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Title: Predictors of functional exercise capacity in patients with early stage sarcoidosis

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Body: Background: Sarcoidosis is a systemic granulomatosis disorder and reduces functional exercise capacity. There is a little information on the predictors of functional exercise capacity in patients with sarcoidosis. Aims: To investigate the relationship between functional exercise capacity and pulmonary function, respiratory and peripheral muscle strength, and find out the best predictors of functional capacity in patients with early stage sarcoidosis. Subjects and Methods: Twenty-three patients with sarcoidosis (44.83±9.60 years, 14F) were included. Functional exercise capacity was evaluated using 6-minute walk test (6MWT), respiratory muscle strength (MIP and MEP) using a mouth pressure device, quadriceps femoris(QF) and biceps brachii (BB) muscle strength using a dynamometer and fatigue using Fatigue Impact Scale. Results: There were statistically significant positive correlations between 6MWT distance and pulmonary function, MIP, QF and BB muscle strength and fatigue ($p<0.05$). In the multiple regression analysis, conducted in the 23 patients, 72% of the variance in the 6MWT distance was explained by fatigue ($R^2=0.26$ $p=0.009$) and the biceps brachii muscle strength ($R^2=0.46$ $p=0.010$). The 6MWT distance was lower than 80 % of predicted in seven patients (30.4%). Conclusions: Upper extremity muscle strength and fatigue are factors significantly contributing to impaired functional exercise capacity in patients with sarcoidosis. Functional exercise capacity worsens with decreasing lower extremity and respiratory muscle strength. The effects of strengthening exercises and fatigue desensitization to improve functional exercise capacity in patients with sarcoidosis should be investigated.