# Arsenic Methylation Capability;Heme Oxygenase-1 and NADPH Quinone Oxidoreductase-1 Genetic Polymorphisms;and the Stage and Grade of Urothelial Carcinomas

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摘要

**Abstract**

Background: Arsenic exposure is associated with an increased risk of urothelial carcinoma (UC). To explore the distribution of the arsenic methylation capability in patients with different stages and grades of UCs, 100 UC cases were recruited between September 2002 and May 2004 for this study. Methods: Urinary arsenic species, including inorganic arsenic (AsIII + AsV), monomethylarsonic acid (MMA), and dimethylarsinic acid (DMA), were determined with a high-performance liquid chromatography-linked hydride generator and atomic absorption spectrometry. Determining the percentages of various arsenic species among the total urinary arsenic amount assessed the arsenic methylation capability. The primary methylation index (PMI) was defined as the ratio between MMA and inorganic arsenic. The secondary methylation index (SMI) was determined as the ratio between DMA and MMA. Results: Differential effects of the arsenic methylation capability were found among patients with different stages of UCs; however, none was found among different grades. Conclusion: A significantly different distribution of the HO-1 genotype was found in subjects with different-stage UCs; however, it was not related to the NAD(P)H:quinone oxidoreductase 1 genotype.

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