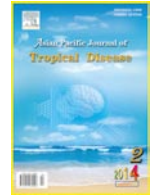




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Correlation between arsenic intoxication and cognitive ability of primary school children of West Bengal

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To the editor,

Arsenic contamination of the groundwater in West Bengal is a serious problem. Chronic exposition to arsenic contaminated water can cause serious diseases like dermal pigments, skin, lung cancer and neurotoxicant that affects the peripheral nervous system^[1,2]. The World Health Organization lowered the drinking guideline from 50 ppb to 10 ppb in 1993 to encourage public organizations to combat this mass contamination. School children are very much susceptible to arsenic exposure. Approximately 90% of children below 11 years of age in affected from Bangladesh and West Bengal, India showed significant level of arsenic in hair and nail^[3]. In this study, the primary objective was to find out the relationship between arsenic toxicity (through potable water and vegetables) and cognitive level of primary school children. A standardized questionnaire (Raven's Standard Progressive Matrices) was used to assess the cognitive function in the form of mental performance of school children in an arsenic contaminated area (Kalyanpur, Purbasthali) and an uncontaminated area (Biswarambha, Purbasthali). The two villages were similar to each other apart from arsenic contamination in the drinking water. Moreover, demographically two studied villages were similar to each other *i.e.*, school children were coming from similar set of family background (economics, land ownership, crops production and number of family member per household). The testing was administered individually to each respondent (both boys and girls of grade III and IV students) in accordance with the guidelines and procedures of the Raven's progressive matrices manual. Along with the

questionnaire, the anthropometric studies were also done for BMI and other related parameter to check whether there exist any differences between arsenic contaminated and uncontaminated areas. The results also revealed that mean scores of Kalyanpur area were significantly ($P < 0.05$) lower than uncontaminated area (Biswarambha, Purbasthali). The mean BMI of two studied population were significantly ($P < 0.05$) different from each other. From the present outcomes, it is highlighted that exposure to arsenic significantly affected on both cognitive function and BMI. To the best of our survey, this is the first reported study from West Bengal, India of interference of arsenic on cognitive function of school children.

Conflict of interest statement

We declare that we have no conflict of interest.

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