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Myostatin and follistatin serum level in patients with dermatomyositis and polymyositis.

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BACKGROUND

Dermatomyositis (DM) and polymyositis (PM) are idiopathic inflammatory myopathies (MII) characterized by chronic inflammation affecting skeletal muscle and causing mainly proximal muscular weakness. Myostatin belongs to the TGF-β family capable to negatively regulate myoblasts proliferation during embryonic period, and, protein synthesis after this period, inhibiting hyperplasia and muscle hypertrophy. Conversely, follistatin is a glycoprotein, with myostatin antagonistic properties, stimulating proliferation of skeletal muscle fibers. There is no study evaluating the serum level of myostatin and follistatin in DM/PM patients. Objectives: To evaluate the serum level of myostatin and follistatin in DM/PM patients and controls.

MATERIALS AND METHODS

This is a cross-sectional study evaluating 34 patients with DM, 16 with PM and 52 healthy controls matched by age and gender. Inclusion criteria: patients with DM or PM (Bohan and Peter criteria, 1975); age over 18 years, informed consent form signature. Exclusion criteria: myopathies associated with other autoimmune diseases, neoplasm, statin use and renal or cardiac insufficiency. All participants were evaluated through SF-36 Questionnaire, HAQ (Health Assessment Questionnaire Modified), Fatigue Severity Scale (FSS) and MMT8 (Manual Muscle Testing and Subsets of 8 muscles). Myostatin and follistatin were measured by ELISA, using commercial kits (Elabscience). Body composition was evaluated by densitometry. Demographic data are presented as mean and standard deviation. Normality was evaluated by Kolmogorov-Smirnov. Continuous variables were analyzed by T-student or Mann-Whitney tests. $p<0.05$ were considered significant.

RESULTS

Mean age of patients and controls were similar (50.8±14.2 vs 50.8±12.9 years). 78% were female in both groups. Disease duration was 90.9 months. Functional capacity, physical ability, general health and vitality domains of the SF-36 questionnaire scores were significantly worst in DM/PM group than controls. The total MMT8 score was also worst in patients than controls (66.7±12.6. vs 76.4; $p<0.001$). Fatigue (FSS) and daily life activity (HAQ) scores showed worst scores in DM/PM group. The mean level of CPK, aldolase, TGO, TGP and DHL and the mean ESR were significantly higher in the DM/PM group. The serum concentration of myostatin in patients and controls were (14.5±9.65 vs 10.97±6.77, $p=0.131$) and of follistatin were (0.53±0.71 vs 0.49±0.60, $p=0.968$). Limitations of study: our patients had long disease duration and the majority had inactive disease at the study.

CONCLUSION

This is the first study in the literature showing myostatin and follistatin serum levels were similar between DM/PM patients and controls. Other studies will be needed to evaluate patients at the disease onset and without treatment.