عنوان مقاله:

Chronic oral arsenic exposure and its correlation with serum S100B concentration

محل انتشار:

پانزدهمین همایش سراسری سم شناسی ایران (سال: 1398)

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خلاصه مقاله:

Introduction: Since industrial revolution heavy metals exposure have been raised in human societies. Arsenic is one of the most important environmental pollutants especially in drinking water. The S100B protein is presented as a sensitive biomarker for assessment the Blood Brain barrier integrity previously. The objective of this study was to determine the impact of chronic arsenic exposure in drinking water and serum S100B correlation.Methods: Fifty-four male BALB/c mice were randomly divided into three groups. Group I and II subjects were treated with arsenic trioxide (1ppm and 10 ppm, respectively) while, the negative control group was received normal drinking water. At the end of 4, 8 and 12 weeks of exposure arsenic concentration in serum and brain was measured by an atomic absorption spectrometer (Varian model 220-Z) conjugated with a graphite furnace atomizer (GTA-110). Also, a serum S100B protein concentration was determined using commercial ELISA kit during different time of exposure.Results: It was observed that body weight gain was significantly lower from 10th weeks onwards in arsenic treated subjects. However, it did not induce any visible clinical signs of toxicity. Measured arsenic level in serum and brain was higher in espoused groups as compared to the control subjects ($p < 0.001$ and $p < 0.0001$, respectively). In addition, serum S100B content was increased over a period of three months and had significant differences as compared to the control and 1 ppm group especially after 3 months of exposure in 10 ppm treated group ($p < 0.0001$).Conclusion: In conclusion, it could be inferred that long term arsenic exposure via drinking water leads brain arsenic accumulation with serum S100B elevated concentration as a probable BBB disruption consequence.

کلمات کلیدی:

Arsenic, Blood Brain Barrier, S100B, Serum, Heavy metals