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Characterization of pain prevalence and intensity, and its correlation with nutrition, muscle mass and muscle function, and bone strength in a cohort of patients with osteosarcopenia

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Published 09/05/2024

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Categories: Pain Management
Keywords: osteosarcopenia

How to cite this abstract
Fabrazzo F, Liguori S, Paoletta M, et al. (September 05, 2024) Characterization of pain prevalence and intensity, and its correlation with nutrition, muscle mass and muscle function, and bone strength in a cohort of patients with osteosarcopenia. Cureus 16(9): a1317

Abstract

Introduction: Osteosarcopenia (OSP) is an age-related syndrome characterized by the presence of osteoporosis/osteopenia and sarcopenia (1). It is associated with an elevated risk of fragility fractures, disability, poor quality of life (QoL), and higher mortality rates. Factors that increase the risk of OSP (2) encompass a lack of physical activity, smoking, inadequate nutrition, and hormonal changes. Persistent low-grade inflammation and changes in the musculoskeletal secretome are notable aspects of OSP, which could potentially result in nociceptive stimulation and discomfort (3). Musculoskeletal pain poses a major challenge for individuals with OSP, as it limits their mobility and can lead to mental health concerns such as anxiety, depression, and social withdrawal. The existence of pain can considerably complicate the treatment of OSP and may influence patient's compliance to pharmacological and non-pharmacological therapies. While pain is a well-documented symptom in osteoporotic and sarcopenic patients, very little is known about its prevalence and impact in those diagnosed with OSP. The objective of this study is to determine the prevalence and severity of pain, and its relationship with nutrition, muscle mass and function, and bone strength in a group of patients with OSP.

Methods: Individuals who met the World Health Organization's diagnostic criteria for osteoporosis or osteopenia (4), and the European Working Group on Sarcopenia in Older People 2 (EWGSOP2) standards for sarcopenia (a grip strength < 27 kg for males and < 16 kg for females, and an appendicular lean mass (ALM) < 20 kg for males and <15 kg for females) (5), were enrolled in this cross-sectional study. We collected demographic and anthropometric data (age, gender, body mass index), pain using the Brief Pain Inventory (BPI), DXA-based ALM, muscle strength (isometric handgrip strength, HGS) using a hand-held Jamar dynamometer, muscle performance with the Short Physical Performance Battery (SPPB), nutritional status through the Mini Nutritional Assessment Short-form (Short MNA), and quality of life with the EuroQol-5D.

Results: A preliminary analysis of data included 42 patients suffering from OSP, 33 experienced pain with an average BPI Severity Index of 4.05±2.38. Among them, 12 patients (36%) reported mild pain (BPI-SI ≤4) while 21 (64%) moderate-to-severe pain (BPI-SI >4). Low back pain was described by 39.4% of our study group. Pain severity negatively correlated with Short MNA ($p < 0.021$), balance ($p < 0.01$) and gait speed ($p < 0.002$) of SPPB.

Conclusions: Pain seems a critical issue among patients with OSP, affecting up to 78,6% of this population, with most patients reporting moderate-to-severe pain, particularly in the low back. Higher pain intensity appeared to be associated with a risk of malnutrition, lower muscle mass, and poor physical performance, suggesting that an effective pain management might improve key outcomes of OSP. Understanding the interplay between musculoskeletal pain, nutrition, muscle mass and function, bone mineral density and quality, and QoL in OSP patients is crucial for developing an appropriate therapeutic approach.

References

(1) 10.1093/rheumatology/keaa755

(2) 10.5312/wjo.v7.i3.171

(3) 10.3390/biomedicines11051285

(4) 10.1016/j.jocd.2023.101437

(5) 10.1093/ageing/afy169