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Study of Vitamin D levels, vascular risk factors and inflammation in type 2 diabetic patients

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Objectives: Inflammation plays an important role in pathogenesis of coronary artery disease (CAD) and vitamin D deficiency is postulated to promote endothelial dysfunction in type-2 diabetic patients. Aim of present study was to investigate the association between markers of atherosclerosis and inflammation with vitamin D levels in patients with type 2 diabetes.

Methods: Sixty eight patients with type two diabetes and macrovascular complication and 68 patients without macrovascular complication were included in the study. Sixty healthy subjects served as the control group. Serum vitamin D levels were measured in all subjects as were ABI and pulse wave velocity (PWV). As markers of inflammation hsCRP, homocysteine, erythrocyte sedimentation rate, fibrinogen and adiponectin levels were studied. Carotid artery intima-media thickness (IMT) that is supposed to be a marker of atherosclerotic process was measured in all subjects.

Results: Levels of hsCRP, parathormone and body mass indices(BMI) were significantly higher in patients with vitamin D levels below 25 nmol/l than patients with vitamin D levels levels above 25 nmol/l. HsCRP, fibrinogen, erythrocyte sedimentation rate and homocysteine levels showed a negative correlation with vitamin D levels in all subjects. Also, there was a negative correlation between waist circumference, BMI and vitamin D levels among diabetics. No significant difference between patients with vitamin D levels above or below 25 nmol/l was found for IMT, however IMT was significantly higher in diabetic patients.. There was no significant difference between diabetics with and without macrovascular complications regarding vitamin D levels.

Conclusions: Levels of vitamin D is closely associated with markers of inflammation. Vitamin D deficiency also correlates with a predisposition to CAD, obesity and inflammation.