

## **Lead Poisoning in Children: A Barometer of Environmental Pollution**

Lead is a well known cause of encephalopathy in children, which often results in death or permanent neurological sequelae. Even in the absence of encephalopathy, symptomatic lead poisoning may be followed by major intellectual deficits. Conversely, some children are asymptomatic even at high blood lead levels(1,2).

A prospective study was undertaken from January 1993 to December 1993 to assess the serum lead levels in cases with compatible clinical presentation of probable lead poisoning at the Childs Trust Hospital, Madras. Out of the total admission of 4190 medical cases, 45 cases fitted the protocol of probable lead exposure/poisoning. Lead poisoning as the causative agent was arrived at by a process of elimination of other causes like encephalitis, meningitis, peripheral neuritis, colitis and metabolic possibilities, *etc.* and by the presence of some constellation of symptoms suggestive of lead exposure. Two ml of serum was sent for lead level estimation to RSIC Laboratory, IIT Campus, Madras. The method used was Atomic Absorption Spectroscopy. Out of these 45 cases whose blood lead levels were estimated, 12 children had significantly higher blood lead levels ( $>20\mu\text{g}/\text{dl}$ ). The data when analyzed revealed the lead levels as  $20-40\mu\text{g}/\text{dl}$  in 5 cases,  $40-60\mu\text{g}/\text{dl}$  in 1 case, and  $60\mu\text{g}$  and more in 6 cases ranging in age from 1 to 12 years.

The children who had significantly higher levels of lead, received D-Penicillamine ( $30\text{ mg/kg/day}$ ) for 2 weeks. After treatment, the observed lead levels came down along with clinical improvement. The follow-up for the next 6 months revealed that these children were normal.

The physiological blood lead level is  $0.0\mu\text{g}/\text{dl}$ . Therefore, any amount of lead present in blood is an evidence of lead exposure. The 1991 CDC Guidelines recommend a blood lead level of  $>10\mu\text{g}/\text{dl}$  as evidence of significant lead exposure. From an environmentalist's point of view, association of high lead levels in children admitted for various other causes thus forms a barometer of environmental pollution(3).

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