Predictors of Physical Performance in Obese Patients

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Background: The target of obesity treatment includes not only weight loss but also maximizing physical performance which closely correlates to quality of life.

Objective: This study aimed to describe and identify predictors of physical performance, as measured by six-minute walk test, in severely obese patients.

Methods: In this cross-sectional study, obese patients (aged=18 years, BMI ≥23 kg/m2) were enrolled from outpatient clinics during 2015-2017. Medical history and anthropometric data were carefully collected. Body composition was analyzed using bioelectrical impedance (Tanita BC-587). Six-minute walk test and handgrip strength were measured by standard methods. Dietary assessment including energy and protein intake was calculated from 24-hour dietary recall.

Results: A total of 128 subjects (31.3% male, age 41.9±12.5 years, BMI 40.0±8.4 kg/m2) were enrolled. Gender-based mean distance obtained from six-minute walk test (male 430.9±99.1 meter, female 417.8±77.8 meter) was used to divide subjects into good performers (n=59) vs poor performers (n=69). In univariate logistic regression analyses, factors associated with better performance in six-minute walk test included age, hand grip strength, %muscle mass, and presence of metabolic syndrome with odds ratios(OR) of 0.94 (95%CI 0.90-0.97, p<0.001), 1.06 (95%CI 1.02-1.10, p=0.004), 1.06 (95%CI 1.01-1.10, p=0.017), and 0.48 (95%CI 0.24-0.99, p=0.048). In multivariate analyses, only age (OR 0.93, 95%CI 0.89 –0.96, p<0.001) and %muscle mass (OR 1.07, 95%CI 1.02-1.13, p=0.005) remained significant predictors.

Conclusion: In this study, age and muscle mass are independent predictors of physical performance assessed by six-minute walk test in severely obese patients. Further studies are suggested to determine the effects of intervention to preserve muscle mass during weight loss on physical performance in this population.

Keywords: Obese patients, Six-minute walk test, Muscle mass