Poster-discussion: Respiratory effects 1

**SERUM PNEUMOPROTEINS IN WASTE WATER WORKERS EXPOSED TO BIOAEROSOLS**

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**Objectives** Workers in sewage treatment plants are exposed to bacteria and bacterial components such as endotoxins. Endotoxins are strong proinflammatory agents that may affect the airways. A leakage of pneumoproteins into the circulation may occur. The most validated pulmonary biomarker is Clara cell protein 16 (CC-16). The surfactant-associated pneumoproteins SP-A and SP-D are also increasingly being applied in epidemiological studies. The purpose of this study was to examine the association between exposure and the serum levels of CC-16, SP-A and SP-D in sewage treatment plant workers.

**Methods** All 44 workers from 8 sewage treatment plants and 38 reference workers participated. Microbial exposure was sampled by personal inhalable samplers and determined by fluorescence microscopy (bacteria) and LAL assay (endotoxins).

Pneumoproteins concentrations were determined by ELISA in samples collected post shift.

**Results** The exposure to dust ranged from 0.02 to 9.3 mg/m³, bacteria 0.3 to 4900x10³ bacteria/m³ and endotoxins from 1 to 3160 EU/m³. The workers had lower CC-16 (p<0.001) and a close to significantly lower SP-D (p=0.07) concentrations compared to the referents. Exposure to bacteria was positively associated with CC-16 (p<0.05) in multiple regression analyses. Exposure to bacteria was also positively associated with SP-D and negatively associated with atopy (p<0.05).

**Conclusions** This study showed that exposed subjects had lower serum concentrations of CC-16 and SP-D compared to the referents. Recent exposure to airborne bacteria were positively associated with the serum levels of CC-16 and SP-D.