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Title: Exercise capacity and limiting factors in older patients with post infectious bronchiolitis obliterans

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Body: Exercise capacity has been poorly studied in patients with post-infectious bronchiolitis obliterans (PBO) and main studies evaluated children with follow-up in older subjects lacking. We evaluated exercise capacity in older patients with PBO and mechanisms of exercise limitation. This was a cross-sectional study including the oldest patients of our tertiary care center. Cycle incremental cardiopulmonary exercise tests with investigation of dynamic hyperinflation and exercise induced bronchoconstriction (EIB) were performed. Sixteen patients were studied with a mean age of 15.3±3.9 (range 10-23) years, and post-bronchodilator (BD) resting lung function (%pred): FVC 88.9±19.3; FEV₁ 67.4±27.5, TLC 115.3±10.7; RV 234.3±87.1, D_LCO 73.6±11.9. Only 7 patients (43.8%) had reduced exercise capacity (VO₂peak<84%pred), of these 5 (71.4%) was <16 years-old. VO₂peak was only correlated with age (r=0.58; p=0.01) and D_LCO% pred (r=0.66; p=0.01). Patients with reduced exercise capacity tended to be younger (13.4±3.3 vs 16.8±3.9 years; p=0.09), with greater FEV₁ response to BD (18.9±12.8 vs 7.0±11.9 %; p=0.08) and lower D_LCO (67.8±12.9 vs 81.2±9.2%; p=0.053). No difference were found in relation to ventilatory reserve and dynamic hyperinflation during exercise. Of the 4 patients who presented EIB, 3 (75%) had reduced exercise capacity. Nevertheless, FEV₁ alteration post-exercise was not significantly different from those with preserved exercise capacity (-17.0±20.3 vs -5.7±6.7%, p=0.20). In conclusion, it seems that functional alterations of POB tend to ameliorate with aging. Those with reduced exercise capacity present lower lung diffusion capacity and greater airway obstruction variability.