ACC.13
62nd Annual Scientific Session & Expo
TCT@ACC-i2

E1394
JACC March 12, 2013
Volume 61, Issue 10

Prevention

SERUM 1.5- ANHYDRO-D-GLUCITOL IS ASSOCIATED WITH CAROTID MACROANGIOPATHY IN PATIENTS WITH TYPE II DIABETES

Poster Contributions
Poster Sessions, Expo North
Sunday, March 10, 2013, 9:45 a.m.-10:30 a.m.

Session Title: Prevention: Diabetes and Risk
Abstract Category: 24. Prevention: Clinical
Presentation Number: 1185-3

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Background: The measure of glycated hemoglobin (HbA1c) concentration is the gold standard of glycemic control index in diabetes management. However, HbA1c only reflects the average glucose level and does not accurately represent glucose fluctuations, which is a strong risk factor for the development of macrovascular complications. 1.5-Anhydro-D-glucitol (1.5-AG) level is reflective of short-term glucose status, postprandial hyperglycemia, and glycemic variability which are not captured by HbA1c assay. The present study aimed to investigate a relationship between 1.5-AG and the presence atherosclerosis in patients with type 2 diabetes.

Methods: Fifty consecutive patients with a diagnosis of type 2 diabetes for at least 6 months but less than 10 years and age 40-79 years were included. Criteria for exclusion were insulin dependent, concomitant chronic diseases, recent acute illness or change in treatment within the 3 months. As laboratory assessment, HbA1c, 1.5-AG, lipid profle and creatinine level were sampled. Maximal intima-media thickness (IMT) and plaque score (PS) were evaluated by carotid sonography. A 1.5-AG cutoff level of <14.2 μg/mL had been suggested as a predictor of a post-challenge 2 hours blood glucose level > 200 mg/dL. Patients were divided into 4 groups; group A (n=15):HbA1c>6.5% and1.5-AG<14.2μg/mL, group B (n=9): HbA1c>6.5% and 1.5-AG>14.2μg/mL; group C (n=11): HbA1c<6.5% and 1.5 AG<14.2μg/mL and group D (n=15): HbA1c<6.5% and 1.5-AG>14.2μg/mL.

Results: There were no significant differences in age, renal function, lipid profile and medication among 4 groups. HbA1c showed a positive correlation with IMT (R=0.49, p<0.01) and PS (R=0.45, p<0.01). 1.5-AG level had a negative correlation with PS (R=-0.34, p=0.03). In patients with elevated HbA1c, PS was not different between group A (12.8+1.3) and group B (11.9+1.7). In patients without elevated HbA1c, PS was significantly higher in group C (10.9+3.8) than in group D (7.1+3.9, p<0.01).

Conclusions: These data suggest that 1.5 AG level provides additional information in macrovascular atherosclerosis in patients with type 2 diabetes, especially in those with excellent HbA1c level.