A sarcopenic-obesity risk z score associated with all-cause mortality: The Rotterdam Study.

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Rationale: Sarcopenic obesity (SO) has been recently defined as a combination of low muscle function/mass and high-fat mass, both of which are independently associated with adverse outcomes such as mortality in older people. Nonetheless, there is limited evidence linking SO to overall mortality. We aimed to determine the association between SO diagnosis criteria defined by cut-offs, as well as a new sex-specific SO z-score, and all-cause mortality.

Methods: Baseline characteristics of 5888 participants (aged 69.5±9.1, BMI 27.5±4.3, 56.8% female), from the Rotterdam Study were collected, and followed during a median of 9.9 years [interquartile range: 8.7-11.1]. SO was defined according to the ESPEN/EASO consensus, by which 6 categories were identified. Participants with low muscle function (handgrip strength) and altered body composition: low appendicular lean mass/weight (ALM/w) and high body fat percentage (BF%), measured by DXA scan, were defined as SO. In addition, a new SO z-score was calculated by a combination of sex-specific z-scores of HGS and ALM/w minus the z-score of BF% was calculated. Cox regression models were adjusted for age, sex, comorbidities, smoking status, and physical activity.

Results: 6% (n=339) of the total population had SO with BC altered. 5% (n=295) of them had SO with 1 component altered and ~1% (n=44) had 2 components of BC affected. Participants with SO z score ≤2.5 (n=538) had a 35% higher risk of mortality compared to those with SO z score >-2.5 (n=5350) (HR: 1.35 [95% CI: 1.17-1.55], p<0.001). Even after adjustments for multiple covariates, this association remained (HR=1.34 [95% CI: 1.13; 1.59], p<0.001).

Conclusions: SO is associated with an increased risk of all-cause mortality, and the sex-specific SO z can be used in the general population to identify people at risk of SO leading to a higher risk of mortality.