

## Microsomal epoxide hydrolase-1 exon 4 polymorphism and H<sub>2</sub>S-exposure interaction on the spirometry parameters; interaction of gene-environment

V. Montazeri\*, A. Mandegari, Z. Razmi

*Kerman University of Medical Sciences, Kerman, Iran*

**Background and Aims:** Exposures to workplace pollutants such as H<sub>2</sub>S, can induce respiratory symptoms in individuals exposed in the workplace. Inter-individual variation in human responses to air pollutants may be influenced by genetic variability in the xenobiotic metabolizing enzymes (1).

**Methods:** In this study 120 subjects exposed to H<sub>2</sub>S (sour gas refinery; SoGR) and 110 controls (sweet gas refinery; SwGR) were recruited. Pulmonary function test was performed using spirometry and the FVC, PEF, FEV<sub>1</sub>, FEV percent of predicted parameters were obtained. His139Arg (A>G) polymorphism in the exon 4 of microsomal epoxide hydrolase gene (mEPXH1) was determined using PCR-RFLP. The interaction of EPXH1 exon4 genotype and H<sub>2</sub>S exposure analysed using Two way ANOVA.

**Results:** Forced Vital Capacity (FVC) and peak expiratory flow (PEF) spirometric parameters were significantly higher in the H<sub>2</sub>S exposed subjects (SoGR subjects) in comparison with SwGR subjects. The FEV<sub>1</sub> percent of predicted values were significantly higher in the SoGR subjects. There was no significant interaction between the Forced expiratory volume in one second (FEV<sub>1</sub>) and exposure to H<sub>2</sub>S. There was not significant difference between any spirometric parameters in the subjects with mEPXH AA and AG/GG genotypes.

**Conclusions:** The effects of occupational exposure to H<sub>2</sub>S on the pulmonary function tests were investigated. But there was no significant association between MEPXH1 polymorphism and spirometric parameters.

**Keywords:** Genetic polymorphism; Microsomal epoxide hydrolase 4; Occupational toxicology; Respiratory toxicology