Abstract

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Title of master thesis: Determination of body composition by bioelectrical impedance method in patients with chronic obstructive pulmonary disease

Chronic obstructive pulmonary disease (COPD) is one of the top leading causes of death and its morbidity and mortality worldwide is still increasing. Besides the respiratory symptoms there are often developed alterations in metabolism and body composition in COPD patients. Clinically important are mainly malnutrition and skeletal muscle protein loss. Especially if the respiratory muscles are affected, the lung function is negatively influenced.

The main aim of this study was to compare the body composition between 15 patients with COPD 3rd and 4th stage and 9 patients of control group without respiratory impairment and comparable anthropometric characteristics (age, body height and weight).

By means of bioelectrical impedance analysis we determined the composition of main body compartments. In patients with COPD was the mean amount of lean tissue of body weight (rel LTM) 47.2 ± 8.4 %, amount of fat mass (rel Fat) 37.8 ± 6.4 % and mean overhydration (OH) 0.31 ± 0.95. Mean values of body mass index (BMI), lean tissue index (LTI) and fat tissue index (FTI) were: BMI = 28.3 ± 5.2 kg/m^2; LTI = 13.2 ± 2.7 kg/m^2 and FTI 14.8 ± 4.2 kg/m^2. For control group we described rel LTM = 47.7 ± 8.8 %; rel Fat = 37.8 ± 6.5 % and OH = 0.07 ± 0.81 l and mean values of BMI, LTI and FMI were 27.4 ± 4.0 kg/m^2; 13.0 ± 2.4 kg/m^2 and 14.2 ± 3.8 kg/m^2. Another parameter correlating with the functional and nutritional status of patiens, which we compared between groups, was phase angle (PA). PA in patiens with COPD (5.43º ± 0.87º) and in the control group (5.65º ± 0.65º) was not significantly different.

Although according to BMI value was scored as underweight only one patient from the COPD group, lower LTI values than reference range we found by 6 patients with COPD and by 2 patients of control group.

In conclusion, we found no significant differences in main parameters of body composition between control group and COPD patients. However, in comparing our results with reference values, we noticed a trend of change.

Key words: chronic obstructive pulmonary disease, body composition, bioelectrical impedance