INVERSE RELATIONSHIP OF BONE MINERAL DENSITY WITH CORONARY ARTERY CALCIFICATION IS MODIFIED WITH AGING

ACC Poster Contributions
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Background: Recent studies have shown independent inverse associations of vertebral bone mineral density (BMD) with calcified atherosclerosis. However, whether this association is modified with aging which is strongly related to both processes is unclear. In this study we aim to examine the interplay between coronary artery calcification (CAC) and aging in prediction of thoracic BMD (tBMD) in large asymptomatic population.

Methods: The study population consisted of consecutive 5908 asymptomatic individuals (63% men, mean age: 57±12 years) among whom quantitative computed tomography was used to CAC burden as well as tBMD and the presence and extent of CAC.

Results: Overall tBMD was significantly lower across increasing age groups (<45: 193±53, 45-55: 179±54, 55-65: 155±47, >65 years: 129±54 mg/ml, p<0.0001) as well increasing CAC scores (0: 168±57, 1-100: 162±54, 101-400: 153±60, >400: 140±54 mg/ml, p<0.0001). As shown in figure the highest tBMD was noted in absence of CAC among those age<45 years, whereas those with CAC≥400 and ≥65 years had the lowest tBMD. The association of CAC scores on tBMD was significantly modified across age groups (p<0.05 for interaction), with stronger inverse relationship noted in the younger groups.

Conclusion: Inverse relationship of BMD and CAC is modified with aging. Further investigation is needed in regards to how aging process contributes to the complex paradoxical relationship between bone loss and atherosclerotic development.

Bone Mineral Density With Increasing Coronary Artery Calcium Scores & Age Groups

![Graph showing bone mineral density with increasing coronary artery calcium scores and age groups](image-url)