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ASSOCIATION BETWEEN LEAN BODY MASS AND MUSCLE THICKNESS WITH FRAILITY IN COMMUNITY DWELLING DUTCH OLDER ADULTS

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Rationale: Lean body mass, including muscle, is known to decrease with age. This may contribute to loss of physical function, an indicator of frailty. Moreover, low muscle thickness is considered an indicator of frailty in critically ill patients. However, little is known about the relationship between muscle thickness and frailty in community dwelling adults. Therefore, we studied the association between frailty and whole body lean body mass index (LBMI) and muscle thickness of the rectus femoris (RF) in community dwelling older adults.

Methods: In older adults aged ≥ 55 y, who participated in the Hanze Health and Ageing Study, frailty status was assessed with a multidimensional instrument, measuring frailty on a cognitive, psychosocial and physical level, i.e., the Groningen Frailty Indicator (GFI), using ≥ 4 as cut-off score for frailty. LBMI (kg/m^2) was estimated with BIA (Quadscan 4000©, Bodystat), using the build-in equation. Muscle thickness (mm) of the RF was measured with ultrasound, using the Bodymetrix© (Intelamatrix). Univariate and multivariate binary logistic regression analyses were performed for LBMI and for RF thickness. Multivariate analysis corrected for age, sex, body mass index (kg/m^2), and handgrip strength (handgrip dynamometer; kg). A p-level of <0.05 was considered significant and Odds Ratios (OR; [95% CI]) were presented.

Results: 93 participants (age 65.2 ± 7.7 years; male 46 %; LBMI 17.2 ± 2.6 kg/m^2 ; RF 14.6 ± 4.4 mm; median GFI = 1 (interquartile range=0-3; frail: n=18) were included in the analysis. In both the univariate and multivariate analysis, LBMI ($p=0.082$, OR=0.82 [0.66-1.03]; $p=0.077$, OR=0.55 [0.28-1.07] respectively) and muscle thickness of RF ($p=0.436$, OR=0.95 [0.84-1.08]; $p=0.796$, OR= 1.02 [0.88-1.18] respectively) were not significantly associated with frailty. None of the co-variables were significantly associated with frailty either.

Conclusion: In this sample of older adults aged ≥ 55 years, LBMI and RF thickness are not associated with frailty. However, frail participants scored at cut-off or just above, and measurements in a population with higher scores for frailty may provide further insight in the association between lean body mass and muscle thickness and frailty.

Disclosure of Interest: None Declared

Keywords: Frailty, muscle mass