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Body composition in patients with COPD: the extremes

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Abstract

Introduction: Abnormal body composition is common in COPD and associated with morbidity and mortality. To date, body composition of COPD patients that have an extreme body mass index (BMI <18.5 kg/m² or >30 kg/m²) and its clinical impact remain unknown.

Methods: This analysis included 2936 COPD patients (52% women; age: 66 (60-72); FEV1: 44 (32-61) %pred) referred for pulmonary rehabilitation (PR) at Ciro. Patients were divided based on baseline BMI: underweight (UW <18.5 kg/m²), normal weight (NW 18.5-24.9 kg/m²), overweight (OW 25-29.9 kg/m²), obese 1 (OB1 30-34.9 kg/m²), obese 2 (OB2 35-39.9 kg/m²) and obese 3 (OB3 >39.9 kg/m²). Fat-free mass index (FFMI) was derived from DXA. Low FFMI was based on age, gender and BMI-specific cutoff values by Franssen JAMDA 2014. Moreover, mMRC, SGRQ and FEV1 were assessed.

Results: The sample had a median BMI of 25.7 (21.9-29.8) kg/m² and a FFMI of 16.3 (14.6-18.1) kg/m². 7.4% of the patients were UW, 38.1% NW, 30.0% OW, 15.6% OB1, 6.4% OB2 and 2.6% OB3. FEV1 % predicted and SGRQ total score were not different between BMI-subgroups. In contrast, low FFMI varied between BMI-subgroups: 41%, 58%, 62%, 62%, 14% and 19% respectively. Fewer men were in the UW group than in NW, OW, and OB1. The percentage of males was higher in OW than in OB1 and OB2, and higher in OB1 than in OB2 and OB3. mMRC grades of 3/4 were more prevalent in UW (58%) and OB3 (77%) groups compared to all other BMI-subgroups (45.5%, 46.4%, 51.8% and 56.9%, respectively).

Conclusion: One-third of the COPD patients referred for PR had a BMI <18.5 or >30 kg/m². Low FFMI was highly prevalent, even in overweight and obese patients and is not associated with FEV1 %predicted.

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Footnotes

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