COMPARING SERUM PENTRAXIN 3 IN DIABETIC PATIENTS WITH AND WITHOUT RETINOPATHY

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Introduction

Diabetes is a group of metabolic diseases characterized by hyperglycemia resulting from defects in insulin secretion, insulin action, or both. Diabetic retinopathy is one of the most prominent pathologic vascular complications of diabetes and is the most common cause of blindness in the working-age group.The most common cause of vision loss in diabetic retinopathy is diabetic macular edema. Diabetic retinopathy can be classified into two categories: non-proliferative and proliferative. Risk factors include duration of diabetes, poor glycemic control, hypertension, diabetic nephropathy and dyslipidemia. Screening is important to early detect preventable blindness. In type 2 diabetes patients, first eye examination should be initiated once a diagnosis of diabetes is confirmed, for type 1 diabetes, the timing being extended to 5 years after the onset of diabetes. Pentraxins are a superfamily of evolutionarily conserved molecules with multi-functional roles in innate immunity and inflammation, such as regulation of complement activation and opsonization of pathogens. Pentraxin 3, a member of the pentraxin superfamily, includes C-reactive protein and serum amyloid P. Pentraxin 3 is produced in response to inflammatory stimuli within a variety of cell types and tissues, in particular within the vasculature. Pentraxin 3, as a long pentraxin, is produced by peripheral tissues and reflects impaired vascular endothelial function. Pentraxin 3 is an acute-phase reactant with a cyclic multimeric structure. Pentraxin 3 may reflect local inflammatory status in tissues and may serve as a biomarker of inflammation.

Aim of the work

The aim of this study was to compare serum pentraxin 3 in diabetic patients with and without retinopathy.

Patients and Methods

This study included 81 diabetic patients with and without retinopathy.

All patients were subdivided into:

Group (A): 41 Diabetic patients with retinopathy.

Group (B): 40 Diabetic patients without retinopathy.

All patients were subjected to complete history taking, physical examination, ophthalmological examination including fundus examination with slit lamp biomicroscope or indirect ophthalmoscopy, fundus color photograph centered on the macula and fundus fluorescein angiography wherever indicated. Laboratory evaluation was performed including HbA1c, Albumin to creatinine ratio, FBG, Serum pentraxin 3 using Human Pentraxin 3 (PTX3) ELISA Kit (96T) and lipid profile.

Results

Table (1):Comparison between the two studied groups according to Serum Pentraxin 3

Serum Pentraxin 3	Group A (n = 41)	Group B (n = 40)	U	P
Min. – Max.	189.71 – 4291.54	473.25 – 4559.27	544.0*	0.009*
Mean ± SD.	863.18 ± 681.40	807.27 ± 810.91		
Median (IQR)	655.90 (583.96 – 799)	563.06 (532.5 – 675.9)		

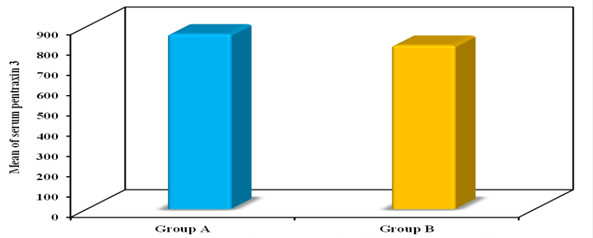

Figure (1):Comparison between the two studied groups according to Serum Pentraxin 3

Table (2):Validity (AUC, sensitivity, specificity) for Serum Pentraxin 3 to discriminate diabetic patients with retinopathy from diabetic patients without retinopathy (Group A vs group B)

	AUC	P	95% C.I	Cut off	Sensitivity	Specificity	PPV	NPV
Serum Pentraxin 3	0.668*	0.009*	0.548 – 0.789	>608.504	68.29	60.0	63.6	64.9

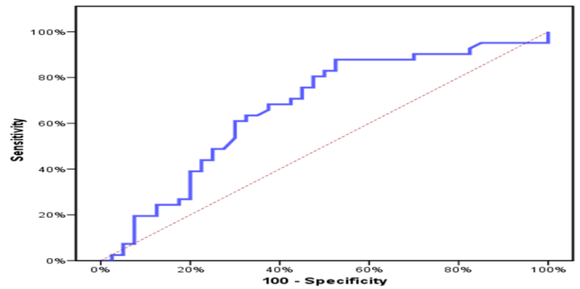

Figure (2):ROC curve for Serum Pentraxin 3 to discriminate diabetic patients with retinopathy from diabetic patients without retinopathy (Group A vs group B)

Table (3):Comparison between the two studied groups according to Albumin creatinine ratio

AC Ratio	Group A (n = 41)	Group B (n = 40)	U	P
Min. – Max.	1.70 – 8822.40	1.60 – 612.0	444.50*	<0.001*
Mean ± SD.	640.72 ± 1589.05	50.74 ± 121.49		
Median (IQR)	83.90 (17.7 - 538)	14.30 (4.7 – 38.6)		

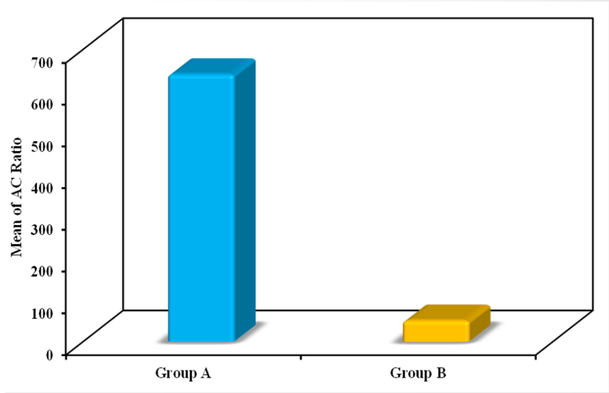

Figure (3): Comparison between the two studied groups according to AC Ratio

Conclusion

There is a statistically significant correlation between serum Pentraxin 3 and diabetic retinopathy development.

High serum level of Pentraxin 3 is a sensitive predictor for development of diabetic retinopathy.

There is a significant correlation between Albumin creatinine ratio and development of diabetic retinopathy.

There is a significant correlation between glycemic control and development of diabetic retinopathy.