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ASSOCIATIONS BETWEEN THE MEASURES OF PHYSICAL FUNCTION, THE RISK OF FALLS AND NUTRITIONAL STATUS OF HAEMODIALYSIS PATIENTS: A CROSS-SECTIONAL STUDY

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INTRODUCTION: In uraemia, impairments in nutritional status and physical function are common. Furthermore, protein-energy wasting (PEW) and muscle weakness have been considered independent determinants of the risk of falls in patients on haemodialysis (HD). Whether PEW is related to other aspects of physical function is unknown. The aim of this study was to evaluate the relation between PEW and muscle strength, functional exercise capacity, and the risk of falls.

METHODS: This cross-sectional multicentre study included consecutive HD patients. The Mini-Nutritional Assessment scale (MNA) as well as objective measures of PEW were obtained (total iron-binding capacity, total protein levels, CRP, and haemoglobin). Muscle strength (quadriceps and handgrip force), functional exercise capacity (sit-to-stand and six-minute walking test (6MWT)), and the risk of falls (Tinetti, FICSIT-4, and dialysis fall index) were measured and analysed by general linear models and logistic regression.

RESULTS: 113 HD patients were enrolled (mean age 67 years \pm 16.1, 57.5% male) and a majority noted impairments in nutritional status (84.1%), quadriceps force (86.7%), 6MWT (92%) and an increased risk of falls (73.5%). Measures of protein balance and inflammation explained 41% of the variance in the risk of falls (MNA, OR = 0.75; serum total protein, OR = 1.10; CRP, OR = 1.55). Remarkably, quadriceps weakness showed to be determined by haemoglobin levels ($r = 0.39$, OR = 0.54), independent of EPO-supplementation and exercise capacity. No associations between PEW and functional exercise intolerance were found.

CONCLUSIONS: Although the present study could not confirm a relation between malnutrition and muscle wasting on the one hand, and muscle weakness and functional exercise capacity on the other, malnutrition and the associated low-grade inflammation were identified as determinants of the risk of falls.