

Effect of Cigarette Smoking and Obesity on Blood Levels Lipid

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In present studies, the effects of obesity and cigarette smoking on lipid levels in blood were investigated. The represented study has been commenced on 1006 adult patients from Cumra Government Hospital amongst 598 women and 408 men between age of 25-55. Blood samples taken from 12 h fasted patients were taken into tubes. After coagulation, triglyceride (TG), total cholesterol, low density lipoprotein (LDL cholesterol) and high density lipoprotein (HDL cholesterol) analysis were completed by separation serums. The average triglyceride levels of the data of 1006 adult patients is found as 167.80 ± 98.43 mg/dl, triglyceride levels of men is 174.37 ± 102.69 mg/dl and for women is 163.31 ± 95 mg/dl. While overall average total cholesterol is 196.66 ± 44.93 mg/dl, in men is 191.76 ± 43.55 mg/dl and it is found in women as 200.00 ± 45.59 mg/dl. Average high density lipoprotein cholesterol in general is 50.67 ± 12.30 mg/dl, in men is 48.11 ± 12.59 mg/dl and in women is 52.41 ± 11.80 mg/dl. The mean low density lipoprotein is 115.49 ± 38.52 mg/dl, in men is 112.23 ± 36.19 mg/dl and in women is 117.71 ± 39.90 mg/dl. Active and passive cigarette smoking was shown 28 and 15 % respectively. Another important result is that obesity cases were shown seriously in 53 %. The significance of the effect of smoking activity on high density lipoprotein cholesterol was determined. However, the effect of body mass index on lipid profile was not found significant. On the other hand, the effectiveness of central obesity on lipid profile was determined.

Key Words: Obesity, Cigarette smoking.

INTRODUCTION

Obesity and cigarette smoking are increasing worldwide in 25-55 years adults¹⁻³. The deleterious consequences of obesity and smoking are considerable. Recent estimates attribute 280.000 deaths a year in the USA to over nutrition, making it second only to cigarette smoking as a cause of death¹⁻³.

In present studies, the blood levels lipid (HDL cholesterol, LDL cholesterol, triglyceride, total cholesterol) are the factors affected by cigarette smoking and obesity. The relation of obesity and cigarette smoking with the measured parameters are evaluated.

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EXPERIMENTAL

The represented study has been commenced on 1006 adult polyclinic patients consists of 598 women and 408 men between the age of 25-55 from Cumra Government Hospital. A blood transfusion lipids indicate that there are situations where work outside the word of the new contrary unit follows and the following criteria has been followed: (1) Fasting blood glucose (FBG), C reactive protein (CRP), alkaline phosphatase (ALP), serum glutamic oxaloacetic transaminase or aspartate aminotransferase (SGOT/ASAT), serum glutamic pyruvic transaminase or alanine transaminase (SGPT/ALT), thyroid stimulating hormone (TSH), free thyroid 3 (FT3), free thyroid 4 (FT4), blood urea and blood creatine levels within normal limits. (2). Being out of dialysis application. (3). Not being in the treatment of malinty. (4). During the last three months, not undergone by serious surgical treatment. (5). Being between the ages of 25-55 while collecting their blood samples.

The study of measurement and assessments groups according to the following basis.

Obesity groups (body mass index): O1 group and O2 group. These groups primarily O1 group (non-obesity group): BMI value less than 30, secondly O2 groups (obesity group) as BMI values more than 30.

Central obesity (Belt chamber measurement groups): Belt chamber measurement groups comprising two men and two women group including the group 4; sets up:

Women-group: Belt chamber measurement more than 88 cm.

Women-group: Belt chamber measurement less than 88 cm.

Men-group: Belt chamber measurement more than 102 cm.

Men-group: Belt chamber measurement less than 102 cm.

Cigarette smoking groups: In this study, adult patients were classified in to 4 groups as follows: the ones not cigarette smoking (actively or passively) were "S0 group, the ones cigarette smoking less than 10 cigarettes daily were put in to "S1 group, the ones cigarette smoking more than 10 cigarettes daily were evaluated as "S2 group and the ones exposed to cigarette smoke for at least 1 h daily were evaluated as "S2 group, passive smokers.

Polyclinic application up with, the criteria given above those who obey physical measurements, made of information was taken and blood samples of the 12 h following the fasting in the morning (08:00-09:30 am) and vacuum vials are taken.

From collected samples, all serum were centrifuged after clotting and triglyceride, total cholesterol, HDL, LDL analysis tests were performed simultaneously. These tests were performed using Thermo Electron HDL:981657 equipments on Conelab 60 i Automated Test Device.

Body mass index (Obesity): Obesity is defined in terms of the body mass index-weight in kilograms divided by square of the height in meters^{4,5}.

$$\text{BMI} = \text{BW (body weight) (kg)} / \text{BH (body height)}^2 \text{ (m}^2\text{)}$$

Belt chamber measurement (Central obesity): Belt chamber observable people standing stop, light at the end of lower rib crista iliaca rank in the middle, hip chamber the level of trokanterler were measured. Belt chamber men > 102 cm and above M+, women > 88 cm and above those of the W+ these values are those under the M-, as the W- are grouped.

Statistical assessments: Measured parameters the groups for statistical according to the normal assessments showing the distribution measurements two groups in the middle compared Z-test and regular distribution designation more than one of independent group comparison kruskal-wallis H test statistical data analysis program SPSS 15.0 held by using.

RESULTS AND DISCUSSION

Factor levels frequency

Cigarette smoking: S0 group 548 adult patient (%55), S1 group 104 adult patient (% 10), S2 group 193 adult patient (% 19), SP group i 161 adult patient (% 16) were determined.

Obesity (body mass index): O1 group (non obesity); BMI values 30 under 527 adult patient (% 52) formation, O2 group BMI 30 and above (obesity group) 479 adult patient (% 48) were determined.

Central obesity (belt chamber): W+ group: Belt chamber 88 cm and above 219 women adult patients (37 %), W- group: Belt chamber 88 cm under 379 women adult patients (63 %), M+ grubu: Belt chamber 102 cm and above 151 adult men patient (37 %) and M- group: Belt chamber 102 cm under 257 adult men patient (63 %) were determined.

Lipid values

Triglyceride (TG): From the obtained data when 1006 adult patients average triglyceride levels are found as 167.80 ± 98.43 mg/dl all age as the average for adult men patients are found 174.37 ± 102.69 mg/dl women adult patients 163.31 ± 95.25 mg/dl were determined (Table-1). These results are seen in the definition of 'high frontier' between 150/190 mg/dl (Table-1).

In this study with triglyceride connection cigarette smoking are significant (Table-1, $p < 0.05$). Triglyceride values that the high are determined and this situation are interpreted that cigarette smoking on lipid profile of the negative effect⁴.

Total cholesterol: This study shows men and women total 1006 adult patients average total cholesterol levels are found as 196.66 ± 44.93 mg/dl, men these data as 191.76 ± 43.55 mg/dl women as 200.00 ± 45.59 mg/dl (Table-2). The study on blood total cholesterol sex are effectived (Table-2, $p < 0.05$). When looked other criteria, central obesity are found that effective all the adult patients on total cholesterol (Table-2, $p < 0.05$).

TABLE-1
BLOOD TRIGLYCERIDE LEVELS IN GROUPS

		TG mg/dl			
		N	Means	Standard deviation	
BMI	Normally	527	165.55	102.93	Z = -1.639, p = 0.101
	Obesity	479	170.27	93.28	
SEX	Men	408	174.37	102.69	Z = -1.686, p = 0.092
	Women	598	163.31	95.25	
Central obesity	Men	+	151	242.85	Z = -10.012, p < 0.001*
		-	257	134.14	
	Women	+	219	214.71	
		-	379	133.61	
Smoking	S0	548	151.24	87.73	Ki-kare = 56.335, p < 0.001*
	S1	104	178.07	97.44	
	S2	193	205.20	109.69	
	SP	161	172.69	106.19	
Totally		1006	167.80	98.43	

*As a statistical difference 0.05 meaning it is important level.

TABLE-2
BLOOD TOTAL CHOLESTEROL LEVELS IN GROUPS

		TK mg/dl			
		N	Means	Standard deviation	
BMI	Normally	527	196.66	43.59	Z = -0.050, p = 0.960
	Obesity	479	196.65	46.41	
SEX	Men	408	191.76	43.55	Z = -3.033, p = 0.002*
	Women	598	200.00	45.59	
Central obesity	Men	+	151	209.95	Z = -6.097, p < 0.001*
		-	257	181.07	
	Women	+	219	218.03	
		-	379	189.57	
Smoking	S0	548	203.88	46.72	Ki-kare = 36.750, p < 0.001*
	S1	104	191.53	44.82	
	S2	193	183.47	41.43	
	SP	161	191.19	37.85	
Totally		1006	196.66	44.93	

*As a statistical difference 0.05 meaning it is important level.

LDL cholesterol: Average LDL cholesterol levels in blood serum of all the adult patients as 115.49 ± 38.52 mg/dl for adult men patients as 112.23 ± 36.19 mg/dl and for adult women patients as 117.71 ± 39.90 mg/dl are determined (Table-3).

According to these result both, in women patients and man patients it seen that central obesity has significant effect (Tables 1-4, p < 0.05).

HDL cholesterol: Average HDL cholesterol levels in blood serum of 1006 adult patients 50.67 ± 12.30 mg/dl, men patients as 48.11 ± 12.59 mg/dl for women patients as 52.41 ± 11.80 mg/dl are determined (Table-4).

TABLE-3
BLOOD LDL CHOLESTEROL LEVELS IN GROUPS

		LDL-K mg/dl			
		N	Means	Standard deviation	
BMI	Normally	527	116.53	37.72	Z = -0.616, p = 0.538
	Obesity	479	114.33	39.38	
SEX	Men	408	112.23	36.19	Z = -2.227, p = 0.026*
	Women	598	117.71	39.90	
Central obesity	Men	+	151	119.95	Z = -2.902, p = 0.004*
		-	257	107.69	
	Women	+	219	128.72	Z = -4.419, p<0.001*
		-	379	111.34	
Smoking	S0	548	117.91	40.66	Ki-kare = 7.408, p = 0.060
	S1	104	113.50	34.94	
	S2	193	110.83	36.51	
	SP	161	114.09	35.07	
Totally		1006	115.49	38.52	

*As a statistical difference 0.05 meaning it is important level.

TABLE-4
BLOOD HDL CHOLESTEROL LEVELS IN GROUPS

		HDL-K mg/dl			
		N	Means	Standard deviation	
BMI	Normally	527	51.22	12.37	Z = -1.538, p = 0.124
	Obesity	479	50.07	12.21	
SEX	Men	408	48.11	12.59	Z = -5.703, p<0.001*
	Women	598	52.41	11.80	
Central obesity	Men	+	151	47.45	Z = -0.952, p = 0.341
		-	257	48.50	
	Women	+	219	46.69	Z = -4.369, p<0.001*
		-	379	53.98	
Smoking	S0	548	57.94	9.68	Ki-kare = 524.903, p<0.001*
	S1	104	44.80	6.88	
	S2	193	37.20	9.32	
	SP	161	45.85	7.08	
Totally		1006	50.67	12.30	

*As a statistical difference 0.05 meaning it is important level.

It is found that active-passive cigarette smoking and other criteria central obesity have negative effect on blood HDL level (Table-4, p < 0.05).

Conclusion

The represented study has been realized on 1006 adult patients consists of 598 women patients and 408 men patients between the age 25-55 from the patients who applied suited to the searching criteria.

This study showed central obesity are negative effective caused on lipid profile especially to the blood LDL cholesterol-TG as above level and blood HDL cholesterol as under level are determined (Tables 2 and 3).

The effect of cigarette smoking on TG values that the high and was the situation in this cigarette smoking a negative impact of it was determined and also cigarette smoking HDL cholesterol adverse effect in present study again been detected (Table-4, $p < 0.05$). Cigarette smoking on LDL cholesterol values and its impact determined.

The most significant point among the considerable results of present study is that passive cigarette smoking is of negative effects on HDL cholesterol levels and this result is consistent with the results of previously performed studies. As indicated in the tables the decrease of HDL cholesterol levels in the patients cigarette smoking less than 10 cigarettes daily (S1 group) is almost the same as the decrease of the ones exposed to cigarette smoke for 1 h daily (Table-4).

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