

ROLE OF MUSCLE POWER AND BALANCE ON FRAGILITY FRACTURE PREVENTION

Ileana Monica Borda^{1,2}, Laszlo Irsay^{1,2}, Viorela Ciortea^{1,2}, Ioan Onac^{1,2}, Rodica Ungur^{1,2}

¹University of Medicine and Pharmacy Iuliu Hatieganu - Cluj-Napoca, Romania; ²Recovery Hospital - Cluj-Napoca, Romania

Introduction: It has been suggested that the risk of fracture in postmenopausal women was determined not only by the quality of bone, but also by an increased risk of falling. This latter depends on functional parameters like muscle performance and coordination.

Purpose: The aim of the study was to compare quadriceps power and balance in decreased bone mineral density women with and without fragility fractures.

Method: In this observational cross-sectional study took part 71 postmenopausal women, diagnosed with osteoporosis or osteopenia by dual-energy x-ray absorptiometry (DXA) method. Quadriceps power was measured by isokinetic dynamometry (Gymnax Iso 1) and balance was assessed using Berg Balance Scale. Fragility fractures were registered on anamnestic and radiographical basis. Performance was compared between the group with and that without fragility fractures.

Results: 39% (28 patients) experienced fragility fractures. Patients with fragility fracture history had a lower quadriceps power than those without fractures ($p < 0.05$). At the same time, women with fragility fractures had a worse score on Berg Balance Scale than the others ($p < 0.05$).

CONCLUSIONS: *Muscle performance and balance are important predictors for the risk of fragility fractures in postmenopausal women with reduced bone mineral density. Therefore, they should be addressed, in parallel with restoring bone mass, by comprehensive personalised rehabilitation programs, in order to prevent fractures in this population.*