

Bone Mineral Density and Content Among Patients with Coronary Artery Disease: A Comparative Study

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Abstract

Introduction: Some studies indicate an association between coronary artery disease (CAD) and osteoporosis. This case-control study examined the association between body composition and bone mineral content (BMC) and density (BMD) among patients with CAD.

Materials and methods: A group of men (n = 73) with established CAD and age and sex matched controls (n=65) were included in the study. Data collected included socio-demographic information, disease related data (from cases), anthropometric measurements, serum vitamin D, calcium and phosphorous and body composition analysis using DEXA. Two groups were compared using independent sample t-test, Mann Whitney U-test or Chi square test. Pearson correlation and regression models were used to test the associations between body compartments.

Results: Among cases, the mean disease duration was 29 (range 5-192) months and 15% had triple vessel disease. Patients had higher mean total body fat mass (TBFM) (18869.7 vs 16733.0) g, $p = 0.018$), truncal fat mass (TRFM) (9259.1 vs 7992.5 g, $p = 0.009$) and fat percentage (28.6 vs 25.9%, $p = 0.001$) compared to controls. Median serum vitamin D level was significantly lower among patients (20.0 ng/mL) compared to controls (27.1 ng/mL) ($p = 0.003$). In both groups, TBFM and total body lean mass (TBLM) both showed significant positive correlations with total body BMD/BMC and regional BMDs. Of the two, TBLM emerged the best predictor of TBBMC/TBBMD. These associations were greater among patients than controls.

Conclusions: TBLM appears to be the strongest predictor of TBBMD and TBBMC in patients and controls. The strength of associations was greater among patients compared to controls even after adjusting for possible confounders.