

**Arsenic Methylation Capability and Hypertension Risk in
Subjects Living in Arseniasis-Hyperendemic Areas in
Southwestern Taiwan**

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摘要

Abstract

BACKGROUND: Cumulative arsenic exposure (CAE) from drinking water has been shown to be associated with hypertension in a dose-response pattern. This study further explored the association between arsenic methylation capability and hypertension risk among residents of arseniasis-hyperendemic areas in Taiwan considering the effect of CAE and other potential confounders. **METHOD:** There were 871 subjects (488 women and 383 men) and among them 372 were diagnosed as having hypertension based on a positive history or measured systolic blood pressure ≥ 140 mm Hg and/or diastolic blood pressure ≥ 90 mm Hg. Urinary arsenic species were determined by high-performance liquid chromatography-hydride generator and atomic absorption spectrometry. Primary arsenic methylation index [PMI, defined as monomethylarsonic acid (MMA(V)) divided by (As(III)+As(V))] and secondary arsenic methylation index (SMI, defined as dimethylarsinic acid divided by MMA(V)) were used as indicators for arsenic methylation capability. **RESULTS:** The level of urinary arsenic was still significantly correlated with cumulative arsenic exposure (CAE) calculated from a questionnaire interview ($p=0.02$) even after the residents stopped drinking the artesian well water for 2-3 decades. Hypertensive subjects had higher percentages of MMA(V) and lower SMI than subjects without hypertension. However, subjects having CAE >0 mg/L-year had higher hypertension risk than those who had CAE=0 mg/L-year disregard a high or low methylation index. **CONCLUSION:** Inefficient arsenic methylation ability may be related with hypertension risk.