OCCUPATIONAL EXPOSURE TO TRICHLORAMINE AND SERUM PROLIDASE ACTIVITY IN SILICOSIS RARB GENE-POLYCYCLIC AROMATIC HYDROCARBONS

Introduction
Studies have shown that employees and visitors at indoor swimming pool facilities are experiencing symptoms in the nose and throat, eye irritation and, in some cases, asthma. Due to chlorination, byproduct such as trichloramine and trihalomethanes can be present in indoor swimming pool air. This exposure has not been described in rehabilitation swimming pools.

Methods
The occupational exposure of trichloramine and trihalomethanes in air has been studied at ten Swedish indoor swimming pools that normally consists of smaller facilities and air. This exposure has not been described in rehabilitation swimming pools that normally consists of smaller facilities and use warmer water compared to ordinary swimming pools.

Results
The average trichloramine concentration for personal measurements (n=17) was 23 μg/m³, varying between 1 and 76 μg/m³. Corresponding stationary measurements (n=27) performed at the pool side showed an average concentration of 30 μg/m³, varying between 1 and 140 μg/m³. A WHO reference value for trichloramine, based on stationary measurements, is set to 500 μg/m³. The levels of trihalomethanes for both personal (n=20) and stationary (n=35) measurements were less than 1% of the Swedish OEL for chloroform. Measurements of NO in exhaled air showed a change during shift when exposed (n=23) and controls (n=50) were compared.

Discussion
Both personal and stationary measurements showed low levels of trichloramine and trihalomethanes. When comparing exposed and controls during shift, a difference of NO in exhaled air was noted.

Conclusion
Silicosis is a preventable occupational disease, but it can be incurable at later stages which might lead to respiratory failure and death. The most common symptom of silicosis is exertional dyspnea. The duration of symptoms is 2 years. Category 3 and major opacities are seen at advanced stages and indicate a delayed diagnosis. We believe that taking preventive measures for risky workers such as dental technicians, monitoring in terms of disease development and providing early diagnosis is important in combating silicosis and its complications.
formation of collagen. Prolidase catalyses the hydrolysis of oligo/dipeptides which contains proline or hydroxyproline in the carboxyl terminal position. Many studies have identified prolidase activity at varying levels in fibrotic diseases. The aim of the study is to investigate the relationship between silicosis and prolidase activity.

**Methods**

This study is a cross-sectional study. We reviewed medical records (functional status and radiological findings) and serum prolidase levels of 62 patients who were admitted to our centre between September and December 2015.

**Result**

All cases were male and silicosis was diagnosed in 37% of 62 cases. Prolidase level was significantly higher in patients with silicosis than in normal (p<0.001) (4877±2324 vs 815±520). Correlation analysis showed significant positive correlation between prolidase activity and ILO classification (r:0.723, p<0.001, figure 1A) and age (r: 0.391, p:0.002). Prolidase activity was negatively correlated with FEV1 (r:−0.332, p: 0.008) and FVC (r:−0.295, p:0.020).

**Discussion**

Since prolidase is involved in collagen metabolism, its activity can be used for early diagnosis and follow-up of silicosis. Further studies are needed to clarify the etiopathogenic mechanisms of silicotic nodule formation and early detection of vulnerable population who had silica exposure before nodule formation.