

European Respiratory Society Annual Congress 2013

Abstract Number: 607

Publication Number: 396

Abstract Group: 5.2. Monitoring Airway Disease

Keyword 1: COPD - mechanism **Keyword 2:** Inflammation **Keyword 3:** Smoking

Title: Local and systemic inflammation in chronic obstructive pulmonary disease (COPD)

Ms. Jie 2061 Ji jie.ji@ki.se¹, Dr. Ida 2062 von Schéele idavonscheele@hotmail.com¹, Dr. Barbro 2063 Dahlén Barbro.Dahlen@ki.se MD², Prof. Jan 2064 Bergström janbergstrom@glocalnet.net³, Dr. Bo 2065 Billing bo.billing@ki.se MD², Ms. Ann-Sofie 2066 Lantz Ann-Sofie.Lantz@ki.se², Prof. Kejll 2067 Larsson Kjell.Larsson@ki.se MD¹ and Dr. Lena 2068 Palmberg Lena.Palmberg@ki.se MD¹. ¹ Lung and Allergy Research, Institute of Environmental Medicine, Karolinska Institutet, Stockholm, Sweden, 171 77 ; ² Lung and Allergy Research, Department of Medicine, Huddinge (MedH), Karolinska Institutet, Stockholm, Sweden, 141 86 and ³ Department of Dental Medicine, Karolinska Institutet, Stockholm, Sweden, 141 86 .

Body: Background The aim of the study was to explore to what extent local inflammatory processes in the mouth (saliva, clinical assessment of periodontitis) and the respiratory tract (sputum, bronchoalveolar lavage (BAL), lung function) are associated with systemic inflammatory responses (blood) in smokers with and without COPD. Method Healthy controls (n=23), smokers with (n=28) and without (n=29) COPD performed spirometry and dental examinations. Saliva, induced sputum, BAL fluid and serum were collected. Inflammatory mediators were measured using ELISA. Soluble and cell bound tumor necrosis factor receptors (TNFR) in sputum, BAL fluid and serum were detected by flow cytometry. The mRNA-expression of tumor necrosis factor- α (TNF- α) and its receptors on BAL macrophage were analyzed by real-time PCR. Result A negative correlation between lung function and saliva IL-8/MMP-9 was found in smokers with COPD ($p<0.01$). There were positive correlations between these mediators (IL-8/MMP-9) in saliva and periodontitis as assessed by bleeding index in non-smokers ($p<0.01$). Sputum IL-6 and IL-8 were significantly positively correlated with soluble TNFRs (sTNFRs) in non-smokers ($p<0.01$) and with sTNFR2 in smokers with COPD ($p<0.01$). There was a close positive correlation between soluble TNFR1 and TNFR2 receptors in sputum, BAL and serum in all groups ($p<0.01$). Conclusion Inflammatory markers in saliva, which is easy to collect, seem to reflect disease severity in COPD patients. Shedding of TNFR is similarly regulated locally and systemically, both in healthy subjects and in smokers, irrespective of airflow limitation.