

ucOC/tOC had greater falls-related hospitalisations (unadjusted log rank $p=0.004$) that remained significant after adjusting for key variables (HR 1.31, 95% CI 1.09–1.57, $p=0.004$).

Conclusions: We identified many older women with high ucOC/tOC ratio that also have poorer physical function, including a long-term decline and increased risk of falls-related hospitalisation. This data supports the concept that quantifying ucOC/tOC ratio could be used as a predictor of these adverse outcomes, possibly enabling early intervention and minimising future fall risk. This should be explored in future.

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RELATIONSHIPS BETWEEN MALNUTRITION, SARCOPE-NIA, AND FRAILTY AND THE INCIDENCE OF COVID-19 IN OLDER ADULTS: DATA FROM THE SARCOPHAGE COHORT

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Objectives: The identification of risk factors for COVID-19 is requested to implement targeted prevention strategies. Therefore, this study aimed to evaluate the associations between the incidence of COVID-19 and malnutrition, sarcopenia, and frailty, identified as potential risk factors in previous cross-sectional studies.

Materials and methods: Community-dwelling older adults aged over 65 years from the Sarcopenia and Physical Impairments with Advancing Age (SarcoPhAge) cohort were included in the present study. Malnutrition, sarcopenia, and frailty were assessed at the last available follow-up from the SarcoPhAge cohort (i.e., the fifth year that ended in June 2019) according to the Mini-Nutritional Assessment short-form, the European Working Group on Sarcopenia in Older People (EWGSOP2), and the Fried criteria, respectively. Information regarding the COVID-19 was gathered by phone calls interviews to measure its self-declared incidence between March 2020 and April 2021. Cox-regressions adjusted for age, sex, body mass index, number of drugs and comorbidities per participants, Mini-Mental State Evaluation score, and physical activity level in analyses on malnutrition and sarcopenia, and Kaplan–Meier curves were performed.

Results: The total study sample comprises 241 participants (median age 75.6 (73.0 – 80.6) years, 63.1% women) who were assessed for the three diseases and for which we have obtained information regarding the COVID-19. Among them, 27 participants (11.2%) developed the non-fatal Covid-19. No significant increased risks of Covid-19 were observed in patients with malnutrition (adjusted HR: 1.14 [0.26 – 5.07]) and sarcopenia (adjusted HR: 1.25 [0.35 – 4.42]). Nevertheless, the incidence of COVID-19 was significantly higher in frail (32.0%) than in robust participants (8.8%) (adjusted HR: 3.97 [1.56 – 10.10]), which was confirmed by the Kaplan–Meier curves ($p < 0.001$). Among the frailty syndrome components, a low physical activity level was the only one significantly associated with an increased risk of COVID-19 (adjusted HR: 5.18 [1.37 – 19.54]).

Conclusion: A fourfold increased risk to develop COVID-19 was observed in the presence of the frailty syndrome. As we are the first to evaluate prospectively these associations, further investigations are needed to elaborate on our findings.

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FUNCTIONAL BRAIN PROCESSES IN SARCOPE-NIA – EVIDENCE FOR DIFFERENTIAL CENTRAL NEURAL MECHANISMS IN DYNAPENIC OLDER ADULTS

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Objectives: Recently, the European Working Group on Sarcopenia in Older People revised its definition and diagnostic criteria for sarcopenia (EWGSOP2), placing muscle strength at the forefront instead of muscle mass. The etiology and pathogenesis of dynapenia (or low muscle strength) is still not fully understood, but there is emerging evidence that central neural factors constitute critical determinants. Some studies have highlighted the relationships between muscle health and structural changes in brain, while the relationships with functional changes in brain has never been fully explored. In this study, we aimed thus to investigate functional brain processes in dynapenia.

Methods: This single-centre, cross-sectional study included 62 community-dwelling older adults (mean age 73.1 years; 59 females) in Geneva (Switzerland). Participants underwent i) detailed skeletal muscle assessments as well as ii) functional magnetic resonance imaging (fMRI) acquired on a 3 Tesla MRI scanner (Siemens® Trio, Germany) during the performance of a dual-task paradigm, consisting of a visual baseline, two single-tasks (motor joystick and arithmetic task) and a dual-task (motor and arithmetic task combined). Low muscle strength was defined according to handgrip strength (JAMAR® dynamometer) and/or chair rise time measurements using the EWGSOP2 cut-off points.

Results: 47% (29/62) of participants were classified as dynapenic according to EWGSOP2. No differences were found between dynapenic and non dynapenic groups in regard to cognitive (MMSE) and frontal executive functioning (FAB), and gait speed.

fMRI results reveal a differential recruitment of motor circuits in the brain during the dual-task condition in dynapenic as compared with non dynapenic participants. In particular, while the brain activity during the single-tasks did not differ between the two groups, only during the dual-task condition non dynapenic participants showed significant increased activation in the premotor cortex as compared to dynapenic participants. This could be interpreted such that in dynapenia there is an insufficient recruitment of activity in the brain's motor areas, when a task gets more complex.

Conclusions: Our results point to a dysfunctional involvement of brain activity in dynapenia in a multi-tasking paradigm. A better knowledge of the link between dynapenia and brain functions could provide new impulses in the diagnosis and development of effective early-targeted interventions for sarcopenia.

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