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**Title:** Evaluation of association between COPD and metabolic syndrome, and insulin resistance

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**Body:** Background: COPD is an important medical problem and involve systemic effects such as metabolic syndrome (MS). Aims: To evaluate the frequency of MS in patients with COPD and to correlate severity of COPD, MS, and insulin resistance. Methods: Anthropometry, laboratory and pulmonary function tests in patients with COPD according to GOLD criteria, without acute exacerbations in the last month. We diagnosed MS following the International Diabetes Federation (IDF) criteria. Insulin resistance was evaluated by HOMA-IR index and the index triglycerides / HDL cholesterol (TG / HDL-C). Results: 113 patients, age  $63.1 \pm 8.3$  years. Females 28.9%. Systemic Hypertension: 48.2% Dyslipidemia 25.9%, diabetes: 4.3%, obesity 21.2%, SM 37.2%. current smoking 18.6%, Insulin  $10.1 \pm 14.4$  mU/ml, HOMA-IR  $2.6 \pm 5.2$ , TG/HDL  $2.02 \pm 1.42$ . COPD Stages: I=2,6% II=47,8% III=37,2% IV=12,4%. We found positive association of MS with severity of COPD ( $p=0.04$ ), mainly with moderate COPD ( $p=0.007$ ), with longer smoking cessation ( $p=0.02$ ), BMI ( $p<0.0001$ ) with insulin ( $p<0.0001$ ), HOMA ( $p<0.0001$ ), and TG/HDL ( $p<0.0001$ ). There was no association with current smoking ( $p=0.17$ ), with previous use of systemic corticosteroids ( $p=0.08$ ). Multivariate analysis found association between MS and COPD Stage II: OR: 3.87 95% CI 1.4 to 10.4 ( $p<0.007$ ) and higher BMI: OR: 1.37 95% CI 1.19 to 1.57 ( $p<0.0001$ ). Conclusions: MS was found in 37.2%, and correlated well with severity of COPD, insulin resistance, smoking cessation time, with greater significance with Stage II COPD. It is important to assess the presence of MS in these patients.