Arsenic Concentration in Drinking Water and Risk for Prostate Cancer in the Swiss Canton of Grisons: An Ecological Study

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Arsenic is a known carcinogen, which can be ingested through contaminated drinking water. Most studies in the high-level arsenic range have found a significant correlation between arsenic in drinking water and the incidence of prostate cancer, which is the second most common type of cancer among men worldwide. However, the results of studies in the low-level range are inconsistent and no such study has ever been conducted in Switzerland. The objective of this study was to examine the correlation between arsenic in drinking water and the standardized incidence ratio (SIR) of prostate cancer in the Swiss canton of Grisons, where elevated arsenic levels have been found in drinking water. In order to examine this correlation, municipality population data, arsenic exposure data and prostate cancer data of 55 municipalities in the Grisons were collected and a statistical analysis was performed. No clear statistically significant correlation between arsenic in drinking water and the SIR of prostate cancer was found. However, the data analysis indicates a weak arsenic-dependent increase in the SIR. If future studies find clearer correlations, Switzerland and other countries worldwide should consider lowering their legal limits of arsenic in drinking water.

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