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Blood lead level in children of Kolkata

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Background: Lead toxicity accounts for about 0.6% of the global burden of disease (WHO 2009). A published draft report on Site Assessment of Lead Pollution at an area of Kolkata (having lead smelters) on July 2006, stated high lead level in water, soil, solid waste and air particle. We conducted a health check up camp for children of that area in 2015 and collected blood samples. In our hospital, we also got 2 sporadic cases of lead toxicity with frank features of poisoning including lead lines in x-ray.

Aims & Objectives: To conduct a field study to evaluate blood lead level in children residing in contaminated area of Kolkata and to look for effect of BLL on hematological parameters.

Materials & Methods: This was a cross sectional observational study on 50 children of age group 1-12 years, who attended the camp. BLL was estimated by Atomic Absorption Spectroscopy (AAS) using graphite furnace atomic absorption spectrometer.

Results: The median age of the population was 8 years with higher proportion of males (58%). Median BLL was 4.55 µg/dl and 24% (n=12) of these children had BLL above the CDC recommended cut off value of 5 µg/dl. However, none of the children had BLL >10 µg/dl or anemia (mean hemoglobin of 12.3 g% with normal RBC indices). This is expected as previous studies have clearly shown the association of lead and anemia is only at BLL >10µg/dl though hemoglobin level showed a negative linear dose-response relation with lead level using scatter plot.

Conclusion: In our study even at known contaminated area, none had BLL exceeding the CDC intervention level. This may be due to lead free gasoline, a principle source of lead exposure, is not in use for more than 15 years. This indicates a positive impact of measures taken regarding lead poisoning. But both the sporadic cases were from households engaged in hazardous occupation at home settings, where children had direct daily exposure and these children are more vulnerable to poisoning. These 'HOT SPOTS' or 'POCKETS' are needed to be identified and further research is justified.

Biography

Kakali Roy has completed her MBBS from West Bengal University of Health Sciences and Post-graduation in Pediatric Medicine from Institute of Child Health, Kolkata. She is now working as Senior Resident at India's premier institute, All India Institute of Medical Sciences, New Delhi. She has published 3 papers in reputed journals and has presented paper at International Conference of Emerging Infectious Disease, Georgia, USA.

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