The role of fetuin A as a biomarker of atherosclerosis and its relation to type 2 diabetes

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OBJECTIVES

Hyperglycemia produces various changes in the vascular tissue at the cellular level that accelerates the atherosclerosis. There is a direct correlation among carotid arterial stiffness and the serum fetuin-A level. It is a calcium regulatory glycoprotein and inhibits vascular calcification, which is related to the inflammation.

We aimed to study the role of fetuin A in atherosclerosis and its association with type 2 diabetes.

METHODS

This cross sectional study was conducted on 50 subjects aged from 40 to 60 years old divided into Group I: 20 T2DM patients having atherosclerosis. Group II: 20 non diabetic patients having atherosclerosis. Group III: 10 healthy subjects as control group. They were subjected to full clinical history, thorough clinical examination, laboratory investigations including fasting and 2-hour postprandial blood glucose level, Hba1c, lipid profile, measurement of plasma fetuin-A level using ELISA and measurement of carotid intimal thickness using duplex ultrasound.

RESULTS

There was a highly significant difference between the 3 groups as regard SBP, DBP, Fbg, Pbg, HbA1c, TG, HDL-c, LDL-c, carotid intimal thickness and Fetuin A level (P<0.001) and on comparing the diabetics with atherosclerosis (Group I) with non diabetics with atherosclerosis (Group II) we found a highly statistical significant decrease in plasma Fetuin-A level (P<0.001) being lower in group (I) and a highly significant increase in carotid intimal thickness, SBP and LDL-c (P<0.001) in group (I). We also found a highly significant negative correlation between fetuin-A and SBP, LDL-c and carotid intimal thickness (P< 0.001). A significant positive correlation was also found between carotid intimal thickness and SBP, Hba1c and LDL-c (P<0.05). We found that the cutoff point of Fetuin A level using the ROC curve is 125ug/ml with 100% sensitivity, 90% specificity, 97.1% accuracy and a positive predictive value of 97.6%.

CONCLUSIONS

Our results postulate that there is an association between lower plasma fetuin-A level and the development of atherosclerosis especially in those having type 2 diabetes.

References