

HUMAN EXPOSURE TO ARSENIC FROM DRINKING WATER AND ASSOCIATION WITH SKIN LESIONS

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The widespread incidence of chronic arsenicosis in the Bengal Delta has led to intensive research on arsenic (As) enrichment in groundwater. West Bengal, India is well known for severe As contamination, with large numbers of exposed individuals within the Gangetic Plain. Present study aimed to determine the degree of severity of As exposure from drinking As- enriched groundwater (50 µg/L) in the part of Gangetic Plain (Barasat, West Bengal). Association between As exposure and skin lesions (keratosis and melanosis) has been evaluated. Randomly selected subjects were used to determine As accumulations in hair, nail and urine in relation to chronic As exposure via drinking water. Arsenical dermatosis, keratosis and melanosis were investigated by medical evaluation and field survey. Arsenic in hair, nail, and urine was found to be positively correlated with As in drinking water. An association between As exposure and prevalence of keratosis and melanosis was also observed. The accumulation of As in hair, nail and urine was dependent on the age of the individuals. An association of As exposure from drinking water was observed with a risk of keratosis and melanosis among surveyed population in studied area. The level of As accumulations in hair, nail and urine highlighted the degree of severity of As exposure in the Bengal Delta region. Accumulations of As in hair, nail and urine were dependent on gender, age of the individuals and the rate of As intake through different exposure routes.

Keywords: arsenic exposure, groundwater, skin lesions