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Title: The metabolic syndrome (MetS) in patients with chronic obstructive pulmonary disease (COPD) and its association with airway obstruction

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Body: Background: The metabolic syndrome (MetS) is common in patients with COPD and is part of the so called chronic systemic inflammatory syndrome. Aim: To investigate the presence of MetS in patients with COPD and healthy subjects and to assess the association of its components with airway obstruction. Methods: We performed a cross-sectional study with 244 participants (mean age 60.5 ± 9.5 years) divided into 2 groups: 141 subjects with COPD and 103 healthy matched controls. We measured the characteristics of the syndrome as stated by the IDF definition. Anthropometry and biochemical tests were performed, as well as spirometry to define the stage and severity of the disease. Results: 41.8 % of the COPD patients presented 3 or more features of the MetS versus 39% in the control group. Using multiple linear regression analysis we defined that the main predictor of MetS was the increased waist circumference (WC) ($\beta=0.263$, $p=0.022$). Among the MetS subjects, COPD patients had significantly higher WC compared to the controls (111.0±17.8 vs 104.0±12.4 cm, $p=0.032$). In COPD subjects with the syndrome BMI, WC, SBP, DBP, fasting blood glucose and triglycerides were significantly higher compared to those without MetS ($p<0.01$ for all), while HDL-cholesterol was significantly lower ($p=0.017$). In patients presenting MetS we also found a significant negative correlation between WC and FVC and FEV1 % predicted ($r= -0.291$, $p=0.011$ for FVC and $r= -0.327$, $p=0.004$ for FEV1, respectively). Conclusion: The present study suggests that the MetS is frequent among patients with COPD. The abdominal obesity measured as an increased WC is associated with the airway obstruction.