

Abstract

Title: Body composition in patients with idiopathic inflammatory myopathies

Objectives: The aim of this study was to compare selected parameters of body composition in patients with idiopathic inflammatory myopathies (IIM) with age- and sex-matched healthy controls (HC). Another objective was to evaluate the effect of selected clinical parameters in patients with IIM on the detected variability of the parameters of body composition and on physical activity of patients.

Methods: The research sample consisted of 84 individuals (54 IIM, 30 HC). In anthropometry, we measured: body height (cm), weight (kg) and BMI (kg/m^2). Using bioelectrical impedance analysis BIA 2000-M we obtained values: total body water (TBW in%), muscle mass (LBM in kg), body fat (BF in%) cell mass of lean body mass (BCM of FFM in%), and the proportion of extracellular/intracellular matrix (ECM/BCM). Using Lunar series iDXA we obtained values: muscle mass (LBM in kg), body fat (BF in %), bone mineral density (BMD in g/cm^3), and visceral fat (Visceral in kg). To these measured values we added a questionnaire on physical activity Human Activity Profile (HAP). Statistics: T-test, Mann Whitney U test, Cohen's d, and Partial eta-squared.

Results: Selected values (mean \pm SD): body height: IIM 164.7 ± 9.1 cm, HC 170.3 ± 7 cm; body weight: IIM 73 ± 14.3 kg, HC 77.5 ± 8.9 kg; BMI: IIM 27 ± 5.4 kg/m^2 , HC 26.8 ± 3.2 kg/m^2 ; BF% BIA: IIM $33.8\% \pm 7.7\%$; HC $32.4\% \pm 6.3\%$; BF% DEXA: IIM $42.5 \pm 7.1\%$, HC $38.7 \pm 6.7\%$; TBW% BIA: IIM $48.3 \pm 5.5\%$, HC $49.4 \pm 4.7\%$; LBM BIA: IIM 48.7 ± 9 kg, HC 53.2 ± 8.5 kg; LBM DEXA: IIM 40.3 ± 7 kg, HC 45.7 ± 6.6 kg. BCM of FFM % BIA: IIM $40 \pm 6.5\%$, HC $50.2 \pm 3.2\%$; ECM/BCM

BIA: IIM 1.4 ± 0.4 ; HC 1.0 ± 0.1 ; BMD DXA: IIM $1.1 \pm 0.1 \text{ g/cm}^3$, HC $1.2 \pm 0.1 \text{ g/cm}^3$; Visceral DEXA: IIM $1.4 \pm 1.1 \text{ kg}$, HC $1 \pm 0.6 \text{ kg}$.

Conclusion: Patients with IIM have significantly increased ECM/BCM, significantly higher BF% and significantly lower BMD. Greater severity and larger extent of muscle involvement in IIM lead to significantly decreased physical activity in these patients.

Keywords: idiopathic inflammatory myopathies, body composition, bioelectrical impedance, DEXA, physical activity

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