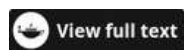




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Assessment of potential cardiovascular risk in trichloroethylene exposure by serum methylated arginine levels

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Abstract

Trichloroethylene (TCE) is a widely used solvent in industrial applications and has toxic effects on various systems. Methylated arginine amino acids (eg asymmetric dimethyl arginine (ADMA), symmetric dimethyl arginine (SDMA)) cause the development of cardiovascular disease by inhibiting NO synthesis, which is considered to be heart-protector. The aim of this study is to determine the risk of cardiovascular diseases in TCE exposure by methylated arginine biomarkers. About 98 controls and 100 TCE-exposed male subjects were included in the study. Trichloroacetic acid (urinary metabolite of TCE), arginine, homoarginine, citrulline ADMA, SDMA, and N-monomethyl L-arginine (L-NMMA) levels were found significantly higher than control group ($p < 0.001$). The strongest correlation was found between ADMA and Trichloroacetic acid (TCA) level ($r = 0.453$, $p < 0.01$). Long-term TCE exposure, may be an important risk factor for cardiovascular diseases by increasing methylated arginine levels.

Keywords: Asymmetric dimethylarginine (ADMA); arginine; cardiovascular risk; symmetric dimethylarginine (SDMA); trichloroethylene (TCE) toxicity.

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