Abstracts of Other Lectures

SYSTEMIC MYELOPEROXIDASE IN COPD
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Chronic obstructive pulmonary disease (COPD) is characterized by both local and systemic manifestations of inflammation. In particular, increased numbers of neutrophils can be observed in the airway lumen and in the blood of COPD patients. One early study on patients with COPD and chronic bronchitis showed increasing levels of the neutrophil product myeloperoxidase (MPO) during exacerbations, compared with control smokers who did not suffer from COPD. 1 In a more recent study on chronic smokers without severe airway symptoms, we showed that the MPO concentrations in blood increases during a six-year period. 2 Thus, systemic neutrophil mobilization may occur prior to the clinical manifestation of COPD.

Here, we determined whether MPO concentration in blood is altered during exacerbations and/or during stable conditions in COPD patients with chronic bronchitis (COPD-CB). We studied 60 well-defined COPD patients, 10 asymptomatic smokers and 10 healthy non-smokers. Blood samples were harvested and analyzed for MPO every 15th week during 15 months and at exacerbations. We also examined if the transcription of MPO is altered in blood cells from COPD-CB patients. The study shows that MPO protein and neutrophil concentrations but not MPO mRNA increased markedly during exacerbations in COPD-CB patients. We did not detect any correlation between mRNA and MPO protein during exacerbations. Tentatively, our study indicates that there is increased release of MPO in circulating or extravascular neutrophils during COPD exacerbations, and that a post-transcriptional mechanism for MPO release is feasible. Supported by the Swedish Heart-Lung Fund, the University of Gothenburg and Karolinska Institute.

References

PULMONARY HYPERTENSION IN COPD; THE IMPORTANCE OF \( P_O_2 \)
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Pulmonary hypertension (PH) is a serious complication to chronic obstructive pulmonary disease (COPD). For early detection, we evaluated predictors of mean pulmonary artery pressure (mPAP) and PH (mPAP > 25 mmHg).

Altogether 97 COPD patients with mild to very severe airway obstruction without left ventricle dysfunction were included. Pulmonary function tests, right heart catheterizations and cardiopulmonary exercise tests (CPET) were performed.

Multivariate analysis in a model including pulmonary function indices at rest, adjusted for gender, age and height, showed that only \( P_O_2 \) was a significant predictor of mPAP (Regr. coeff. -2.35, 95% CI -3.02, -1.67, p < 0.001). Indices of airway obstruction and hyperinflation failed to predict mPAP. Logistic regression analysis confirmed that only \( P_O_2 \) was a significant predictor of PH (p < 0.001). ROC curve analyses with optimal cut-off values for \( P_O_2 \) at rest and at peak exercise were applied to test their diagnostic accuracy for PH. For \( P_O_2 \) at rest, area under the curve (AUC) was 0.78 (95% CI 0.67, 0.87) and cut-off value < 9.5 kPa. For \( P_O_2 \) at peak exercise, AUC was 0.81 (95% CI 0.70, 0.93) and cut-off value < 8.5 kPa. By combining \( P_O_2 \) at rest and peak exercise, pulmonary hypertension was possible to predict with a detection rate of 76% and a false-positive rate of 10%. When variables from CPET were included in multiple regression analyses, mPAP was predicted by oxygen uptake, ventilation and \( P_O_2 \) at peak exercise (p < 0.05).

Conclusion: \( P_O_2 \) at rest and \( P_O_2 \) at peak exercise are important to evaluate when assessing the presence of PH in COPD.

ALPHA-SMOOTH MUSCLE ACTIN AND TENASCIN-C ARE MARKERS OF MULTIFARIUS ALTERATIONS OF AIRWAYS AND PERIPHERAL LUNG IN COPD AND EMPHYSEMA
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Fibrotic events participate in pathogenesis of chronic obstructive pulmonary disease (COPD) (1). Our aim was to study the expression of alpha-smooth muscle actin (α-SMA), tenasin-C and EDA-fibronectin in emphysema and COPD.

Lung tissue specimens from central bronchi and peripheral lung tissue were analyzed by immunohistochecometry. Number of α-SMA (as a marker of myofibroblast), tenasin-C and EDA-fibronectin positive areas in alveolar walls, bronchioles and bronchi were counted in the patients with normal...