Lead: The Toxic Truth—Awareness and Enforcement of Laws—The Need of the Hour

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Lead is a cumulative toxicant which affects multiple organs, particularly, in young children. Hundreds of millions of children and pregnant/lactating women are exposed to lead through multiple routes. According to new research, around 1 in 3 children, up to approximately 800 million globally have blood lead levels at or above 5 µg/dL. As per the Institute for Health Metrics and Evaluation (IHME), lead exposure (2019) caused 0.9 million deaths, 21.7 million years' healthy life lost (DALYS), and 62.3% of idiopathic developmental intellectual disability worldwide most of it in low- and middle-income countries [1, 2].

Though the current Center for Disease Control blood lead reference value is 3.5 µg/dL, there is no known safe blood lead level without harmful effects [3]. Lead in gasoline phased out all over the world in July 2021 and in India way back in the year 2000; still, lead contamination in environment occurs through sources like lead in paints, water, soil, consumer products, foods, traditional medicines, pottery/dishes, and cosmetics.

Ramesh et al. [4] did a commendable work on elevated blood lead levels [EBLL (> 10 µg/dL)] and its association with various risk factors, specially its relation to immediate household environment. The risk factors observed in children were: living in recently painted homes (< 5 y), old homes (> 10 y), low birth weight (LBW), and the use cosmetics. These findings reconfirm that paints and cosmetics are the major sources of lead. As lead compounds in paint taste sweet, children tend to lick or chew paint chips/chalky residues. A single chip size of thumbnail (1 g) can raise lead level 1000 times the accepted limit. In 2016, the Government of India brought a legislation for regulations on 'lead contents in household and decorative paint' that needs to be reinforced.

LBW as risk factor is an interesting finding; as there is a paucity of literature, long-term follow-up studies will confirm the answer. The finding of high lead levels in drinking water is of concern, though statistically not significant. This highlights the need for the Government to take necessary action to replace old water pipes/legislation on PVC pipes and also need to enforce Bureau of Indian Standards (BIS) for lead in drinking water (< 0.01 µg/L). Though the authors took many other factors into consideration for analysis including father's occupation, number of time houses were swept/washed but could not find the significant association probably because of the smaller sample size or difficulty in ideally collecting the sample.

Lead irreversibly damages children's brain and nervous system, and many other organs. This undermines children's future potential, and in turn, results in a decline in the creative and economic productivity of the entire society. Lead exposure not only reduces the IQ levels but lowers socioeconomic status too; it costs India US \$ 236 billion, annually [5].

Prevention of lead exposure is paramount. Preventing children, pregnant and lactating mothers from exposure to high-risk sites and ensuring adequate health services and nutrition can help in mitigating the impacts of lead exposure. Public awareness, behavioral change, and stringent reinforcement of existing laws is the need of the hour. Finally, child health professionals need to understand the importance of lead poisoning, special susceptibility of children, the potential development of behavioral and cognitive effects, and risk reduction interventions at household and community level.

Declarations

Conflict of Interest None.

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