ABSTRACT

A Study of High Serum Calcium Level in Diabetes Mellitus and its Association with Left Ventricular Remodelling

Aim:

This study was undertaken to assess left ventricular dimension and wall thickness mass in diabetic patients having high serum calcium level.

Subjects and methods:

This study included 206 patients. All diabetic patients are included and patients with hypertension, renal failure, hyperthyroidism, patients on sulfonylurease, diuretics, bisphosphonates and history of prior MI are excluded. Patient’s serum calcium, triglycerides, cholesterol are measured. Addition to that left ventricle end diastolic dimension (LVEDD), inter ventricular septal thickness (IVS), posterior wall thickness (PWT) are measured by echocardiography. Left ventricular mass and left ventricular mass index were measured by using above parameters and this correlated with serum calcium level in diabetic patients.

Results:

Patients was separated as two group according to the presence of LVH. In LVH group the the serum calcium, triglycerides, LVEDD, IVS thickness, PW
thickness, LV mass and LV mass index was comparable and was statistically significant (p<0.001). serum calcium level, triglycerides are not elevated in non LVH group. And serum calcium has the strong correlation in LVH group.

Discussion:

Calcium ion has important role in muscle contraction, bone mineralization and blood coagulation cascade. The serum calcium level will be increased in type 2 diabetes mellitus patients due to insulin resistance. And also elevated serum calcium produces insulin resistance. In normal limits serum calcium provides the good support for functioning. But in elevated serum calcium level will produces left ventricular remodeling by neuro hormonal mechanism, vascular calcifications and alteration of coagulation profile that will lead to MI. In addition to that high serum calcium produces left ventricular remodeling by altering the lipid metabolism.

Conclusion:

This study will guide the clinician to predict the left ventricular remodeling by measuring serum calcium level and need of avoiding unnecessary calcium supplementation in diabetic patients.
Key words: