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Title: Nocturnal and exercise oxygen desaturation in COPD patients with and without OSAS

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Body: BACKGROUND Patients with both obstructive sleep apnea syndrome (OSAS) and chronic obstructive respiratory disease (COPD) have a lower survival rate than patients with only one of these diseases. Aim of this study was to point out the relationships between respiratory function, nocturnal (NOD) or exercise (EOD) hemoglobin desaturation and the presence of OSAS in COPD. POPULATION and METHODS In 23 consecutive COPD patients that performed complete cardiopulmonary nocturnal study to exclude OSAS (16 M / 7F, aged 69±8 years, 35% GOLD stage 1, 52% stage 2 and 13% stage 3) lung volumes, diffusion capacity, walking test (WT) with pulse oximetry (SpO₂) and nocturnal SpO₂ monitoring were considered. RESULTS OSAS (defined as apnoea-hypopnea index AHI >15/h) was present in 26% patients (AHI 30±15). NOD (defined as SpO₂<90% for >30% of the night) was present in 30% of patients and in this group FEV₁/VC %pred and DLCO %pred were lower (78±14 vs 92±9 %pred p<0.03 and 62±19 vs 80±9 %pred, p<0.002 respectively). Nocturnal time spent with SpO₂<90% correlated with: RV/TLC r = 0.70 p<0.01 and morning PaCO₂ r = 0.68 p<0.01. WT distance was 85±17%pred and EOD (defined as >5%SpO₂ fall, with SpO₂<90%) was present in 30% of subjects. Lowest WT SpO₂ correlated with DLCO %pred (r =0.71 p<0.001) and with BMI (r = 0.52, p<0.03), NOD was present in 56% of these patients. AHI was correlated with oxygen desaturation index (ODI-4%; r = 0.61 p<0.001), and no patient with ODI<14/h had OSAS. CONCLUSIONS EOD is more common in COPD with low DLCO and low BMI and in more than half patients is predictive for NOD. NOD is predictive of OSAS only when high ODI-4% is present.