Association of hepatitis virus infection, alcohol consumption and plasma vitamin A levels with urinary 8-hydroxydeoxyguanosine in chemical workers

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摘要

Abstract

Urinary 8-hydroxydeoxyguanosine (8-OHdG) DNA adduct has been used as a biomarker in epidemiological studies. However, the determinants for urinary 8-OHdG have not been clearly identified. We tested urinary 8-OHdG levels in 205 male workers who had been exposed to vinyl chloride monomer (VCM). Epidemiological information was obtained by an interviewer-administered questionnaire. Hepatitis B surface antigen (HBsAg) and anti-hepatitis C antibody (anti-HCV) were also determined by immunoassay. Plasma antioxidants including Vitamins A and E, alpha- and beta-carotenes were assayed by high performance liquid chromatography. Median of urinary 8-OHdG level was 9.8 ng/mg creatinine (range, 1.4-60.1). Multiple linear regression analysis showed that alcohol drinkers had higher urinary 8-OHdG than those who did not, but there was no dose-response between the amount of alcohol consumption and urinary 8-OHdG. Workers with positive HBsAg, anti-HCV and elevated plasma Vitamin A level were independentlyassociated with higher levels of urinary 8-OHdG, whereas age, smoking, body mass index, plasma alpha- and beta-carotenes, Vitamin E levels, or VCM exposure did not show such an association. The results suggest that active inflammation of hepatitis Band C, alcohol consumption and higher Vitamin A level can induce oxidative stress. Thus, we conclude that potential determinants need to be considered in epidemiological studies when urinary 8-OHdG is used as a biomarker.

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