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Serum glycoproteins in diabetic and non-diabetic patients with and without cataract

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Keywords

glycoprotein, diabetes mellitus, cataract, fructosamine, sialic acid, hexosamine

Abstract

This study describes the changes in serum glycoproteins from type 2 diabetic and non-diabetic patients with and without cataract. A total of 85 subjects were selected for the study and divided into four groups. The first group consisted of 21 healthy subjects, the second group consisted of 21 diabetic patients with no chronic complications, the third group consisted of 20 diabetic patients with cataract, and the fourth group had 23 non-diabetic patients with age related cataract. The patients with and without cataract were selected on clinical grounds from the Ziauddin University and Jinnah Postgraduate Medical Centre in Karachi, Pakistan. As expected diabetic patients with and without cataract had significantly higher levels of fasting plasma glucose, glycated haemoglobin, glycated plasma proteins and serum fructosamine. In addition to these parameters, the levels of hexosamine, sialic acid and serum total protein were higher in diabetic compared to non-diabetic subjects with age related cataract and healthy subjects. Analysis of the protein fractions showed that alpha-1-globulins and alpha-2-globulins were higher in diabetic patients without complications compared to non-diabetic subjects with age related cataract and healthy subjects. Serum alpha-1-globulin, alpha-2-globulin, beta globulins and gamma globulins were all significantly higher in diabetic patients with cataract compared to healthy subjects but not serum albumin. In conclusion, the levels of beta globulins and gamma globulins were significantly higher in diabetic patients with cataract and non-diabetic age related patients with cataract compared to healthy subjects. Thus, mechanisms other than hyperglycaemia are responsible for the development of cataract in these patients.



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