Title: The relationships between functional exercise capacity, respiratory muscle strength, peripheral muscle strength and endurance in patients with metabolic syndrome

Body: Introduction and aim: The metabolic syndrome is a cluster of cardiovascular risk factors, including elevated blood pressure, dyslipidemia, impaired glycemic control, and abdominal obesity. The aim of this study was to assess the relationships among functional exercise capacity, respiratory muscle strength, peripheral muscle strength and endurance in patients with metabolic syndrome. Materials and methods: Twenty patients with metabolic syndrome (BMI: 35.5±3.7 kg/m2) were participated. Functional exercise capacity was evaluated using six-minute walk test (6MWT). Respiratory muscle (MIP, MEP) was assessed with cabin body-plethysmography. Hand grip strength was evaluated using a Jamar dynamometer. Peripheral muscle endurance was determined using squat test. Results: The 6MWT distance (84.7±13.3%), dominant-hand grip strength (60.6±18.7%), MEP (41.2±12.3%), MIP (59.2±17.6%) were decreased based on reference values. The 6MWT distance was significantly associated with MIP (r=0.64, p=0.003), MEP (r=0.61, p=0.004), hand grip strength (r=0.47, p=0.03), and number of squats (r=0.59, p=0.007). Hand grip strength was significantly related MIP (r=0.56, p=0.01), MEP (r=0.63, p=0.03) and number of squats (r=0.53, p=0.01). Conclusion: Functional exercise capacity is related with respiratory and hand grip muscle strength and peripheral muscle endurance in patients with metabolic syndrome. Aerobic exercise, respiratory and peripheral muscle training should be included in the rehabilitation programs of patients with metabolic syndrome.