

Determination of Protein-Bound Hexoses in Patients with Obstructive Jaundice in Rohilkhand Region

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The level of glycoprotein is maintained within a narrow range in health but is elevated in pathological cases. The serum glycoprotein profile has been determined and expressed in terms of hexoses. Fifty jaundiced patients in age group of 25-40 years are examined. The fresh unhaemolyzed serum is used for the determination of serum hexoses. It is observed that there is a concomitant rise in value of hexoses in patients suffering from jaundice. The determination of glycoprotein content in whole serum has definite clinical usefulness as an aid to diagnosis.

INTRODUCTION

The strong acidic conditions bring about both the release of the sugars and the degradation of the reducing monosaccharides to furfural derivative which forms a coloured complex with orcinol reagent in the same step. The amount of the colour development depends upon the no. of moles of hexoses present (Fig. 1).

EXPERIMENTAL

In the present study, orcinol sulphuric acid method described by Winzler and modified by Francois *et al.*¹ have been used to determine the amount of total protein bound hexoses in serum of blood groups A, B, AB and O in patients suffering from hepatic disorders.

Five sets of ten tubes in duplicate are arranged. To each tube, 1 ml. of serum from different blood samples is pipetted out separately. 50 ML. 95% ethanol is added to each tube, centrifuged for fifteen minutes and decanted.

The precipitates are suspended in 5.0 ml. 95% ethanol, recentrifuged, decanted and the precipitated protein is dissolved in 1.0 ml. of 0.1N NaOH, 8.5 ml. of freshly prepared orcinol sulphuric acid is added to each tube. The contents are mixed well by inversion. All the tubes are then placed in a water bath maintained at 80°C for ten minutes. The tubes are cooled under tap water and optical density readings are taken at Bausch and Lomb's spectronic-20 at 540 nm.

RESULTS AND DISCUSSION

Table 1 shows the average values of serum protein bound hexoses (mg %) in jaundiced patients.

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TABLE 1

Haemoglobin range (gm %)	Blood groups (♂)				Haemoglobin range (gm %)	Blood groups (♀)			
	O	AB	B	A		O	AB	B	A
10-12	180.1	192.2	199.5	205.2	8-10	185.2	194.8	208.2	215.1
8-10	191.2	203.1	214.2	222.9	6-8	204.3	208.1	219.1	232.0
below 7.0	200.1	209.4	218.3	230.6	below 5.0	210.2	219.2	231.3	242.1

The experimental data shows that the serum hexoses content alters to an extent when liver damage was produced.² The serum protein bound hexoses were found to be 122 mg %, 128.2 mg %, 132.8 mg % and 156.0 mg % in O, AB, B and A blood groups respectively in normal males. In normal healthy females the values were observed as 136.3 mg %, 137.82 mg %, 139.21 mg % and 142.77 mg % in O, AB, B and A blood groups respectively³.

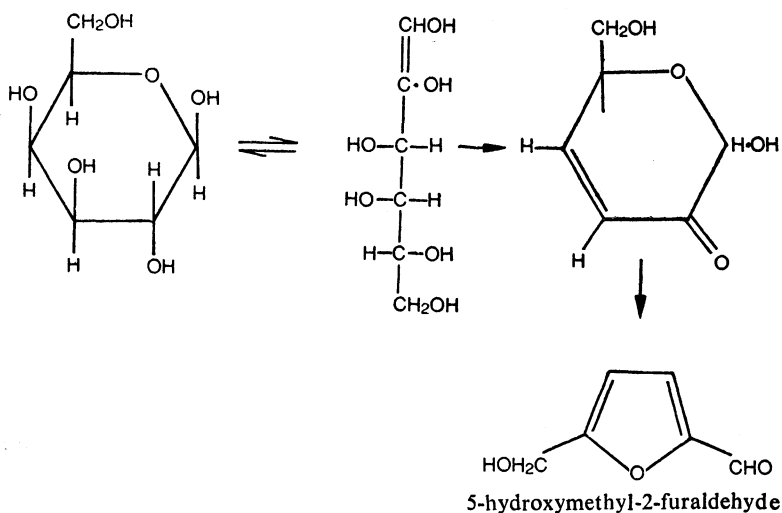


Fig. 1

In pathological conditions the values 180.1 mg %, 192.2 mg %, 199.5 mg % and 205.2 mg % are obtained in males and 185.2 mg %, 194.8 mg %, 208.2 mg % and 215.1 mg % in females of O, AB, B and A blood groups respectively. In acute pathological conditions with very low haemoglobin values still higher values of serum protein bound hexoses are observed⁴.

The data clearly indicate that A group possessed highest values of hexoses and O group the least. Moreover females were estimated to be having higher values than males⁵.

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