SHC 36 . ASSESSMENT OF OXIDATIVE STRESS IN ARSENIC EXPOSED WORKERS – THIOL DISULFIDE HOMEOSTASIS AND LIPID PEROXIDATION

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Arsenic (As) is an environmental toxicant. Human are exposed to As from a variety of sources including drinking water, food, ambient air, burning of wood treated with As containing preservatives, pesticides and occupational exposure. As exposure in human is associated with a number of adverse health effects including cancer and oxidative stress (OS) is suggested as one of the major underlying mechanism of As toxicity. In the present study we aimed to assess thiol disulfide homeostasis, via a novel technique, and lipid peroxidation that was quantified by isoprostane levels to determine oxidative status in occupationally As exposed workers.

The study group included 71 male As exposed workers who admitted to our clinic for periodic medical examination and the control group was composed of 43 healthy male administrative workers. Thiol disulfide parameters were determined with a novel spectrophotometric method described previously by Erel and Neşelioğlu. Urine As levels and 8-isoprostane levels of workers were also determined.

The median urinary As levels and isoprostane levels of study group were significantly higher than control group (p<0.001). The mean disulfide level, disulfide/native thiol ratio and disulfide/ total disulfide ratio were also significantly higher in study group (p<0.001). A positive correlation was determined between the urinary Ar levels and isoprostane level (p<0.001, r= 0.394), disulfide level (p<0.001, r=0.568).

As result our results indicate that As induced OS, confirmed by the shift in dynamic thiol disulfide homeostasis and lipid peroxidation, in occupationally exposed workers.

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