

題名:Health Effects and Long-Term Exposure to Arsenic Through Drinking Well Water.

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摘要:BACKGROUND: Arsenic is a known carcinogen but the risk of lung cancer from the widespread contamination of drinking water in rural Bangladesh has not been estimated. OBJECTIVES: To determine whether estimated exposure of villagers in Bangladesh to arsenic in drinking water differed between those with lung cancer and those with non-malignant lesions. METHODS: Data were obtained from 7286 subjects who underwent lung biopsy in 2003-2006 at a diagnostic centre taking referrals from throughout Bangladesh. Analysis was limited to 5372 people living in villages for the last 10 years who reported using tube well water. Of these, 3223 with a primary lung tumour were enrolled as cases and 1588 with non-malignant lesions as referents in an unmatched analysis. Arsenic exposure was estimated by average concentrations for each of 64 districts. Logistic regression was used to test the effects of age, arsenic and smoking on risk and to investigate relationship to cell type. RESULTS: Male cases were older than referents and more likely to smoke, to smoke ≥ 20 units/day and to smoke bidi-small, hand-rolled cigarettes. Odds ratios for lung cancer increased steadily with mean arsenic concentration, but the confidence interval excluded 1.0 only at concentrations ≥ 100 $\mu\text{g}/\text{l}$ (OR 1.45, 95% CI 1.16 to 1.80). This trend was seen only in smokers where the increased risk at ≥ 100 $\mu\text{g}/\text{l}$ was 1.65 (95% CI 1.25 to 2.18). A similar trend was seen in women smokers. Squamous cell lung cancer was more frequent in smokers and, having adjusted for smoking, in districts with arsenic concentrations ≥ 100 $\mu\text{g}/\text{l}$. CONCLUSIONS:

Among Bangladeshis who smoke, those whose drinking water is contaminated with arsenic at concentrations >100 $\mu\text{g}/\text{l}$ are at increased risk of lung cancer. With high levels of exposure misclassification and short latency of exposure, the study cannot estimate or exclude the likely long term risk in non-smokers and at lower arsenic concentrations.