Abstract: P1533

The sex-based effect of skeletal muscle mass on 10-year cardiovascular disease prognosis of patients with acute coronary syndrome: the mediating effect of systemic inflammation

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Background/Introduction: Predictive and prognostic ability of muscle mass in CVD settings is increasingly discussed. Purpose: The sex-specific effect of skeletal muscle mass index (SMI) on 10-year recurrent fatal/non fatal cardiovascular disease (CVD) event of acute coronary syndrome (ACS) patients was evaluated. Methods: In 2006-2009, n=1,000 consecutive patients (n=222 females), hospitalized at a cardiology clinic with ACS diagnosis and with symptoms and left ventricular function indicative of heart failure were selected. SMI was created to reflect skeletal muscle mass through appendicular skeletal muscle mass (indirectly calculated through population formulas) divided by body mass index (BMI). Results: In 10-year follow-up (2016), 55% of ACS patients exhibited recurrent fatal/non fatal CVD events (53% in females vs.62% in males, p=0.04). Patients in 2nd SMI tertile (mostly overweight) had 10% lower risk for CVD recurrence (female: male rate ratio=0.87) over their counterparts at 1st (mostly normalweight) and 3rd tertile (mostly obese). Multivariate analysis revealed that ACS patients in 2nd SMI tertile presented 46% and 85% lower CVD event risk over their counterparts in 1st tertile (Hazard Ratio (HR)=0.54, 95% Confidence Interval (95%CI) 0.30, 0.96, p=0.002) and 3rd tertile (HR=1.85, 95%CI 1.05, 2.94, p=0.03). Sex-related sensitivity analyses revealed that even if U-shape association was retained in both males and females in crude and age-adjusted models, further adjustment for clinical, lifestyle and sociodemographic factors resulted in a significant trend only in females (HR=1.85, 95%CI 1.05, 2.94, p=0.03). Mean (95% confidence interval) survival (free-of-CVD) time (years) in females patients at 1st, 2nd and 3rd tertile was 7.4 (6.5, 8.2), 8.2 (7.1, 9.2) and 6.7 (5.5, 7.9), respectively. Inflammatory markers i.e. C-reactive protein (CRP) and white blood cells (WBC) had strong confounding effect on the association between SMI and 10-year recurrent CVD event rate in females. A significant inverse linear association between the examined factors was observed only in females (?)(CRP)=−0.490, p<0.001 & ? (WBC)=−0.380, p=0.05). Unadjusted analysis revealed that females of 2nd tertile had significantly lower mean values of inflammatory markers compared with their 1st tertile counterparts (all ps<0.05). Additionally, females of 3rd tertile presented slightly higher inflammation levels compared with females of 2nd tertile yet this difference was not significant. In males no significant trend was observed. Conclusion: AU-shape association between SMI and 10-year CVD event especially in females was highlighted. This work reveals sex-specific remarks for "obesity-lean paradox" in secondary prevention, implying that high muscle mass accompanied by obesity and excess adiposity may not guarantee better prognosis.