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Low muscle mass in older adults and mortality: a systematic review and meta-analysis

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ABSTRACT: Sarcopenia comprises a loss of muscle function and muscle mass. So far, the association between loss of muscle mass and mortality in older adults is inconsistent. A meta-analysis was performed to assess whether muscle mass measured by appendicular skeletal muscle mass index (ASMI) is associated with higher mortality in older adults. Articles of interest were searched for in two databases (PudMed® and Embase®). Cohort and case-control studies reporting ASMI and mortality and enrolling community-dwelling adults aged 65 years or more were included. Nine articles were eligible and included for analysis (n=10,028). All but one study were considered of high quality by Newcastle-Ottawa Scale assessment. We calculated the standardized mean difference (SMD) for ASMI between dead and living individuals during follow-up across studies. A reduced pooled ASMI in individuals who died as compared to those who survived was found (ASMI SMD=-0.18, CI95% -0.23 to -0.12, REM). A meta-regression was performed including ASMI SMD, grip strength SMD, body mass index (BMI), sex, study quality, method used to assess ASMI, site of study and age. BMI and ethnicity were found to significantly impact the difference in ASMI between dead and living individuals. These results reinforce the prognostic importance of assessing muscle mass in older adults.

Keywords: Sarcopenia; Aging; Mortality; Systematic review; Meta-analysis.