DO GENDER DIFFERENCES IN ATHEROSCLEROTIC PLAQUE COMPOSITION PERSIST WITH AGING? A QUANTITATIVE NON INVASIVE ASSESSMENT BY CORONARY CT ANGIOGRAPHY

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Background: It is established that gender differences in coronary plaque burden and risk of cardiovascular events vary according to age. The aim of the current report was to assess gender differences in coronary plaque burden and composition with aging using coronary computed tomography angiography (CCTA).

Methods: The study population consisted of 548 subjects (58±11 years, 45% women) referred for 64-slice multi-detector CCTA for assessment of coronary artery disease. We analyzed plaque characteristics on a per-segment basis according to the modified AHA classification. Plaques were classified as non-calcified, calcified, mixed type 1 (predominantly non-calcified) or mixed type 2 (predominantly non-calcified).

Results: Subjects stratified according to tertiles of age (1st : <55 years, 2nd: 55-63 years and 3rd tertile: ≥64 years). No gender differences were observed in the severity of non-calcified plaque burden across all age groups (figure). Gender differences in calcified and mixed plaque subtypes were more significant among those aged 55-63 years, as compared to younger <55 years and older individuals ≥64 years. The trend persisted after adjusting for traditional risk factors (data not shown).

Conclusions: This is the first comprehensive study elucidating the natural history of coronary plaque development with gender and aging. Further studies are needed to assess if these differences in plaque subtypes will result in differential cardiovascular outcomes in men and women with aging.