Title: The Biomarkers for Assess Arsenic Exposure via Drinking Water

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Abstract: Chronic exposure to arsenic by either ingestion or inhalation will produce a variety of skin insignia of arsenic toxicity. Skin disorders are documented in several epidemiological studies in which people consumed drinking water with high arsenic levels. Although numerous studies have shown the related adverse effects of arsenic, sensitive appropriate biomarkers are still required for studies of environmental epidemiology. A review of literature has shown that various biomarkers are used for such research. Their limits and advantages that are presented in this paper are: a. the detection of As in the blood is an indication of the dose ingested but it is not evidence of chronic intoxication. b. detection of arsenic in urine is an indispensable procedure because it is a good marker for internal use. It has been documented to correlate well for a number of chronic effects related to arsenic levels in drinking water. However confounding factors must be taken into account to avoid mistakes and this may require As speciation. c. As in the hair nails reflects the level of long term exposure but it is difficult to relate the level with the dose ingested. d. some studies showed a correlation between urinary As and urinary and porphyrins. But it is difficult to use only porphyrins as a biomarker in a population survey carried on without doing further studies. To conclude, whatever epidemiological studies are, the urinary and toenail biomarkers are useful to provide indications of internal dose.

Skin, toxicity, chronic, detection

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