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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). There are studies from different cities of India, showing high blood lead level (BLL) in children, but no published data from Eastern India. We did this study at a tertiary hospital at Kolkata, a metropolitan city of India.

Aims & Objectives: To study the blood lead level in children with hypochromic microcytic anemia, and to find out the co-relation between blood lead level and anemia in these patients.

Materials & Methods: This was a cross sectional observational study conducted at Institute of Child Health, Kolkata, India, during the time of February 2013 to August 2015. Ninety (90) children with hypochromic microcytic anaemia, of age group 6 months to12 years were included. Blood lead level of these children was estimated by atomic absorption spectroscopy (AAS).

Results: The median blood lead level of the studied population was 1.79 μ g/dL (IQR: 1.46-2.61). Majority (n=83, 92.2%) had BLL below the CDC recommended cut off value of 5 μ g/dl. Only few children (n=7, 7.8%) had BLL >5 μ g/dl; however, no association could be established with the variables studied due to the small number of children with relatively high BLL. Sporadic cases (n=2) of lead poisoning were reported during the study period showing that children in households engaged in hazardous occupation (in relation to lead toxicity) are vulnerable to poisoning.

Conclusion: Lead poisoning is not a common cause of hypochromic microcytic anaemia in children residing in and around Kolkata and anemia is unlikely to be associated with BLLs <10 μ g/dl. The low BLL may be due to lead free gasoline, a principle source of lead exposure is not used for more than 10 years or the study sample may not represent the high risk population. 'POCKETS' of potential lead poisoning or 'HOT SPOTS' in Kolkata are needed to be identified and further research is justified

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