.0	<0.001	6.1	3.5-10.8	3.9	9
2.Dietary factors	Protein Intake < 40 g/day	50.6	<0.001	8.3	4.3-15.9	5.2	6
	Calorie Intake < 1500 kcal/day	83.4	<0.001	18.3	8.5-39.4	10.1	3
	Consumption of milk < 2/day	51.6	<0.001	9.4	4.7-19.0	6.0	4
	Consumption of Eggs 0-1/day	51.6	<0.001	9.4	4.7-19.0	6.0	5
	Consumption of fruits< 1/day	14.1	<0.001	2.4	1.5-3.8	1.8	16
	Registration Status = No	66.2	<0.001	8.1	4.7-14.0	3.6	13
	No. of AN Visits ≥ 3	7.8	0.005	4.5	1.4-14.1	2.3	14

3.AN Care	TT Dose < 2/ preg	6.7	0.009	1.8	1.1-2.9	1.5	20
	Daytime rest < 3 hrs/day	38.7	<0.001	5.5	3.1-9.8	3.7	10
4.SES and Demographic factors	Hb < 10 gm%	10.7	0.001	5.3	4.2-9.3	3.7	11
	Fe & Ca supplements < 2/day	43.6	<0.001	7.2	3.8-13.9	4.7	7
	Mother's Age < 24 yrs	165.5	<0.001	87.5	30.8-248.3	33.2	1
	Mother's Education < 11 yrs	49.1	<0.001	6.9	3.8-12.5	4.4	8
	Birth Order = 1	10.8	0.001	2.2	1.3-3.6	1.8	17
	SES >3	5.7	0.016	1.9	1.1-3.3	1.6	19

In Table 5, Keeping aside the first four factors (maternal age, weight and intake of calorie and proteins), a multivariate logistic regression was run with the other variables to find out the relative significance of these factors with LBW. Basically, all factors with a very high odds ratio were removed from multivariate logistic regression to avoid skewness of results, and primarily because there was no doubt about their significance in predicting LBW. Table 20 below presents the results of multivariate logistic regression.

Table 6: Odds Ratio of selected predictor variables from Multivariate Analysis

Risk Factor	$\chi 2$ (Walds)	p	Odds Ratio (OR)	95% CI for OR
Mother's Height < 145 cm	11.253	0.001	178.328	8.628-3.686E3
Mother's Education < 11 yrs	31.436	<0.001	152.089	26.260-880.848
Registration Status = No	31.696	<0.001	100.409	20.179-499.638
Consumption of milk < 2/day	8.317	0.004	11.894	2.211-63.993
No.of AN visits > 3	7.548	0.006	8.677	1.858-40.533
Consumption of Eggs 0-1/day	6.301	0.012	8.427	1.596-44.507
Period of Gestation < 37 wks	3.712	0.054	3.647	0.978-13.599
Sex - Female	9.885	0.002	3.116	1.534-6.330
Daytime rest < 3 hrs/day	7.059	0.008	0.04	0.004-0.429
BMI < 19 kg/m^2	18.172	<0.001	0.002	0.000-0.038

Further analysis using multivariate logistic regression revealed that following ten determinants had the most significant effect on the birth weight of the baby ,Mother's weight,Mother's Age ,Caloric Intake of the mother during pregnancy ,Protein Intake of the mother during pregnancy , Mother's Height 6. Mother's Education, Whether the mother is registered or not ,Consumption of milk ,Number of antenatal visits during pregnancy ≥ 3 10. Consumption of eggs

DISCUSSION

Majority of the mothers in the present study were thin (<45 kg), short (<145 cm), and undernourished (BMI < 19 kg/m2) indicating chronic energy deprivation. Over the years, various studies from different parts of India and other developing countries have reported significant associating between maternal pre-pregnancy weight [21] , gestational weight gain [17,20] maternal height [16,18] BMI [19] with the birth weight of the new born.

In the present study, significant effect of protein intake on birth weight was observed. Various Indian researchers [22-25,27] and a systematic review of Cochrane collection [28] have shown that the mean birth weight of newborns increased with proportionate increase in the consumption of calories and protein.

Moore et al [26] reported increase in birth weight with higher protein intake in early pregnancy. They also reported that the relation was even stronger for percentage of energy derived from dairy protein compared to protein from other sources. In the present study, maternal education turned out to be one of the few important predictors of LBW which is largely dependant upon socio-economic conditions of the family. Approximately half of the females participating in the present study had studied up to 11th standard or less. Of these, 42% gave birth to LBW babies (p< 0.001). This fact emphasises the need to focus on the education of the girl child, since it not only opens up a dignified life to her, but also affects the progeny of the nation. This result is in agreement with earlier studies such as the one done by Chevelier A [29]. An educated mother will not only be aware of her

nutiritional needs during her pregnancy, but would also be more likely to understand the importance of factors such as giving birth at the right age and with the right gap between pregnancies.

The implications of our findings are that improving maternal food intake, both in terms of quantity and quality will help in fight against adverse birth outcomes.

CONCLUSION

Thus, it may be concluded that maternal anthropometry and dietary intake have a significant role to play in determining the birth weight of the new born and could be amenable to nutritional intervention and supplementation. It is therefore necessary to take care of the health of the females both during pregnancy and also otherwise so as to have a healthy progeny.

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An Observational Study to Examine the Effect of Parental Psychiatric Disorders on Mental Health of their Adolescent Children

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ABSTRACT
Background: Adolescent mental health is negatively impacted by parental mental illness, which can result in abuse. Children are affected profoundly by it; they may become enmeshed in their parents' psychotic systems, which will have long-lasting effects on their own lives.

Aim and Objective: to study the effect of parental psychiatric disorders on mental health of their adolescent children

Methodology: From May 2014 to April 2015, the case-control observational study was carried out in the paediatrics and clinical psychology departments of Santosh Hospital in Ghaziabad, Uttar Pradesh. Adolescent kids of mental disease patients visiting the Santosh hospital's psychiatric OPD. Age and sex matched controls were obtained from the Santosh hospital in Ghaziabad's paediatric OPD.

Result: The mean ages of cases and controls were16.75±0.75years and 16.75±0.73 years amongst males and 16.83±0.78 years and 16.83±0.7 years amongst females respectively. Hence the cases and controls were perfectly matched.

Conclusion: A comparison of the effects of each disease on 18 psychological factors, including personality, IQ, and general health state, was made. It was determined that parental disease caused differences in a teenage child's IQ, anxiety, personality, and psychological aspect, but the type of illness had no discernible influence on the outcome in kids.

Keywords: Parenting, care of infants, children, adolescents, adversely affected , emotional , availability, child development.

INTRODUCTION

Mental illnesses in parents represent a risk for children in the family. These children have a higher risk for developing mental illnesses than other children.[1,2] The risk is particularly strong when a parent has one or more of the following: Bipolar Disorder, an anxiety disorder, ADHD in the adult, schizophrenia, alcoholism or other drug abuse, or depression. Parenting and care of infants, children and adolescents may be adversely affected by mental illness through reduced emotional availability, changed perception of the child and impaired ability to support child development. These parenting difficulties may be episodic or enduring. Parents with mental illness may experience disruptions in their relationship with their children, social isolation, disadvantage, and the effects of stigma. The emotional sensitivity and responsiveness of a parent is usually a key factor in outcome for the child in their psychological adjustment. Patterson & colleagues have suggested that, parental substance abuse considerably increases the risk of poor outcome for the child. [3,5]

Parental mental illness have adverse consequences on the mental health of their adolescents, leading to maltreatment.[5] It has pervasive impact on the children, they may become enveloped in their parent's psychotic system, with the lasting consequences on their own lives. Research evidence identifies that children born to mentally ill parents are at increased risk of medical problems, injuries, convulsive disorders, increased hospitalization.[6] Higher rates of behavioural, developmental and emotional problems in such children as compared to general population.[7] Such children are at substantially greater risk of developing mental disorder later in life. Impact is generally negative though in some cases it can have a positive effect on the child as well, as these children become more resilient and responsible and support their parents as well. Such children may manifest their problems in various ways including poor academic performance, poor self-esteem, depression, substance use and leading to anti-social behaviour and many more varieties of mental imbalance. This study aims at finding out the school going adolescent children with mental illnesses who have one or both parents with mental disorders.[8]

The prevalence of clinical and sub-clinical psychiatric disorders in parents is not exactly known because of the reluctance of the patients to approach the doctor. Even if they visit the health facility, there is a large undiagnosed and untreated pool of psychiatric patients. With the available review of literature there is ample evidence to prove that psychiatric disease in parents adversely affects the psyche and performance of their

children to a large extent. However, a small number may come out to be resilient. Such children withstand stress and strains and are victims of poor parenting.[9-12] This study was planned to know the impact of parental psychiatric disorders on various aspects in which the effect is significant, So that remedial counselling can be started early for them. Since such children are highly predisposed, they need to be picked up early and remedial counselling given to them at appropriate time. The need for specialized individualized interaction programs for this group of forgotten children and special methods of assessment needs to be sought. A very few authors have highlighted this issue and Indian literature on this aspect is scant. This study could be a benchmark in formulating a policy for assessing and tackling the mental health issues of adolescent children born to parents with psychiatric illness. Effective counselling of such children would go a long way in preventing psychiatric morbidity in such children and help them to lead a productive life.[13-15] This study acknowledges, genetic predisposition, socio-economic problems, stress and vulnerability faced by such children, which affect their lives significantly. In fact psychiatric treatment of the parents should comprehensively include screening of their children for adverse psychological effects so that early intervention and counselling can ensue.[16-18]

A number of studies on the interaction of genetic and environmental factors have been published in recent years. Caspi et al. considered the interaction of genetic predisposition and environmental stress that leads to depression. The rationale for considering these subgroups of the study population was that the short allele is known to be associated with a lesser availability of serotonin than the long allele. while, according to the monoamine deficiency hypothesis, a disturbance of serotonin and norepinephrine metabolism is held to be the main cause of depression. Analogous results were obtained with respect to the effect of stressful events on suicide attempts and the effect of abuse in childhood on later depressive episodes. The children of mentally ill parents share the same gene pool as their parents and hence they are genetically predisposed to develop mental illnesses. Also, the parent's mental illness creates multiple environmental factors which put the mental health of the child in a more vulnerable position.

MATERIALS AND METHODS

The case-control observational study was conducted at the Department of Pediatrics and department of clinical psychology at Santosh hospital, Ghaziabad, UP from May 2014 to April 2015. Adolescent children of patients with mental illness attending psychiatric OPD of Santosh hospital. Age and sex matched controls were picked up from Paediatric OPD of Santosh hospital, Ghaziabad.

Adolescent children between the age group of 16 years to 18 years of either sex born of parents with diagnosed psychiatric disorders who have been symptomatic for 2 or more years, either on or off treatment, were enrolled in the study. Consent was taken from the child as well as the well parent before recruitment. In case both parents have psychiatric disorders then their consent was taken from a relative primarily looking after the child. A detailed psychological history and clinical examination of the adolescent with reference to the scholastic performance and behaviour, any parental conflict and any adjustment problems at home, was elicited. A detailed general physical examination with special emphasis on growth was performed. Parameters considered were weight, height and BMI. BMI was then compared to WHO charts.

The 5 tests were performed in cases and controls and comparisons were made between the mean scores using student t-test. To assess inter-disease variability ANOVA was used to assess levels of significance. The analysis was carried out using SPSS version 22.

RESULTS

Table 1: Demographic profile of cases and controls

		Case	**Control**
Gender	Female	22	34
	Male	15	27
		Number	**Percentage**
Parental Psychiatric Disease	Mother affected	18	60
	Father affected	10	33.33
	Both affected	2	6.66

In Table 1, 22 subjects of case group were female followed by 15 male.In 18 out of 30 cases(60%) mothers alone had illness, in 10 cases (33.3%) fathers alone had illness, while in 2 cases both parents had illness.

Table 2: Distribution of psychiatric illness in study group

Type of disease	**Number (%)**
Alcohol-Depression	10 (31.25%)
Depression	12 (37.5%)
Manic depressive psychosis-Depression	3 (9.375%)
MDP-D-PSY	2 (6.25%)
Obsessive compulsive disorder	1 (3.125%)
Obsessive compulsive disorder± depression	4 (12.5%)
Total	32 (100%)

In Table 2 shows the above table depicts the distribution of the parental illness. Total is 32 because in 2 cases both mother and father were affected.

Table 3: Distribution of scores and anxiety levels amongst cases and controls

		Number (%)		
		Case (n=30)	**Control (n=60)**	**p value**
VIQ scores	Dull normal (80-89)	1 (3.3%)	0(0%)	0.162
	Average (90-109)	29(96.6%)	0(0%)	
	Bright normal(110-119)	0(0%)	28(46.7%)	
	Superior (120-129)	0(0%)	32(53.3%)	
	Very superior(>130)	0(0%)	0(0%)	
	Mean	95.57±2.909	118.78±3.966	
PIQ scores	Dull normal (80-89)	0(0%)	0(0%)	0.005
	Average (90-109)	30(100%)	1(1.66%)	
	Bright normal (110-119)	0(0%)	8(13.33%)	
	Superior (120-129)	0(0%)	47(78.33%)	
	Very superior(>130)	0(0%)	4(6.6%)	
	Mean	100.53±2.837	123.01±5.656	
TIQ scores	Dull normal (80-89)	0(0%)	0(0%)	0.011
	Average (90-109)	30(100%)	1(1.66%)	
	Bright normal (110-119)	0(0%)	23(38.33%)	
	Superior (120-129)	0(0%)	36(60%)	
	Very superior(>130)	0(0%)	0(0%)	
	Mean	98.05±2.426	120.90±4.139	
GHQ (self-perception of general health)	Mild problem (0-12)	14 (46.6%)	60(100%)	0.001
	Moderate problem (12-24)	16(53.33%)	0(0%)	
	Severe problem (24-36)	0(0%)	0(0%)	
	Means	12.13±2.270	5.07±1.247	
Anxiety levels	Very high (80-99)	20(66.6%)	0(0%)	0.000
	High (61-80)	7(23.3%)	0(0%)	
	Normal (41-60)	3(10%)	39(65%)	
	Low (21-40)	0(0%)	21(35%)	
	Very Low (1-20)	0(0%)	0(0%)	
	Means	47.33±9.400	26.15±2.667	

In Table 3, On assessment of VIQ amongst cases, 1 case (3.3%) had dull normal IQ, while 29 cases (96.6%) had average IQ. While in controls 28(46.7%) were bright normal and 32 (53.3%) had superior IQ. The seen VIQ score for cases and controls was 95.5±2.909 and 118.78±3.966 respectively. This difference was statistically not significant (p=0.162). On assessment of performance IQ, all 30 cases were labelled as average, while amongst controls 1.66% were average, 13.33% were bright normal, 78.33% were superior and 6.6% were very superior in performance IQ. The mean PIQ scores among cases and controls were 100.53±2.837 and 123.01±5.656 respectively. The difference between them was statistically significant (p=0.005). On taking the mean of VIQ and PIQ, the TIQ scores were calculated. All 30 cases were average IQ, while amongst controls 1.66% were average, 38.33% were bright normal and 60% had superior IQ. Mean TIQ scores amongst cases and controls were 98.05±2.426 and 120.90±4.139. The difference was statistically significant (p=0.011).GHQ was employed

to assess self-perception of general health. Amongst cases, 46.6% had mild problem (score between 0-12) and 53.3% had moderate problem (score between13-24) while amongst controls, all 100% children had only mild problem. Mean GHQ scores amongst cases and controls were 12.13±2.270 and 5.07±1.247 respectively and the difference was statistically significant (p=0.001). Meaning thereby that, cases perceived their general health to be poorer as compared to controls. Anxiety levels assessed by Sinha anxiety scale were graded as given in table as per percentiles, different for males and females. The distribution of anxiety levels is as per table. The mean score for cases was 47.33±9.400 and controls 26.15±2.667 and difference was highly significant (p<0.001).

Table 4: Type of personality in cases and controls

		Case (n=30)	**Control (n=60)**	**p-value**
Psychoticism	Tendency towards psychoticism	30 (100%)	41(68.33)	
	No tendency	0(0%)	19(31%)	
	Means	7.27±1.143	5.02±1.979	0.001
Extraversion	Tendency towards extraversion	30(100%)	0(0%)	
	No tendency	0(0%)	60(100%)	
	Means	16.63±1.326	5.37±1.957	0.026
Neuroticism	Tendency towards neuroticism	30(100%)	0(0%)	
	No tendency	0(0%)	60(100%)	
	Means	16.67±1.295	5.10±2.023	0.011
Lie scale	Tendency towards lie	21(70%)	3(5%)	
	No tendency	9(30%)	57(95%)	
	Means	9.27±3.676	5.73±1.645	0.000

In Table 4, EPQ tests for 4 aspects of personality –psychoticism, extraversion, neuroticism and lie score. There was a higher tendency towards psychoticism, extraversion, neuroticism and lie scale amongst cases. The level of significance as assessed by p value, were significant for all four types of personalities

Table 5: Brief Psychiatric Rating scale distribution in cases and controls

Parameter	**Case (n=30)**	**Control(n=60)**	**P value**
Somatic concern	2.27 ±1.112	1.02±0.129	.000
Anxiety	3.60±0.621	1.22±0.415	.001
Emotional withdrawl	3.60±0.498	1.05±0.220	.000
Concentrationdisorder	3.20±.407	1.07±.252	.000
Guilt	3.83±.461	1.07±.252	.000
Tension	3.93±.868	1.10±.303	.000
Mannerisms	3.13±.900	1.00±.000	.000
Grandiosity	1.13±.346	1.17±.376	.031
Depressive mood	2.83±1.341	1.05±.220	.000
Hostility	2.87±.900	1.08±.279	.000
Suspiciousness	3.27±.583	1.02±.129	.000
Hallucination	1.00±.000[a]	1.00±.000[a]	
Motor retardation	1.40±.498	1.00±.000	.000
Uncooperativeness	3.40±.498	1.18±.390	.000
Unusual thoughts	3.40±.498	1.00±.000	.000
Blunted affect	2.53±.507	1.02±.129	.000
Excitement	2.27±.785	1.07±.252	.000
Disorientation	1.00±.000[a]	1.00±.000[a]	.000

In Table 5, BPRS tests the presence of psychiatric symptoms in children. Cases were observed to have these symptoms whereas controls were normal. The level of significance as assessed by p value was significant for 17 symptoms except for one which was hallucination. Meaning thereby that, cases had significantly deranged psychiatric parameters as compared to controls.

DISCUSSION

Patients attending psychiatric OPD of Santosh hospital who had been diagnosed as some psychiatric disorder for at least past 2 years were enquired about their adolescent children. Those who had adolescent children between 16-18 years, their children were asked to enrol for the study.30 such cases who gave consent for enrolling in the study were recruited. After enrolling 30 cases, 60 age and sex matched controls were enrolled from the paediatric OPD, those who attended the OPD for minor ailments. Adolescent children (biological child) between the age group of 16 years to 18 years of either sex born of parents with diagnosed psychiatric disorders who have been symptomatic for 2 or more years, either on or off treatment, were enrolled in the study.

CONCLUSION

On personality assessment by EPQ, cases were found have a higher tendency towards Psychoticism, Extraversion, Neuroticism and Lie scale as compared to controls and this difference was statistically significant on all 4 parameters. EPQ is only a screening test and to prove whether psychoticism, Extraversion, and neuroticism are actually present, needs to be proved as per ICD-10 classification.

According to Brief psychiatric rating scale (BPRS), significant psychiatric symptoms except hallucination were present in cases as compared to controls as they were observed to be normal k. An attempt was made to compare the impact of an individual disease over the personality, intelligence, general health status, and 18 psychological parameters. It was concluded that difference in intelligence, anxiety, personality and the psychological aspect in an adolescent child were affected by the parental illness but, the type of illness had no significant effect on the outcome in children.

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A Study to Assess Clinical Profile in Children with Nocturnal Enuresis in Between 8-12 Years of Age

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ABSTRACT

Background: Enuresisis often interchangeably used with Urinary Incontinence. Whereasenuresis implies complete evacuation of the bladder causing complete soakingof clothes, incontinence means continuous dribbling. The causes for the two are entirely different.

Aim and Objective: The present study aimed to assess clinical profile in children with nocturnal enuresis in between 8-12 years of age.

Methodology: The Santosh Medical College and Hospital was the site of this cross-sectional observational study in metropolitan Ghaziabad. Over the course of a year, from September 2014 to September 2015, researchers at the pediatric outpatient department (OPD) recruited children in the 8–12 age category.

Result: Out of 50 patients, 27 cases involved men and 23 cases involved women. 54% of the study group, it was discovered, was between the ages of 10 and 11 years old. Only 24 percent of children with secondary nocturnal enuresis indicated a history of urgency, compared to 56 percent of the group with primary nocturnal enuresis. Additionally, this distinction was statistically significant (p=0.021).

Conclusion: Our study shows that in primary nocturnal enuresis, the mean number of episodes per night was 2.48, while in secondary nocturnal enuresis, the mean number of episodes per night was 3.16. Secondary nocturnal enuresis was shown to have a significantly higher daytime frequency than primary.

Keywords: Nocturnal enuresis, Psycho-social behavior, Pediatrics.

INTRODUCTION

One of the most prevalent kid complaints and a major pediatric health issue is bedwetting [1, 2]. Enuresis is described as uncontrollable and unwelcome bedwetting that occurs after the age at which bladder control is expected. It is prevalent everywhere, in all racial and cultural groups. [3] Children ages 5 and 6 must have wet the bed at least twice per month in the previous three months, and children ages 7 and older must have wet the bed once per month in the previous three months, according to the DSM-III and ICD-10 [4-6].

Enuresis nearly always has a functional cause, whereas daytime or continuous incontinence typically has a biological origin. Bedwetting can be divided into two categories. Primary nocturnal enuresis is the involuntary passing of urine repeatedly while asleep in a child who is 5 years old or older and who has never consistently been dry at night.

Children who only have enuresis at night and those who also experience symptoms during the day may be further split into these categories. Secondary nocturnal enuresis is the flow of urine while a child is sleeping after they had been dry for at least 6 months. It might be a symptom of a deeper psychological or physiological issue. It's more likely that the youngster may exhibit additional symptoms, like daytime wetness. [7-10]

The period between the second and fifth year is critical for the development of nocturnal bladder control, and anxious events during this time can impair bladder control and result in nocturnal enuresis.

The wetting symptom could develop into chronic stress and, if it persists, could have a severe impact on the child's personality and self-concept. Some research, such as those by Haegglof et al.[11] and Moffatt et al.[12], show that children with wetting.

Other social issues related to bedwetting include bullying and taunting among siblings, parental response to domestic abuse, and young children's friendships.

Different etiologies can cause nocturnal enuresis. Delay in maturation, family, genetic, urinary infections, etc. Although this issue has been brought up by a few authors, there is very little Indian writing on the subject. This research focuses on the relationships between psychosocial variables and disease, particularly secondary nocturnal enuresis.

The low self-esteem and emotional issues that these kids have as a result of this issue are another noteworthy observation. A few western authors have also touched on this topic, but India has not yet addressed it. As a result, this study will also examine another factor, namely the psychological effects of nocturnal enuresis. As a result, this study examines the etiology and psychosocial effects of nocturnal enuresis in great detail.

MATERIALS AND METHODS

The Santosh Medical College and Hospital was the site of this cross-sectional observational study in metropolitan Ghaziabad. Over the course of a year, from September 2014 to September 2015, researchers at the pediatric outpatient department (OPD) recruited children in the 8–12 age range. During the study period, 50 patients were enrolled, with 25 cases of primary and secondary nocturnal enuresis in each case.

Enuresis was defined as the repeated voiding of urine into clothes or bed at least twice a week for at least 3 consecutive months in a child who is at least 5 yrs. of age. Diurnal enuresis defines wetting while awake and nocturnal enuresis refers to voiding during sleep. Primary Enuresis was defined as condition in children who have never been consistently dry through the night, whereas Secondary Enuresis was defined as to the resumption of wetting after at least 6monthsof dryness. Consent was taken from the parents before recruitment. A detailed history covering the onset of complaints, other urinary complaints, detailed family history, and history of toilet training was taken. A detailed psychological history was elicited in them with reference to scholastic performance, any parental conflicts, and any adjustment problems at home etc.

SSPS software was used for the statistical analysis, and the p value was computed using the fisher exact test and the chi-square test as needed.

RESULTS

50 patients were enrolled in the study, with 25 cases of primary and secondary nocturnal enuresis in each patient. They were asked for a thorough psychiatric history including their academic standing, any parental disputes, any adjustment issues at home, etc.

Table1: Demographic data distribution of study subject. (N=50)

Demographic Distribution		**Number (Percentage)**
Gender	Male	27 (54%)
	Female	23 (46%)
Age	8-8 yrs. 11months	13 (26%)
	9-9 yrs.11months	7 (14%)
	10-10 yrs.11 months	27 (54%)
	11-11 yrs.11 months	3 (6%)

Table 1 shows that out of a total of 50 patients, 27 cases were male and 23 cases were female. It was found that 54% of the study group were between the ages of 10 and 11 years while only 6% were from the age group 11-11 yrs.11 months.

Table 2: Distribution of clinical profile of children with primary and secondary nocturnal enuresis

Clinical Profile		**Number (Percentage)**			**p value**
		Primary Nocturnal Enuresis (N=25)	**Secondary Nocturnal Enuresis (N=25)**	**Total (N=50)**	
Gender	Female	10 (40)	13 (52)	23 (46)	-
	Male	15 (60)	12 (48)	27 (54)	
	Total	25 (100)	25 (100)	50 (100)	
Age	8-8 yrs. 11months	1 (4%)	12 (48%)	13 (26%)	-
	9-9 yrs.11months	6 (24%)	1 (4%)	7 (14%)	
	10-10 yrs.11 months	16 (64%)	11 (44%)	27 (54%)	
	11-11 yrs.11 months	2 (8%)	1 (4%)	3 (6%)	
	Total	25 (100%)	25 (100)	50 (100%)	
Urine Frequency	<10 Times	22 (88)	2 (8)	24 (48)	p<0.001
	>10 Times	3 (12)	23 (92)	26 (52)	

on 24hrs	Mean	6.76±1.74	12.04±2.40	9.4±3.38	
Night Time Urine Frequency	2 TIMES	15 (60)	5 (20)	30 (60)	p=0.007
	3 TIMES	8 (32)	11 (44)	19 (38)	
	4 TIMES	2 (8)	9 (36)	11 (22)	
	MEAN	2.480±0.65	3.160±0.70	2.820±0.78	
Ability To Postpone	YES	10 (40%)	10 (40%)	20 (40%)	p=1.000
	NO	15 (60%)	15 (60%)	30 (60%)	
Urgency	YES	14 (56%)	6 (24%)	20 (40%)	p=0.021
	NO	11 (44%)	19 (76%)	30 (60%)	

According to Table 2, Out of a total of 50 patients 25 cases each were primary and secondary. It was observed that 54% of the study group was between 10-11yrs(64%in primary, and 44% in secondary).

92% of children with Secondary Enuresis had Polyuria described as passing urine more than 10 times/day and the mean urinary frequency over 24 hours in this group was 12.04±2.40 while only 12 percent children with primary enuresis had poly uria. This difference was significant, p<0.001.

As per the history obtained 80 percent children with secondary nocturnal enuresis passed urine more than 2 times in the night and the mean frequency in this group was3.160±0.70 while with Primary nocturnal enuresis, the mean frequency was lower to the tuneof2.480±0.65 and this difference was also significant(p=0.007). Only 20 percent of the total study group could postpone their urge to void, while 80percent could not. There was no difference in the 2 groups, as far as the ability to postpone their urge to void was concerned.

History of urgency was elicited in 56 percent of the group with primary nocturnalenuresis while only 24 percent of children with secondary nocturnal enuresis, gave history of urgency. This difference was also statistically significant (p=0.021).

Table 3: Adjunctive problems with nocturnal enuresis I, II and adjunctive behavioural in problem nocturnal enuresis

Adjunctive Problems		**Number (Percentage)**			**pValue**
		Primary(N=25)	**Secondary (N=25)**	**Total Cases**	
With Nocturnal Enuresis	Excess Fluid Intake	6 (24%)	2 (8%)	8 (16%)	p = 0.123
	Vomiting	0 (0%)	0 (0%)	0 (0%)	p = 0.000
	Constipation	4 (16%)	3 (12%)	7 (14%)	p = 0.684
With Nocturnal Enuresis II	Wake Up With Difficulty	19 (76%)	14 (56%)	33 (66%)	p = 0.136
	Obstructive Sleep Apnea	7 (28%)	0 (0%)	7 (14%)	p =0.004
Behavioral Problem in Nocturnal Enuresis	Bruxism	2 (8%)	0 (0%)	2 (16%)	p = 0.221
	Nail Biting	0 (0%)	11 (44%)	11 (22%)	p =0.000
	Encopresis	5 (20%)	0 (0%)	5(10%)	p =0.018

As shown in table 3, We studied excess fluid intake, vomiting and constipation as adjunctive problems with nocturnal enuresis. Excess fluid intake was observed in 24% of children with primary nocturnalenuresis while only8% of secondary nocturnalenuresis. How ever this difference was not significant (p=0.123), vomiting was not seen in any case and constipation observed in 16% of primary nocturnal enuresis and 12% of secondary nocturnal enuresis patients, but the difference was not significant.

We studied wake up with difficulty and obstructive sleep apnea also as adjunctive problems. Arousal difficulty was present in 66% of total study group. It was found in76% of primary enuresis cases and in 56% of secondary nocturnal enuresis. This difference was insignificant (p=0.136). Obstructive sleep apnea as adjunctive problem was seen only in primary enuresis cases, which was 28%.

We studied few of the behavioral problems, which could be associated with nocturnal enuresis. History of Bruxism, Nail Biting, and Encopresis were considered. Bruxism and encopresis were associated only with primary enuresis (8% and 20% respectively)while nail biting was observed only in secondary enuresis.

DISCUSSION

The study was carried out at the Santosh Medical College & Hospital, Ghaziabad, in the pediatrics and clinical psychology departments. 50 kids with nocturnal enuresis, of either gender, between the ages of 8 and 12 were enrolled. There were 25 cases of primary and secondary nocturnal enuresis, respectively.

Though by definition of nocturnal enuresis, five years is taken as cut-off age, however we selected the age group of 8 to 12 years for the study because the main objective of the study was to assess the impact of the problem which we believed could be better assessed at an older age group of 8 to 12 years when appropriate tests for psychological impact could be applied.

Only a few psychosocial factors, particularly secondary enuresis, have been positively linked with the development of enuresis [13–14]. We have researched a few psychosocial factors, including the birth of a new infant, frequent moves, and parent conflict. In terms of the new baby's arrival (p=0.047) and frequent transfers (p0.001), the results revealed a significant difference between primary and secondary nocturnal enuresis. But there was no statistically.

There was a significant difference between primary and secondary enuresis interms of urinary frequency ($p<0.001$). The mean frequency in Primary nocturnal Enuresis was 6.76±1.74 while in Secondary nocturnal Enuresis it was 9.4±3.38 times. The mean night time frequency in primary nocturnal enuresis was 2.48±0.65 times while in secondary enuresis it was a observed as 3.16±0.7 times and this difference was significant (p=0.007). 20% children of the entire study group were able to postpone their urge to void during wakefulness while80% could not postpone their urinary symptoms and this difference was not clinically significant. History of urgency was elicited in 56% of the study group with primary enuresis and 44% amongst cases of secondary enuresis and this difference was statistically significant (p=0.02).

Certain adjunctive problems with nocturnal enuresis has been mentioned in literature. 16% of cases in our study had history of excessive fluid intake, Nocasehadvomitingand14% gave history of constipation. Sleep has always been related to nocturnal enuresis. There is an established relationship between sleep architecture and diminished capacity to be aroused from sleep [15,16].

A prototype was considered, of habit disorders Bruxism and Nail biting for behavioral disorders. Bruxism was only observed in primary enuresis. Nail biting a representative of psychological attributes was only seen in secondary enuresis. This fact has been well established in literature that behavioral problems are noticed often in secondary enuresis [17,18]. Encopresis also an elimination disorders was observed in 10% cases all of which belonged to primary group.

Family history also plays an important role in causation of nocturnal enuresis, more in cases of primary nocturnal enuresis [19,20].In our study positive family history was obtained in 6cases (12%). However family history was positive for10%cases amongst secondary enuresis. The reason for this could possibly be small sample size.

CONCLUSION

The study shows that mean night time frequency in primary nocturnal enuresis was 2.48 episodes per night and 3.16 episodes per night in secondary nocturnal enuresis. Significantly higher day time frequency was observed in secondary nocturnal enuresis as compared to primary. 20% of children with primary nocturnal enuresis also had encopresis. However, there was no discernible difference between primary and secondary enuresis. Nocturnal enuresis has several different causes.

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Knowledge, Attitude and Practices of Skilled Birth Attendants in the Field of New-Born Care Practices in Rural Area of Ghaziabad

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ABSTRACT

Background: The first 28 days of life are referred to as the "new-born period," which is particularly marked by the change from intrauterine to extra uterine life.. Improper neonatal care procedures soon following delivery are a significant factor in the morbidity and mortality of neonates.

Aim and Objective: The present study was aimed at assessing knowledge, attitude and practices of skilled birth attendants in the field of new-born care practices in rural area of Ghaziabad.

Methodology: The present study was conducted at department of pediatrics of Santosh Medical College during May 2019 to May 2020.This study was based in rural setting of Ghaziabad to study the newborn care practices after delivery by ASHA, ANM, Dais etc. One hundred ANM‘s involved in NVD were enrolled and subjected to question related to KAP concerned to childbirth through a structured questionnaire.

Result: Results showed that 81% of the respondents had more than 10 years of experience of conducting deliveries while only 5% had experience of conducting deliveries of less than 5 years. 90% of respondents said that neonates should be placed maternal abdomen immediately after birth. 87%responded that oil should be put in nose and ears of neonates while 46% were not aware of danger signs.

Conclusion: The study came to the conclusion that newborn care procedures should be enhanced, as well as skilled birth attendance or the use of medical facilities for childbirth. The rate of facility deliveries could be increased by improving maternity care facilities, the standard of maternity care, and community health education.

Keywords: Skilled birth attendant, New-born care practices, KAP, Maternity care facilities.

INTRODUCTION

The new-born period is defined as the first 28 days of life which is exceptionally characterized by transition from intrauterine to extra uterine life. This phase of life has the highest risk of morbidity and mortality. [1] India‘s contribution to the global burden of new born deaths is higher when compared to that of maternal and under-5 deaths. India contributes 16% of global maternal death and 21% of under-5 deaths in which newborn mortality contributes to 27%. [2]

The inadequate new born care practices immediately after the delivery contribute to the important cause of morbidity and mortality among the newborns. [3-6] Formative research to understand local beliefs, practices and their determinants has been identified as a major gap to developing effective perinatal and neonatal interventions in communities of developing countries. [7] Traditional birth attendants (TBAs) play an important role in settings where most births take place in the home11 and, in Asia, constitute the largest single group of birth attendants (41% of births). [8]

The World Health Organization (WHO) defines TBA as “a person who assists the mother during childbirth and initially acquired her skills by delivering babies herself or through apprenticeship to other TBAs. [9] TBAs are integral members of their communities and provide an important window to local customs, traditions, and perceptions regarding childbirth and newborn care. [10, 11] The role of TBAs in improving maternal health has been heavily debated, especially in the context of a renewed focus on Millennium Development Goal (MDG-5).

Essential newborn care (ENC) is a set of measures every newborn baby requires regardless of where it is born or its size. It is designed to protect the newborn in adverse environmental condition and is a framework that should be applied immediately after birth, continued at least for the first seven days.

Since many births and neonatal deaths take place at home, away from the reach of skilled providers, innovative community-based approaches are instantly needed to bring substantial improvement in newborn survival in India. Hence, it is not possible to sustain the whole ENC strategies at the community level but feasible interventions like tetanus toxoid immunization, skilled birth attendant, warming baby, clean cord care and breastfeeding have been identified as proven interventions to save newborn lives. Understanding these practices at the domiciliary level can help in designing and improvising existing interventions to reduce neonatal

morbidity and mortality. The present study was aimed at assessing the newborn care practices by health care workers in rural area of Ghaziabad

MATERIALS AND METHODS

The present cross-sectional study conducted in department of paediatrics in Santosh Medical College and Hospital over the period from May 2019 to May 2020. This Field study was based in rural setting of Ghaziabad to study the newborn care practices after delivery by ASHA, ANM, Dais etc. (other than hospital setting).

Total of 104 ANM‘s were enrolled, but 4 did not give consent. Remaining 100 ANM‘s were enquired of the neonatal practices, as practiced by them in normal vaginal deliveries. The questions asked to them were in the form of structured questionnaire. The assessor asked the questions in Hindi and then answers were recorded and statistically analyzed. Data were recorded into an excel sheet. Data were presented as frequency and percentage, using SPSS software v21.0.

RESULTS

The present study was aimed to assess the newborn care practices in rural area of Ghaziabad. One hundred ANM/nurses involved in NVD were enrolled and subjected to question related to KAP concerned to childbirth through a structured questionnaire which includes closed ended questions and newborn care practices at birth.

Table1: Distribution of year of experience in conducting deliveries and status of training underwent. (n=100)

Training and Experience		Frequency (Percentage)
Year of experience	<5 years	5 (5%)
	5-10 years	14 (14%)
	>10 years	81 (81%)
Status of trainings underwent	Yes	69 (69%)
	No	31 (31%)

As shown in Table 1, 81% of the respondents had more than 10 years of experience of conducting deliveries while only 5% had experience of conducting deliveries of less than 5 years. 69% of the respondents have undergone refresher course/training previously while remaining 31% did not undergo such trainings previously.

Table 2: Knowledge about immediate resuscitation procedure, immediate neonate practices and basic neonatal resuscitation

Question		Response
Knowledge About Immediate Resuscitation Procedure	Delivery of baby over mother abdomen	90
	Cord cutting timing	
	Immediate	11
	<1 min	35
	≥1 min	64
	Milking of cord	95
	Use of gloves	100
	Use of clean blade	98
	Use of clean linen	98
	Practice of 5 cleans	90
Immediate Neonate Practices	Cleaning of eyes	Yes (n=95)
	How cleaned	Cotton ball (n=95)
	Material used for cord care	
	GV paint	85
	Nothing	1
	Cow dung	6
	Spirit	8
	Any other	0
	Breast feeding initiation	Within one hour (99%)
Parameters used for assessment of baby at birth	Crying	100
	Breathing	100
	Color	90
	Limb movement	81

Positioning	Place baby on mother‘s abdomen	54
	Supine with head turned to one side	31
	Any other	15
Cleaning of airway	Gauze	15
	Mucous suckers/suction catheters	85
	Any other	0
Stimulation method	Flicking of soles	50
	Rubbing of back	65
	Slapping of back	65
Method of drying the baby	Whether head dried first	15
	Whether wet linen changed or not	55
	Heat source used for warmth	30
Prevention of Hypothermia	Switch off fan	65
	Switch off AC	35
	Close doors and windows	0
Heat source	Bulb	15
	Heater	15
	Warmer	70
	Nothing	0

According to Table 2, 90% of respondents said that neonates should be placed maternal abdomen immediately after birth. 64% said that cord should be cut at least after one minute. 95% were aware about milking of cord. All the respondents agree about use of gloves during immediate resuscitation process. 98% suggested use of clean blade and use of clean linen. 95% respondents said that eyes of neonates should be cleaned using cotton balls. Gentian violet (GV) paint should be used for cord care (85%) followed by spirit (8%), cow dung (6%) while 1% said that nothing should be applied to clean cord. Ninety nine percent said that breastfeeding should be initiated within one hour after birth. All respondents suggested crying and breathing as parameters used for assessment if baby is not breathing. 85% said that mucous suckers/suction catheters should be used for cleaning of airways. 55% said that wet line should be changed. 65% responded and rubbing and slapping of back should be done. 80% said that AMBU Bag should be used for resuscitation. Majority responded that fan should be switched off, warmer was suggested as the most common source of heat. All responded said that neonates should be kept on mothers‘ abdomen and wrapped in towel.

Table 3: Baby bathing after birth

		Frequency (Percentage)
Baby Bathing After Birth	0-2 hours	1 (1%)
	3-6 hours	5 (5%)
	>6 hours	94 (94%)
Neonatal Massage	Commercial oil	51 (51%)
	Coconut oil	25 (25%)
	Mustard oil	5 (5%)
	No oil Massage	19 (19%)
Skin to skin Contact	Yes	61 (61%)
	No	39 (39%)
On demand Breastfeeding	Yes	100 (100%)
	No	0 (0%)
Putting oil in Nose and Ears	Yes	87 (87%)
	No	13 (13%)
Knowledge of Danger Signs	Yes	54 (54%)
	No	46 (46%)

Table 3 showed that 94% responded that babies should be bathed after 6 hours delivery while 5% said about bathing within 3-6 hours. 51% said that neonatal massage should be done with commercial oil while 25% said that coconut oil should be used for massage, All respondents said that one demand breastfeeding should be given to neonates. 87% responded that oil should be put in nose and ears of neonates. All of respondents were

enquired about danger signs in immediate post natal period like hypothermia, change of color of babies, abnormal movements of body, change in feeding pattern, fever etc. 54% respondents were aware of danger signs, and 46% were not aware.

DISCUSSION

A maternal death is a relatively rare event and trends in maternal mortality over time are difficult to measure. The ―proportion of births attended by skilled health personnel‖ is therefore often used as a more appropriate proxy indicator to track progress towards MDG-5. Skilled attendance at birth requires two key components: an SBA and an enabling environment that includes drugs and equipment, a functional referral system and enabling policies. [12] Studies have demonstrated a positive correlation between the proportion of deliveries taking place with an SBA and a reduction in maternal deaths.[13] WHO estimates of coverage showed that in 2011, only 18% of births in Bangladesh were attended by skilled personnel, in Nepal this was 19%, Pakistan 39% and India 47%.[14]

The present study assessed the new-born care practices in rural area of Ghaziabad and included 100 ANMs. They were provided a structured questionnaire to assess their knowledge regarding scientifically proven and evidence based new-born practices.

Our study observed that majority of the ANMs was aware about immediate resuscitation procedure. Ninety percent of respondents said that neonates should be placed maternal abdomen immediately after birth. Sixty four percent said that cord should be cut at least after one minute. Ninety five percent were aware about milking of cord. All the respondents agree about use of gloves during immediate resuscitation process. Ninety eight percent suggested use of clean blade and use of clean linen. Ninety percent were aware about practice of 6 cleans.

Our findings are in concordance with a study in Afghanistan by Kim et al that assessed knowledge of neonatal resuscitation among doctors and midwives and reported satisfactory levels of knowledge among midwives.[15] Similarly, Ogunlesi et al in Western Nigeria assessed knowledge of neonatal resuscitation among nurses, and 78% of the participants demonstrated satisfactory knowledge in neonatal resuscitation.[16]

In a recent study by Sintayehu et al in 2020, 9.8% of midwives and nurses had good knowledge about neonatal resuscitation.[17] The knowledge vary according to geographic location.

Timely resuscitation of new borns by healthcare providers who are skilled in and knowledgeable about neonatal resuscitation helps reduce neonatal mortality.[18]

In the present study, bathing of the neonate seems to be a universal practice, since more than 90% of the neonates were bathed after birth, as in south Asian countries.[19] Religious or cultural beliefs may be responsible for such practices because it is thought that vernix is ―dirty looking and bathing is ―ritual cleansing.[20] Neonates should be dried and wrapped immediately after birth. Wrapping is usually delayed, but in our study, wrapping within 15 minutes was suggested by 90% SBAs in contrast to 10% neonates by Reddy and Sreereddy.[19] Breastfeeding initiation rates were high compared to those reported in studies from Nepal, Pakistan and Bangladesh.[20-22]

Though from a small area of rural India, the results from this study are important for safe-motherhood programs, to either ensure the presence of skilled personnel during delivery or provide accessible and acceptable services, and skilled birth attendance were associated with clean cord care and early initiation of breastfeeding. It is important to continue the provision of community outreach services, satellite birthing facilities, and training of TBAs and ASHAs, to improve neonatal care.

CONCLUSION

Harmful delivery and neonatal care practices are prevalent in rural population and there is a need for interventions to encourage community members, family members, and SBAs to change practices. Skilled birth attendance or utilization of health facilities for childbirth, as well as neonatal care practices, should be improved in this community. Improving maternity care facilities, the quality of maternity care and community health education would help to improve uptake of facility deliveries.

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A Cross Sectional Study of Symptoms of Asthma with Correlation to Peak Flowmetry in Normal School Going Children

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ABSTRACT

Background: A chronic inflammatory condition of the airways, asthma involves cells and cellular components. Chronic inflammation is linked to airway hyper responsiveness, which causes recurring attacks of coughing, wheezing, and dyspnea, especially at night or in the early morning.

Aim and Objective: The present study aimed to estimate the prevalence of asthma amongst healthy school going children and to correlate it with peak flowmetry.

Methodology: This cross-sectional study was carried out in the department of Pediatrics, Santosh Medical College & Hospital. A total of 500 students, 250 males and 250 females, studying between classes 6 to 8 Lal Bahadur Shastri School, Kavi Nagar, Ghaziabad were randomly enrolled in the study. Detailed family history of atopy, asthma, medication history and history of passive smoking were also obtained.

Result: In this present study 25.6% of the students who were questioned were found to have symptoms of asthma. The prevalence was 27.2% amongst males and 24% amongst females. 70.5% of males and 70% of females who were suspected of asthma had presence of risk factors like passive smoking residence and and cooking on Chulha.

Conclusion: Our study concluded that, 25% of school-age children in normal, healthy conditions have asthma, and a significant percentage of them also have reduced lung function.

Keywords: Peak flowmetry, Asthma, Passive smoking, Pediatrics.

INTRODUCTION

Asthma is a chronic inflammatory disorder of the airways in which cells and cellular elements play a role. The chronic inflammation is associated with airway hyper responsiveness that leads to recurrent episodes of wheezing, breathlessness, chest tightness and coughing particularly at night or in the early morning. [1,2]

These episodes are usually associated with widespread, but variable, airflow obstruction within the lung that is often reversible either spontaneously or with treatment (GINA). More than 22 loci on autosomal chromosome 15 have been linked to asthma (Nelson).

Mediators like "leptin" may affect airway function and increase the likelihood of asthma development.[3] Environmental factors like yeast, molds, cockroach, cat dander, dog dander [4] mites also increases the likelihood of asthma development. Respiratory syncytial virus (RSV) and parainfluenza virus [5] are the most common infections. Maternal during pregnancy [6] and exposure to tobacco (passive smoking) increases the risk of lower respiratory tract infection in infancy and during early childhood [7]. Exacerbations are related to general increase in air pollutants to specific pollutants to which the individuals are sensitized [8]. Infants fed of intact cow's milk or soy protein have a higher incidence of wheezing illnesses in early childhood compared with those fed breast milk [9].

Literature review has very strongly substantiated the increasing prevalence of asthma globally. [10-13] In India the increasing prevalence has been also supported by several studies in the metropolitan cities. However India is a geographically and demographically diverse country with different cultures, practices and lifestyles and the prevalence of asthma differs from region to region, from urban to rural and from males to females.

An interesting observation though unpublished is that the children who satisfy the criteria of diagnosis of asthma are still not labeled as asthmatics and are treated with antibiotics considering it to be community acquired pneumonia. This observation has been shared by many other pediatricians across the city of Ghaziabad that even though children are symptomatic, they are diagnosed as pneumonia and not asthma. This is mainly because of the treatment sought from doctors practicing alternative medicines who are not aware of the' exact diagnosis and patho-physiology of asthma. This all leads to under diagnosis of asthma especially in community.

Furthermore, lung function tests are very rarely done except in hospitals and institutions offering advanced pulmonologist care. They are not used for diagnosis of asthma in OPD practice. Hence no standard values are

available even for an inexpensive test like peak flow meter in U.P. and Ghaziabad in particular. It must be realized that studies related to PEFR and anthropometry among growing children are necessary in India, in its different regions, as there is a mosaic of Indian population spread over a vast and geographically different area, which is varied and complex. Hence in this study we have also planned to do PEFR in all school going children to get a correct picture regarding prevalence of asthma in our area so that undiagnosed cases can be correctly labeled as asthma and put on proper treatment.

MATERIALS AND METHODS

This cross-sectional study was carried out in the department of Pediatrics, Santosh Medical College & Hospital Ghaziabad and Lal Bahadur Shastri Public School, Kavi Nagar, Ghaziabad. The study was conducted over a period of 1 year (May 2017 – May 2018). A total of 500 students, 250 males and 250 females, studying between classes 6 to 8 Lal Bahadur Shastri School, Kavi Nagar, Ghaziabad were randomly enrolled in the study. Any child with history of congenital heart disease and chronic lung disease were not included in the study.

A detailed history was elicited from selected students regarding symptoms of asthma like cough, night cough, nocturnal awakening, breathlessness on exertion and school absenteeism. Detailed family history of atopy, asthma, medication history and history of passive smoking were also obtained. The anthropometry of the students, BMI and body surface area were calculated. The students were then asked to perform peak flowmetry as per the standard procedure.

After filling the questionnaire and peak flow the data was analyzed. If there were any suggestions of symptoms of asthma as per the questionnaire or if the PEFR was < 80% of the expected value according to standard values for North Indian children [14]. Such children would be labeled as suspected asthmatics and those who had PEFR less than 80% of their predicted values, were labeled confirmed asthma.

RESULTS

The study was carried out with the aim to detect undiagnosed asthmatics who continue to be treated as pneumonia or lower respiratory tract infections. Also the aim of the present study was to estimate the prevalence of asthma amongst healthy school going children between 10 - 15 years of age.

Table1: Demographic distribution of the sample group

Demographic Data		Number(Percentage)
Age	10Yrs-10Yrs.11Mo	10 (2%)
	11Yrs-11Yrs.11Mo	63 (12.6%)
	12Yrs-12Yrs.11Mo	122 (24.4%)
	13Yrs-13Yrs.11Mo	175 (35%)
	14Yrs.-15Yrs.	130 (26%)
	Total	500 (100%)
Gender	Male	250 (50%)
	Female	250 (50%)

Table 1 represents demographic characteristics of study subjects. The study comprises an equal number of male and female participants i.e. 250 each. Maximum 175 (35%) students were from the age group 13Yrs-13Yrs.11Months followed by 130 (26%) from 14Yrs.-15Yrs, 122 (24.4%) from 12Yrs-12Yrs.11Months, 63 (12.6%) from 11Yrs-11Yrs.11Months and 10 (2%) from 10Yrs-10Yrs.11Months.

Table 2: Distribution of positive history of symptoms

Positive History of Symptoms	Male(n=250)	Female(n=250)
Exercise Induced Breathlessness	52 (20.8%)	60 (24%)
Night awakening due to cough	20 (8%)	3 (1.2%)
Morning Cough	3 (1.2%)	5 (2%)
Worsening of cough during Winter/Rainy season	5 (2%)	8 (3.2%)
Presence of 2 or more symptoms	12 (4.8%)	16 (6.4%)

According to Table 2, 20.8% amongst boys and 24% girls had h/o exercise induced breathlessness which was found to be the commonest symptoms. 4.8% males and 6.4% females had presence of more than 1 symptom pointing strongly towards asthma.

Table 3: Positive history of Symptoms (Suspected Asthmatics)

	Male(n=250)	Female (n=250)	Total
Presence of 1 or more symptoms	68(27.2%)	60(24.7%)	128(25.6%)

Among all study subjects 27.2% amongst male & 24.7% amongst females were found to have 1 or more symptoms of asthma as shown in Table 3.

Table 4: Distribution of Positive Family History amongst Suspected Asthmatics, Positive history of Risk Factors in Suspected Asthmatics, Personal History in Suspected Asthmatics and Correlation of Family history

		Male (n=68)	Female (n=60)	Total(n=128)
Suspected Asthmatics	History of Atopy	37(54.41%)	21(35%)	58(45.31%)
	History of use of MDI	26(38.23%)	28(46.67%)	54(42.18%)
	HistoryofBoth	5(7.35%)	11(18.33%)	16(12.5%)
Risk Factor	Passive Smoking	26 (38.2%)	20 (33.3%)	46 (35.9%)
	Cooking on Chulha	12 (17.6%)	12 (20%)	24 (18.7%)
	Pets in the House	5 (2%)	6 (10%)	11 (8.5%)
	House near Heavy Traffic Area	5 (2%)	4 (6.6%)	9 (7.03%)
	Presence of 2 or>2 Risk Factors	20 (33.3%)	18 (30%)	38 (29.6%)
History in Suspected Asthmatics	Restriction of dayto day activity	18 (26.4%)	0	18 (14.06%)
	School Absenteeism	15 (22.05%)	0	15 (11.7%)
	History of SkinAllergy / EyeAllergy/Rhinorrhea	22 (32.35%)	17 (28.3%)	39 (30.4%)
Correlation of Family history	Positive Family History	63 (92.6%)	49 (81.6%)	-
	Positive Risk Factors	48 (70.5%)	42 (70%)	-
	Abnormal PEFR	54 (79.4%)	48 (80%)	-

A total of 93 students had a family history of atopy and 58 out of them (males and females together) (62.36%) were diagnosed as suspected asthmatics. Similarly h/o use of medication for asthma was seen in 77 students, out of which 54 students turned out to be asthma suspects (70.12%). However all the 16 children (100%) whose f/h was positive for atopy and use of medication were labeled as asthmatics by symptoms.

46 out of 108 students with h/o passive smoking were found to have symptoms of asthma (42.6%). 24 out of 63 students with h/o chulha use in their house (36.5%) had symptoms of asthma, 11 out of 48 students developed asthma with h/o pets at home (22.9%). 9 out of 40 students with h/o house in heavy traffic zone had symptoms s/o asthma (22.5%) while 38 students out of 70 with 2 or more risk factors present developed asthma (54.3%).

All 18 students (all males) had symptoms of asthma also had limitation of activity. Also 15 students who had school absenteeism had symptoms of asthma. Out of 60 students with allergies 39 were symptomatic for asthma (65%). Among all 92.6% males and 81.6% of females suspected asthma had family history, around 70% amongst both females and males had positive risk factors and approximately 80% of them had abnormal PEFR.

Table 5: Passive Smoking and Asthma & Cooking in the chulha and asthma

Passive Smoking and Asthma*	Passive smoking + Asthma +	46	62	Passive smoking + Asthma -
	Passive smoking –Asthma +	82	372	Passivesmoking -Asthma-
Cooking in the chulha and asthma**	Cooking in the chulha+ Asthma +	46	62	Cooking in the chulha + Asthma -
	Cooking in the chulha - Asthma +	82	372	Cooking in the chulha - Asthma -

***Odd's Ratio 3.36 ** Odd's Ratio 2.7**

According to Table 5, Passive smoking and asthma had odds ratio 3.36 which shows Children exposed to passive smoking have 3.36 times the risk of acquiring asthma than non passive smokers. Cooking on chulha increases the risk of acquiring the asthma by 2.7 times.

DISCUSSION

The study was conducted in the department of pediatrics, Santosh Medical College and hospital, Ghaziabad and Lal Bahadur Shastri School, Kavi Nagar, Ghaziabad. A total of 500 students were randomly selected between the age group of 10 - 15 years. This age group was chosen because of two reasons; firstly because in this age group the incidence of wheeze in children reflects true asthma and is unlikely due to inflammatory response to infection alone. Secondly in this age group the children are cooperative and can perform Peak Expiratory Flow

Metry well. Peak flow metry was performed for all students and compared to the standards laid down by the study from North India.

The mean age of boys in our study was 12.67 ± 1.10 years while the mean age of girls was 12.84 ± 1.179 years. Maximum children in our study were in the age group of 11Yrs-15Yrs. (Table 1). This is in accordance with studies done from west and south India where similar age groups were selected for the study.

To establish the diagnosis of asthma we considered the presence of symptoms like Breathlessness induced by exercise, night awakening due to cough, morning cough, and worsening of cough during rainy/winter season in the children. By these criteria we found that Amongst male students 52 (20.8%) had exercise induced breathlessness, 20 (8%) had night awakening, 3 (1.2%) had morning cough, 5 (1.2%) had worsening of cough during winter and rainy season while 12 (4.8%) students had a combination of the above symptoms. Amongst the cohort of females 60 (24%) had exercise induced breathlessness, 3 (12%) had night awakening due to cough, 5(2%) had morning cough, 8 (3.2%) had worsening of symptoms during winter and rainy season and 16 (6.4%) had a combination of symptoms.

In our study considering the relation of risk factors with symptoms of asthma, it was found that 35.9% (46) students out of suspected asthmatics had the history of passive smoking. 26 (38.2%) in males and 20 (33.3%) in females had family history of passive smoking amongst those who were suspected of asthma.

Cooking on Chulha was observed in 124 (18.7%) of students and there was equal distribution amongst males and females. 11 students suspected of asthma had Pets at home, 5 of them were boys (7.3%) and 6 (10%) were females. Results of Cross Product (Odds Ratio) In our study it was found that the risk of getting the disease was 3. 36 times with positive history of passive smoking, 2.27 times with h/o use of chulha in the kitchen.

On further analysis of this data 49 students (27 males and 22 females) who had abnormal PEFR also had positive family history of asthma. Similarly 102 students with abnormal PEFR had symptoms of asthma. All risk factors put together, history of positive risk factors was elicit able in 91 students (43 males and 48 females).

When these results were analyzed in suspected asthmatics (n=128, 68 males and 60 females), 63 out of 68 (92.6%) males had positive family history while 49 out of 60 (81.6%) female students had positive family history of asthma. Positive history of risk factors was elicited in 48 males (70.5%) and 42 females (70%). Abnormal PEFR was detected in 79.4% males and 80% females amongst suspected asthmatics which confirmed the diagnosis of asthma. MDI by one or more members in the family was seen in 77 (15.4%) students, out of which 33 (12.2%) were males and 44 (17.6%) were females.

CONCLUSION

Since India is a geographically and demographically diverse country each region must have their own normative data for that region for comparisons. The other fallacy is the less sample size. We could conduct this study only in 500 school children and only one school was enrolled. The results could differ even though marginally when the sample size is around 10,000 children and several schools are taken. Hence our study leaves a scope for the future where creation of normative data for PEFR values could be undertaken and a similar study could be contemplated in a larger population.

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Medical Risk Factors Including Intelligence Quotient Associated with Poor Scholastic Performance in Regular School Going Early Adolescent (10-12yrs) Children

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ABSTRACT

Background: Scholastic achievement have become index of child future success in this competitive world, So it is important to timely identify the related risk factors and take remedial actions for the same.

Aim and Objective: The present study aimed to study easily identifiable medical risk factors including IQ associated with poor scholastic performance in regular school going early aldolescent (10-12years) children.

Methodology: The study was conducted on 150 regular school going children (10-12years) with PSP and 150 academically good students from same class were enrolled during routine school health screening program in Ghaziabad district.

Result: Among studied medical factors, high prevalence was found for following factors i.e. Clinical Thinness(76% subject), Clinical Anemia (51%), Undetected & Inadequate treated Impaired Corrected Vision (37%), Clinical Deafness (20%),Recurrent/ chronic Headache (24.6%), Chronic Asthma(8%). Although majority of students were from middle socio-economic class.

IQ was normal (IQ>80) in 71% students with PSP and only 19%students were slow learners(IQ-71-79) while mild MR(50-70) was present inonly10% of students

Conclusion: The study concluded that a teacher is the best source of information regarding a student's academic struggles, which should never be disregarded and for which quick action of some kind must be taken.

Keywords: Intelligent quotient, Clinical Anemia, Adolescent.

INTRODUCTION

In today's competitive world scenario Academic performance has become a major concern among children, their parents and teacher as in the race of academic excellence everyone wants to win. The causative factors of poor academic performance are diverse, ranging from psycho-social to various medical conditions including specific learning disabilities.

Despite greater awareness and efforts of parents and children both, to excel in academics, the prevalence of Poor Scholastic Performance remain high & ranges from 5-20% [1,2] and even higher. [3,4] In the context of scholastic performance, the usual approach is limited to & mostly decided by the marks or grades obtained in examinations. [3,5] These marks may not necessarily reflect the child's true potential and caliberneit her does it mean bleak future career prospects.

On doing literature search, it was observed that most of theliterature available focus on personal conflicts of adolescents orvarious social correlates [6,7] like involvement of parents in childacademicactivitiesdonebyToporet.al.7orfamilyfactorsrelatedto extrinsic and intrinsic motivational and orientation of child by Ginsberg et.al.8 Impact of socioeconomic status of the family, maternal and parental education etcon child's academic performance have also been studied by multiple researcher. [7,8]

Most of the implicated medical factors affecting academics WHICH HAVE BEEN studied extensively & repeatedly by various researchers are: Nutrition, Anemia, Impaired Corrected Vision, Clinical Deafness, Chronic Illnesses like Bronchial Asthma, Epilepsy or Migraine etc.

Issues commonly addressed by various researchers, in relation to nutritional status of students ranges from diet quality,[9] dietary habits,[10] to various nutrients deficiency and malnutrition.

In a recent study by Haneeshet.al. [11], very high prevalence (27%) of mental retardation and borderline intelligence (33%) was reported among children referred to child guidance clinic due to PSP. The prevalence of chronic medical illness reported by them were 6%, 5% 11% respectively for vision, hearing and speech deficits. They also found epilepsy, asthma and CHD patients in their study.

On literature review it was felt that most authors have either studied the prevalence of various medical conditions only or have collected data on a single disease and studied its association with Poor Scholastic Performance.

MATERIALS AND METHODS

This Analytical (Case-control) Observational study was conducted in department of paediatrics of Santosh Medical College & Hospital over the period from April 2014-May 2015. The cases (both experimental and controlled) were collected from the local school of Ghaziabad district and the procedure is based on purposive sampling. The control group was taken on randomization basis.

The institute runs a school health program where resident doctors from Pediatrics, ENT, Dental and Ophthalmology department visit the attached school situated nearby Santosh hospital. This checkup includes general physical examination (with focus on nutritional deficiencies, vision & hearing) and relevant systemic examination. Resident doctors assess the need of further detailed evaluation and psychological counseling which if needed than children are referred to our hospital.

The purpose of the study was discussed with the school authorities who had informed the parents regarding the project during parent-teachers meeting. Only those children were enrolled whose parents had given written consent. Performa including a few social and mostly medical details were filled by parents of the participating subjects under supervision and with the help of primary investigator.

Statistical analysis was done using the software SPSS for Windows. Chi square test, Pearson correlation coefficient and scattered chart and Odds Ratio with CI for categorical vs categorical variables tests were used for comparison. P-value considered to be significant whenever it was 0.05or less.

RESULTS

Table1: Frequency distribution of study subjects according to Age, Social Class, and Academic Class

Frequency distribution of study subjects		**Frequency(Percentage)**
Age	Age 10.0	68
	Age 10.5	30
	Age 11.0	76
	Age 11.5	24
	Age 12.0	102
	Total	300
Social Class	KS 2.0	63
	KS 3.0	207
	KS 4.0	30
	Total	300
Academic Class	Class 5	22
	Class 6	107
	Class 7	150
	Class 8	21
	Total	300

According Table 1, Nearly 2/3rd of study subjects (58% of cases and 60% controls) were in the age group of 11-12yrs. The difference between academic performance of cases and control in relation to age was not significant. Around 2/3rd of subjects, (64% cases and73%controls) belong to social economic class III. Percentage of subjects belonging to social grade IV in both groups was minimum at around 10%. Around 50% of both cases and controls were in 6^{th} and 7^{th} class.

Table 2: Frequency distribution of study subjects according to Clinical Anaemia, Abnormal Vision, Clinical Deafness, Impacted Wax, Otitis Media, Seizure and Asthama

		Frequency (Percentage)		**p value**
		Poor Performance	**Normal**	
Pallor	Yes	101 (67.35%)	55 (36.7%)	0.281
	No	49 (32.7%)	95 (63.3%)	
	Total	150	150	
AbnormalVision	Yes	62 (41.3%)	48(32%)	0.668

	No	88(58.7%)	102(68.0%)	
	Total	150	150	
ClinicalDeafness	Yes	47 (31.3%)	14(19.3%)	0.226
	No	103 (68.7%)	136 (90.7%)	
	Total	150	150	
ImpactedWax	Yes	29(19.3%)	8(5.3%)	0.226
	No	121(80%)	142 (94.7%)	
	Total	150	150	
Otitis Media	Yes	20(13.3%)	10(8.7%)	0.617
	No	130(86.7%)	137 (91.3%)	
	Total	150	150	
Seizure	Yes	3 (2.0%)	2(1.3%)	0.281
	No	147 (98.0%)	148 (98.7%)	
	Total	150	150	
Asthma	Yes	19 (12.7%)	5(3.3%)	0.238
	No	131 (87.3%)	145(96.7%)	
	Total	150	150	

Anemia was common in both cases and controls with overall prevalence of around 51%. Around 2/3 rd (67.37%) of case population was anemic while around 1/3rd (36.7%) of controls were anemic. Between Cases and Controls, Anaemia was commoner in cases. The correlation was statistically significant with odds ratio 0.281 (CI 0.174-0.452). Impaired corrected vision due to refractive errors was a major problem affecting around 37% subjects. Vision problems were commoner in cases affecting around 41% students with PSP while only 32% of controls were having impaired corrected vision. Although vision problems were very common yet this correlation was statistically insignificant, Odds ratio 0.668 (CI0.416-1.071).

Deafness was detected in 20% study subjects and it was commoner in cases than in controls. Around 31% (1/3) of cases were having deafness while only 19% of controls had it. This correlation between deafness and PSP was statistically significant with odds ratio-0.226 (CI 0.118-.432). Odds of PSP being present were 0.22 in any student with conductive deafness. Among cases who had conductive deafness, all most all were having impacted wax in ears either unilateral or bilateral. While only5.3% of controls were having impacted wax. This correlation between conductive deafness due to impacted wax and PSP was statistically significant with odds ratio 0.235 (CI0.104-0.533).

Otitis media was found in 13.3% of cases while only 8.7% of controls were having conductive deafness due to otitis media. The correlation between deafness and PSP was statistically Insignificant with odds ratio -O.617 (CI0.297-1.291).

The prevalence of seizure disorder in study subjects was very low. Only 2 % of cases and 1.3% of controls were having seizures. The correlation was statistically insignificant with odd Odds ratio 0.281(CI 0.174-4.021). Asthma prevalence was 8%. Asthma was more common in cases than in controls. Around 13% of cases were having asthma while only 5% of controls were having asthma. The correlation was statistically significant with odds ratio-0.238(CI 0.086-.655)

Table 2: Frequency Distribution of IQ Scores of PSP Children

IQCategory			
IQ		**Frequency**	**Percent**
Mild MR Slow Learners Normal	50 -69	15	10.0
	70 -79	28	18.7
	>79	107	71.3
	Total	150	100.0

Very relevant observation was that IQ was normal in more than two-third (71.3%) students with PSP. 28 (18.7%) about one fifth of total 43 students with low IQ were slow learners when cutoff criteria of IQ was IQ between70-79. Mild MR (IQ50-69) was found in only 15 (10%) of 150 cases. None of the cases had IQ scores below 50.

Table 3: Frequency distribution of Total IQ of cases according to Verbal IQ, Performance IQ and VIQ of cases according to PIQ

				Correlation value	p value
		VIQ<80	**VIQ>80**		
Total IQ of cases according to Verbal IQ	**TIQ<80**	39(90.7%)	4(9.3%)	r=0.916	0.01
	TIQ>80	1(0.9%)	106(99.1%)		
	Total	40	110		
Total IQ of cases according to Performance IQ		**PIQ<80**	**PIQ>80**		
	TIQ<80	42 (97.7%)	1(2.3%)	r=0.949	0.01
	TIQ>80	0 (0.0%)	107 (100%)		
	Total	42	108		
VIQ of cases according to PIQ		**PIQ<80**	**PIQ>80**		
	VIQ<80	38	2	r=0.0742	-
	VIQ>80	4	106		
	Total	42	108		

90.7% (39) of cases had low VERBAL IQ<80 as well as low TOTAL IQ<80. Only 4(9.3%) cases in present study, who were having low total IQ<80, had verbal IQ of more than 80(ranging from 80-84 only, very near to the cutoff) The association of total IQ with VIQ was statistically significant bychisquare126.382(p-value 0.000).

Among cases having total IQ<80, PIQ of almost all students (97.7%) was also below 80. There was significant correlation between total IQ and PIQ by chisquare 145.2 (p value.000) Out of Total 43 students with low IQ scores, almost all were having low Verbal IQ as well as low performance IQ Scores. Verbal IQ and performance IQ were significantly related to total IQ individually.

Verbal IQ and Performance IQ both were below eighty in 38 out of total 43 children with low total IQ scores. 4 cases had verbal IQ in normal range but their performance IQ was less than normal. 2 cases had verbal IQ scores in normal range but performance score was below normal.

DISCUSSION

The present study was a case control analytical study to identify the association between some medical risk factors and PSP of normal school going adolescent childrenaged10-12yrs.

In the present study nearly 2/3rd of children, (64% cases and73% controls) belonged to social class III. Percentage of subjects belonging to social grade IV in both groups was minimum at around 10% and Statistically no significant difference was found between cases and controls belong to these social classes and PSP, PVALUE was 0.238 (Chi-square).

The findings of present study are in concordance with the observations of Gupta et.al.[12] as they concluded that there is no significant correlation between SES and academic achievement. Findings contradictory to the present study were reported by Chandra et.al. [13] and Ahmar et.al. [14] Who reported academic achievement was influenced by the socio-economic status and it was directly proportional to SES. This difference of present study from the other researchers could possibly be attributed to the fact that students were enrolled from a single school rather than a community setting, so most of the students from average to higher SES background.

In present study clinical anemia was found to be a common co-morbidity and observed prevalence was 52%. This prevalence found in present study is lower than the findings of Sarikamore et.al.[15],and NFHS-3(69.5%).But the lower prevalence of anemia (32%) has been reported in a recent prospective study done by Reddy et.al.[16] in urban Karnataka among 5-10 years old normal school going children.

Anemia was two times commoner in cases than in controls. Odds of PSP being present were higher in children with clinical pallor as the odds ratio was 0.281(CI0.174-0.452).

Similar significant association of PSP and anemia was reported by other researchers too. Reddy et.al.[16]found that (41%) of low achievers in their study were anemic, who on iron supplementation showed improvement in the academic grades ($p<0.05$) this improvement in academic performance could be observed in only 6.3% of the non anemic, non-iron deficiency group of children.

Majority of enrolled students in present study were either not knowing of their refractive error or those already wearing spectacles were not going for regular follow-up. Lower prevalence of impaired vision in adolescent

children at21.1% and 25.5% were reported by Dutta et.al. [18] from rural Pune, and by Kartha[17] from Ahmedabad.

In the present study although more (41%) students with PSP were having vision problems in comparison to controls (32%) but vision problems were not associated with PSP by statistical analysis.

Study conducted by Haneeshet.al.[19] from Calicut also reported that refractive errors were commoner (6%) in children with scholastic backwardness. Kotingo et.al.[20] in Nigeria and Kovarski et.al.[21] in France reported that children with impaired Visual acuity had a significant impact on their academic performance.

Out of all children with poor academic performance adolescent who are in slow learner group remain undistinguishable from normal children, as they may be up to date on current trends and appear normal when interacted with, at a superficial level even by parents, teachers or professionals. So, it will be a good idea to set a formal IQ testing done and know the IQ, rather than labeling them as stupid or retarded.

According to MALINS performance scores (PQ) of Indian children are abnormally low(nearly 6%) when compared to verbal scores (VQ) which are about 10% higher than the American norms. 90.7% (39) of cases had low VERBAL IQ <80 as well as low TOTAL IQ<80. Only 4(9.3%) cases in present study, had low total IQ< 80, But their Verbal IQ was more than80. But contrary to the MALINS observation in present study no statistically significant disparity could be found between performance IQ and Verbal IQ.

The prevalence of seizure disorder in the present study was only 1.6% in population. The correlation between epilepsy and PSP was statistically insignificant with odd Odds ratio 0.662(CI0.109-4.021). A Retrospective Study done by Abiodun et.al.[22] from Nigeria included 73 children (12-18years) with seizure disorder, and found that the see pileptic children had lower mean marks (43.76%) in comparison to healthy controls (53.34%).

CONCLUSION

High proportion of thinness and anemia in study subjects who were otherwise normal and from middle SES family points toward bad dietary habits rather than inadequate dietary intake. This observation highlights the importance of nutritional guidance at school level to rapidly growing adolescent.

Impaired vision due to undiagnosed or under corrected refracted errors and clinical deafness due to impacted wax was found in high proportion of study subjects had strong association with PSP which emphasis the need of robust school program as it canhelpinearlydiagnosisandtimelytreatmentoftheseeasilyamenableyetsignificant correlates with PSP. Majority of PSP students had normal IQ which points towards psychosocial factors rather than poor academic potential being responsible for PSP. Psychological consultation and counseling rather than harsh treatment would be the solution for this problem.

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The Study of Assessment of Immunization Status amongst Preschool Children (1-5 Years)

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ABSTRACT
Background: "Induction of an immunological response" is what is meant by immunization. This reaction could take the form of cellular immunity, humoral immunity, or both. One of the best ways to assess how well the population is served by health services is through immunization.

Aim and Objective: The present study was aimed to study immunization status amongst preschool children (1-5 years).

Methodology: The present study was conducted as a cross sectional observational study enrolling 1000 children between the age group of 12 to 60 months from urban and rural sector of Ghaziabad, each being represented equally. The data was collected through a semi structured questionnaire and analyzed using SPSS.

Result: there were 528 males and 472 females. In our study urban and rural combined 34.5% children between 1-5 years were completely unimmunized and 49.5% were fully immunized appropriate for age.

Conclusion: This study emphasizes the significant disparity in immunization rates between India's urban and rural populations. An key factor in determining vaccine coverage appears to be parental education, particularly that of the mother.

Keywords: Unummunized, Pre-school children, pediatrics.

INTRODUCTION

Immunization refers to "Induction of an immune response". This response may be manifest through humoral immunity or cellular immunity or both. Immunization is one of the best indicators to evaluate the health services distributed across the population. It is also one of the most cost effective interventions to prevent a series of major illnesses particularly in environment where children are undernourished and die from preventable diseases. Globally, approximately three million children die each year of vaccine – preventable diseases. Recent estimates suggest that approximately 34 million children are not completely immunized, with almost 98% of them residing in developing countries.[1]

The expanded programme of immunization was the first global Initiative at immunization, organized under the banner of WHO in 1974 India adopted this programme in 1978. The vaccines covered under this programme were against diphtheria, pertusis, tetanus, measles, tuberculosis and poliomyelitis. [2]

In 1997 maternal and child health programme was constituted in the name of reproductive and child health (RCH) programme. In this programme also immunization under 1 year of age found major emphasis and was considered as the most effective strategy to control infection. [3]

Profile of vaccination in India is diverse 90% of the immunization are catered to by Govt. agencies which provide this facility free of cost at ICDS, PHC, CHC, sub centres and Govt. hospitals and dispensaries. Rest of 10% population receives its vaccines from the private practitioners [4].

All vaccines under the routine immunization programme are provided free-of-charge. However, the figures for the coverage of routine immunization (RI) are lagging. The current level of coverage of 'fully-immunized' children under national immunization programme is quite low, as pointed out by several studies [5] [6]

Despite the large scale provisions by the Govt., the rates of immunization are less than satisfactory. The govt of India is committed to achieve Millennium Developmental Goal 4, which focuses on reduction of under 5 mortality. One of the most important parameters under consideration are immunization and breast feeding, which are two most important saviours of life.

n the last 50 years, India's population grew two and one-half times, but urban India grew nearly five times. [7] Most of this growth is due to migration, leading to mushrooming of slums. With the rapid growth of big cities, an impending threat of outbreak of vaccine-preventable diseases always exists due to the high population density, continuous influx of a new pool of infective agents with the immigrating

population and poor coverage of primary immunization in the urban slums. [8], [9] The last NFHS survey was conducted in 2005-2006 and thereafter efforts have been made to strengthen the immunization practices by the government. This study has been undertaken with a view to ascertain the immunization status of children in the Preschool age group.

MATERIALS AND METHODS

The cross-sectional observational study was conducted in the department of paediatrics of Santosh Medical College & Hospital Ghaziabad. 500 children between the age group of 1 – 5 years attending the pediatric OPD recruited for the study between May 2011 to April 2012. Immuno compromised children were excluded from the study.

1000 children between 1-5 years who fulfilled the inclusion criteria were picked up randomly, irrespective of sex, caste, or socio economic status. 500 children were picked up from pediatric OPD of Santosh Hospital which was representative of urban sector and 500 children were picked up randomly from PHC at rural Ghaziabad. Age group of 1- 5 years was selected because 90% of immunization is complete by 1 year and 100% completed by 5 years. Hence this age group would indicate about the coverage rate appropriately. A consent was taken from the mother as per the enclosed consent form and confidentiality of the identity was maintained. Mother was subjected to a pre structured questionnaire (enclosed) which pertained to date of birth, type of delivery, birth weight, residential address etc.

Details of Immunization were elicited from mother and documentary evidence in form of Immunization cards was only acceptable. Oral information was not acceptable since there could be confusions regarding the immunization given.

The data was tabulated and analysed using using the Z-test for proportions, Fisher's Exact Test, ANOVA, Regression and Chi-Square test. P value < 0.05 was considered significant in all cases.

RESULTS

The current investigation was carried out as a cross-sectional observational study, enrolling 1000 kids between the ages of 12 and 60 months from Ghaziabad's urban and rural areas, with equal representation of each.

Table1: Socio-demographic distribution of the sample group

Socio-demographic Data Distribution		**URBAN n=500**	**RURAL n=500**	**Total n=1000**
Gender	Male	275(55%)	253(50.6%)	528(52.80%)
	Female	225(45%)	247(49.4%)	472(47.20%)
Immunization Status	Fully Immunized	389(77.8%)	106(21.2%)	495(49.50%)
	Partially Immunized	85(17 %)	75 (15%)	160(16%)
	Unimmunized	26(5.2 %)	319(63.8 %)	345(34.50%)

According to Table 1, there were 528 males and 472 females. In our study urban and rural combined 34.5% children between 1-5 years were completely unimmunized and 49.5% were fully immunized appropriate for age. 77.8% patients were fully immunized in urban sector Vs 21.2% in rural setting. Also only5.2% children were unimmunized in urban setting Vs 68.8% in rural setting.

Table 2: Immunization status with respect to educational status of parents (rural), impact of religion on immunization (Urban) and religion on immunization (Rural)

			Fully Immunized	**Partially Immunized**	**Unimmunized**	**Total**	**p value**
Educational Status of Parents (Rural)	Education Mother	□Primary	33(15.79%)	29(13.88%)	147(70.33%)	209	P=0.0102
		>Primary	73(25.08%)	46(15.81%)	172(59.11%)	291	
	Education Father	□Primary	23(17.97%)	19(14.84%)	86(67.19%)	128	p = 0.3556
		>Primary	83(22.31%)	56(15.5%)	233(62.63%)	372	
Impact Of Religion On Immunization (Urban)	Hindu n=404	Male n=220	185 (84.10%)	34 (15.45%)	1 (0.45%)	220	P=0.0997
		Femalen=184	154 (83.70%)	25 (13.59%)	5 (2.71%)	184	
	Muslim n=61	Malen=40	20 (50%)	6 (15%)	14 (35%)	40	P=0.6119
		Femalen=21	5 (23.81%)	10 (47.62%)	6 (28.57%)	21	
	Christian n=35	Malen=15	10 (66.67%)	5 (33.33%)	0	15	P<0.0001
		Femalen=20	15 (75%)	5 (25%)	0	20	

Impact Of Religion On Immunization (Rural)	Hindu n=415	Malen=207	57(27.54%)	32(15.46%)	118(57%)	207	P=0.0803
		Femalen=208	38(18.27%)	34(16.35%)	136(65.38%)	208	
	Muslim n=85	Malen=46	7(15.22)	2(4.35%)	37(80.43%)	46	P=0.3515
		Femalen=39	4(10.26%)	7(17.95%)	28(71.79%)	39	

In our study both mother's education and father's education had an impact on immunization status. The child had 8.6 times more chances of getting immunized if mother's education was more than primary, on the other hand a child had 14.2 times more chances of getting immunized if father's education was more than primary. The chances of compeletely unimmunized status of a child was higher in muslims than hindus ($p<0.05$). There is no statistically significant difference between immunization status of males and females in hindus and muslims ($p>0.05$). Similar results were obtained for rural sector as well.

Table 3: Individual Vaccination Coverage for urban and rural and statistical analysis of individual vaccination coverage

		Total (Eligible) 'n'	**Given**	**Percentage**	**p value**
Individual Vaccination Coverage (URBAN)	BCG(500)	500	449	89.80%	-
	DPT3	500	440	88.00%	
	Measles	500	419	83.80%	
	DPTBooster1	390	315	80.77%	
	DPTBooster2	53	43	81.13%	
Individual Vaccination Coverage (RURAL)	BCG (500)	500	157	31.40%	-
	DPT3	500	145	29.00%	
	Measles	500	138	27.60%	
	DPT Booster1	418	92	22.01%	
	DPT Booster2	17	2	11.76%	
Statistical Analysis of Individual Vaccination Coverage	BCG (500)Rural	500	157	31.34%	p < 0.05
	BCG (500)Urban	500	449	89.8%	
	DPT3 Rural	500	145	29%	
	DPT3 Urban	500	440	88%	
	Measles Rural	500	138	27.6%	
	Measles Urban	500	419	83.8%	
	DPT Booster1(Rural)	418	92	22.01%	
	DPT Booster1(Urban)	390	315	80.77%	
	DPT Booster2(Rural)	17	2	11.76%	
	DPT Booster2(Urban)	53	43	81.13%	

The immunization coverage was more than 80% in all vaccines and immunization was universally good. The immunization coverage was less than one-third in all vaccines in rural setting. The difference in vaccination coverage in urban and rural areas evident where in almost all vaccines the coverage is atleast two-third less than in urban . As evident in the above table there is a significant difference in all vaccines between urban and rural setting. P value in all vaccines < 0.0001.

Table 4: Reason for un-immunization (Rural & Urban)

Reason For Unimmunization (Rural & Urban)			Percentage
Unimmunized n=345	Unawareness	213	61.74%
	Don't know place & how	76	22.03%
	Fear of reaction	56	16.23%
Partial n=160	Fever	60	37.50%
	Family disapproval	29	18.12%
	Migration	32	20.00%
	Child illness	19	11.88%
	Mother illness	20	12.50%

According to Table 4, out of all 345 children were unimmunized and 160 were partially immunized. The most important reason for letting a child remain unimmunized was unawareness while other causes highlighted were fear of reactions ,fever ,family disapproval, migration ,child illness or mother being ill.

Table 5: Dropout rate in the study group

		Given	Percentage
Dropout Rates (URBAN&RURAL)	BCG	611	00%
	DPT1	595	2.62%
	DPT 2	579	5.24%
	DPT3	546	10.64%
	Measles	528	13.59%
Dropout Rates (URBAN)	BCG	449	00%
	DPT1	434	3.34%
	DPT 2	434	3.34%
	DPT3	415	7.57%
	Measles	402	10.47%
Dropout Rates (RURAL)	BCG	162	00%
	DPT1	161	0.62%
	DPT 2	145	10.49%
	DPT3	131	19.14%
	Measles	126	22.22%

In urban setting, Dropout rate between BCG and DPT3 was 7.57 % and between BCG and measles was 10.47% as against rural dropout rate of BCG to DPT3 was 19.4% and between BCG and measles was 22.2% ($p<0.05$). The dropout rates were much higher in rural than urban.

DISCUSSION

Immunization in India is a Herculean task. The figures are startling, 25 million newborn children born annually who are targeted for immunization through 9 million immunization sessions and 25,000 cold chain points.

This study was planned to assess the immunization status of representative population of rural and urban areas of Uttar Pradesh in Ghaziabad district. Though the immunization status within Uttar Pradesh is extremely variable, however it would give an insight into the effectivity of certain programmes specifically launched for promotion of routine immunization. The subjects for urban sector were picked up from outpatient department of Santosh Hospital.

Out of the 1000 children enrolled 49.5% were fully immunized and 34.5% were totally unimmunized. There was a vast difference between urban and rural sector in our study. In urban area 77.8% were fully immunized and only 5.2% were totally unimmunized while 17% had been only partially unimmunized.

In a study from Aligarh in 2011 on rural and urban population the coverage immunization was only 31%, in rural sector being 23.7% and 42.7% in urban sector. The rate of unimmunized was significantly higher 57.9% in rural setting and 30.6% in urban setting who were totally unimmunized [10]. In another study from lucknow in 2005 done on 510 children revealed 44.1% fully immunized and 23.9% with totally unimmunized status. [11]

The common reasons for unimmunization were: unawareness about immunization (61.74%); unawareness of where the facility of immunization was available (22.03%) and fear of reaction (16.23%) for partial immunization most common reason was fever (37.5%) along with family disapproval (18.12%) migration (20%) child illness (11.88%) and mother being ill (12.5%).

On comparing the reasons of unimmunization or partial immunization with CES 2009 (UP) and study by Devendra Kumar, it was evident that most common reason was unawareness 53.8% and 30.3 % respectively, followed by fear of side-effects, fear of reaction, not knowing place where to go for immunization etc [12].

In urban setting, Dropout rate between BCG and DPT3 was 7.57 % and between BCG and measles was 10.47% as against rural setting where BCG to DPT3 drop was 19.4% and between BCG and measles was 22.2% ($p<0.05$). In our study both mother's education and father's education had an impact on immunization status. The child had 8.6 times more chances of getting immunized if mother's education was more than primary, on the other hand a child had 1.42 times more chances of getting immunized if father's education was more than primary.

Awasthi et al has described a drop out of 23.16% between DPT 1 and DPT 3, 13.12% between DPT 3 and measles, and overall dropout rate of 33.24%. Their study correlated mother's education with immunization status and found that illiterate mother were 4 times at higher risk for keeping their children totally unimmunized [11].

CONCLUSION

This study highlights the vast difference in the immunization status between urban and rural sectors in India. Education of parents, especially mother seems to be an important determinant for immunization coverage. The efforts of the government, both financial assistance and commitment have rendered the Country Polio free. Similar kind of commitment towards health services can also go a very long way in improving the health delivery system in our Country.

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