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SHC 41 . DYNAMIC THIOL-DISULFIDE HOMEOSTASIS IN MERCURY-EXPOSED PATIENTS

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We aimed to examine dynamic thiol-disulfide homeostasis (TDH) with a novel and automated method in mercury-exposed patients (MEP). Mercury is the unique metal which is liquid at room temperature and can readily evaporate. It uses lots of industries such as battery, thermometer and dye manufacturing. Mercury disrupts the activity of enzymes by binding to thiol groups and leads to cell death. Compounds containing thiol groups can chelate with mercury. These compounds can be used as an antidote because of these features in mercury poisoning. Thiols, also known as mercaptans are organic compounds that linked to a carbon atom of a sulfhydryl group. Thiol groups and disulphide bonds can be convert to each other by oxidation-reduction reactions in plasma. Thus, dynamic TDH is maintained. TDH has critical role in detoxification, antioxidant protection, apoptosis and regulation of enzyme activities.

Plasma native thiol and total thiol concentrations were determined with a novel and automated measurement method. Half of subtract of concentration of total thiol and native thiol is gave disulphide amount. Urine mercury levels was measured by atomic absorption spectrometry.

Native thiol and total thiol levels were not different in MEP comparing to control group. But disulphide levels were increased significantly ($p=0.028$). Native thiol, total thiol and disulphide levels were significantly correlated with urine mercury levels (respectively; $p=0.012;r=-0.46$,$p<0.001;r=-0.58$,$p=0.007;r=-0.49$)

TDH system shifted to the side of disulphide bond formation in Mercury-exposed patients. The novel test we used in this study may be useful for evaluating the oxidative status in mercury-exposure.

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