

SHC 38 . DYNAMIC DISULFIDE/THIOL HOMEOSTASIS IN FIREFIGHTER'S LUNG DISEASE DETECTION

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The potential for firefighters to involve acute and/or chronic respiratory health consequences associated with exposures during firefighting activities has long been recognized. In the state of oxidative stress thiolsoxidized to disulfide form via reversible thiol-disulphide exchange reactions. Due to the possibly raised risk for the development of airways disease among firefighters, it is important that functional respiratory abnormalities be recognized earlier.

One hundred firefighters who admitted for periodic medical examination and fifty control subjects working as officers were recruited as control group. Firemen were classified into three subgroups: Group 1 consists of those having pulmonary pathology, group 2 comprises those suffering from respiratory disorder, and group 3 contains those having both pulmonary pathology and respiratory disorder. 50 officers were recruited as control group. Urine arsenic and serum disulfide/thiol homeostasis were measured.

Urine arsenic, serum disulphide and % disulfid/ native thiol levels of firefighters were found significantly higher than control subjects ($p < 0.001$). In subgroup analyses; group 1, 2 and 3 were different from control group in terms of arsenic, disulphide and % disulfid/ native thiol levels ($p < 0.001$). Also there is a significant difference between group 1 and group 2 and between group 1 and 3 in terms of disulphide and % disulfid/ native thiol levels ($p < 0.001$).

We revealed for the first time that disulphide levels, a biomarker of oxidative stress, were significantly higher in wildfirefighters.

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