

DOES UNDERWEIGHT INFLUENCE VITAMIN D STATUS AND ITS RELATION TO MUSCLE FUNCTION IN PATIENTS WITH ADVANCED PULMONARY DISEASE?

Førli L¹, Bjørtuft Ø², Boe J²

¹Departments of Clinical Services and ²Respiratory Medicine, Rikshospitalet, Oslo University Hospital, Oslo, Norway

Abstract

Muscle weakness is an important complication of advanced pulmonary disease and it is associated with reduced functional activity and lower survival. Vitamin D may be involved in muscle function. The aim of this study was to investigate determinants of calcidiol (25-hydroxycholecalciferol, the major circulating indicator of vitamin D) status and associations between vitamin D metabolites and muscle function in relation to nutritional depletion.

In this cross-sectional study we studied hospitalized underweight (n=42) and normal-weight (n=29) candidates for lung transplantation with advanced pulmonary disease. A majority had chronic obstructive pulmonary disease (56%). Fifty-two per cent of the underweight patients and 55% of the normal-weight ones had vitamin D deficiency (<37.5 nmol/L). The resulting models of linear regression showed that, for the calcidiol model, 24.7% of the variation for calcidiol was explained by fat mass index, vitamin D intake and FEV₁/FVC. The results further suggested that vitamin D intake was a stronger predictor of calcidiol status in the underweight patients than in the normal-weight ones. In the resulting models for 6-minute walking distance, calcidiol was a significant predictor, which tended to be more marked in the underweight patients than in the normal-weight ones.

Low serum calcidiol concentration was common and associated with fat mass, lung obstruction and low intake of vitamin D, especially in the underweight patients, and calcidiol was a predictor of walking distance.