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PN Poster Discussion : Role of the biomarkers in airway diseases

P4788

Volatile organic compounds (VOCs) in COPD patients with exacerbation

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Introduction:

COPD exacerbations are events in the natural course of the disease characterised by change in patients' baseline symptoms which are beyond normal day to day variability and may warrant medical treatment. The early diagnosis and treatment of acute exacerbations is of major importance since they have a given impact on the morbidity, mortality and health care costs associated with COPD.

Objectives:

It is well known that the airway inflammation is enhanced at exacerbations. The purpose of this study is to investigate if the volatile organic compounds (VOCs) detected in the exhaled breath of patients with an acute exacerbation of COPD are different from those detected in patients with a stable disease.

Methods:

Breath samples were collected via a side-stream Teflon tube and measured directly by an ion mobility spectrometer coupled to a multi capillary column (MCC/IMS). VOCs were detected and statistically evaluated in order to discriminate COPD patients with an exacerbation from patients with stable disease.

Results:

Thirteen COPD patients with an acute exacerbation, 46 COPD patients with a stable disease as well as 51 healthy subjects were included in the study. Several peaks were found to differentiate in the group of patients with an acute exacerbation compared to the COPD patients with stable disease and with healthy subjects.

Conclusions:

Our data suggest that specific VOCs can be detected in the exhaled breath of COPD patients with an acute exacerbation indicating possibly the enhanced airway inflammation. The identification of VOCs that characterise the acute exacerbations could be used as diagnostic tool for an exacerbation apart from the clinical criteria.