

Dental Fluorosis and the extended health effects in children: Guidelines for rectification and improving the well-being of children.

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Ground water contamination with fluoride is a problem causing scarcity of safe water (with $F^- < 1.0$ mg/l) for human consumption in India and other developing countries. The objective of this communication is to highlight the health issues emanating in children as a result of fluoride poisoning. Dental Fluorosis is a warning to suspect a variety of other health issues which have disastrous consequences on the growth and development of the children. Children with Dental Fluorosis have been investigated for:

- i. Thyroid hormone levels. Fluorosis and iodine deficiency disorders (IDD) co-exist. The primary cause of IDD may not be always due iodine deficiency; but it can be induced by F^- poisoning. Prevention and control of Fluorosis and IDD therefore require an integrated approach for diagnosis and patient management contrary to the existing practises. Children with Dental Fluorosis living in endemic area of Fluorosis may have thyroid hormone derangement that requires special care and attention.
- ii. Rickets but would not respond to treatment i.e. drug resistant category. Fluoride is withdrawn from consumption and gastric mucosa and microvilli regenerate so that orally administered calcium and vitamin D are absorbed and Rickets rectified in children.
- iii. Anemia in children with hemoglobin < 12.0 g/dl. Diet editing and Diet counseling called for, for improving the health of such children. The results of 2500 school children aged 10-17 investigated upon fluoride poisoning and anemia rectified.
- iv. Low IQ may be due to sub-normal brain development. The presentation is focusing on the above, the extended health effects of children following ingestion of fluoride more than 1.0 mg/l for a long period which may commence from intra-uterine life, fluoride entry through maternal blood. The guidelines for addressing of the above health issues are highlighted in the presentation.

In all the 4 categories of ailments in children due to fluoride poisoning besides detecting Dental Fluorosis, estimation of fluoride in drinking water, urine are indeed necessary to assess the situation correctly for introducing interventions besides therapeutic modalities.