

EDITORIAL

ANOTHER FLUORIDE FATALITY: A PHYSICIAN'S DILEMMA

In the October 1978 issue of Fluoride (1) two fatalities due to acute fluoride poisoning were reported which resulted from a widely held, but mistaken, opinion of physicians and dentists concerning the toxicity of fluoride. Relying on outdated textbook data, the physicians involved in these cases underestimated the magnitude of fluoride's toxic action.

In response to the editorial, the editor received a communication from the parents of another fatal case, that of a 27-month-old boy (A.J.B.) who expired under similar circumstances, i.e. due to a faulty estimate of the toxicity of fluoride.

After the child had swallowed an unknown number of fluoride tablets he was promptly taken, in an unconscious state, to a physician's office where gastric lavage yielded 4 tablets. The physician advised the parents to take the still unconscious child home with the assurance that he needed no further treatment and that "he would be okay". Three and a half hours later, when respiratory failure began to develop, the child was admitted to the Mater Misericordiae Children's Hospital, South Brisbane, Australia, where he expired 5 days later (May 15, 1973). The death certificate #41182 of the Brisbane District, State of Queensland, carried the diagnosis "Fluoride Poisoning". At the hospital the physicians and nurses also assured the parents that it would take "200 to 500 tablets to make him so sick". Actually the bottle had contained less than 100 tablets.

Two factors may have contributed to this fatality: The mother, on the advice of the hospital, had been taking fluoride tablets during her pregnancy and the child, on the advice of the Welfare Clinic, had been given fluoride tablets (0.5 mg) daily for 15 months prior to his death. Both measures, combined, undoubtedly contributed to an excessive fluoride load in the child's body and therefore to a lowered tolerance to additional doses.

Why do physicians fail to correctly evaluate the toxicity of fluoride? Most textbooks rely on the now outdated views of Smith and Hodge who 25 years ago designated 5 to 10 g of fluoride the fatal toxic dose (2).

Only recently (3) the Journal of the American Dental Association warned editorially against the use of fluoride supplements in infancy and early childhood presumably because of dental mottling. Unfortunately this editorial did not spell out clearly that doses of 0.5 mg or less can cause hemorrhages in the stomach (4), and bowels (5), atopic dermatitis (6), and other serious disabilities (7).

Similarly an editorial in the Journal of the American Medical Association (8) warned against the use of massive doses of fluoride in the treatment of osteoporosis but failed to indicate the potential harm of this medication. Therefore, neither editorial presents sufficient data to convince physicians and dentists that this drug is hazardous in doses formerly considered safe.

Administration of fluoride to pregnant women for prevention of tooth decay in the newborn has also been abandoned ostensibly because of its ineffectiveness (9). Unfortunately the danger of this treatment to the fetus and newborn is rarely mentioned in the available literature.

Moreover, many clinicians still adhere to the theory that the placenta forms an effective barrier which protects the fetus and newborn from damage by fluoride consumed by the mother. Teotia in this issue, page 58, shows that fluoride naturally in drinking water of pregnant women (21 and 1.5 mg/day) penetrates the placental barrier. Waldbott (10) showed that a newborn infant who expired shortly after birth with calcifications of arteries had stored 59.3 ppm fluoride in arteries, 5.85 in lungs, 2.86 in the thymus, 0.85 in kidneys, 0.81 in the heart. The mother's main known source of fluoride intake had been artificially fluoridated water. Newborn calves exhibit evidence of dental fluorosis in an endemic area (this issue page 100). Thus there cannot be any doubt that toxic amounts of fluoride pass through the placenta.

All these facts point to the urgent need for a thorough re-evaluation of all available data on the toxicity of fluoride. Life can be saved in poisoning from even larger doses than those generally considered toxic provided that prompt and efficient therapy is instituted (11). However, this can only be accomplished if physicians are made aware that fluoride must be used with extreme caution.

Bibliography

1. Editorial. Toxicity of Fluoride. *Fluoride*, 11:163-165, 1978.
2. Hodge, H.C. and Smith, F.A.: Some Public Health Aspects of Water Fluoridation. In *Fluoridation as a Public Health Measure*, Shaw, J.H., (Ed.), A.A.A.S., 1954, p. 80.
3. Editorial. Concern about Dietary Fluoride Supplementation. *J.A.D.A.*, 96:1158, 1978.
4. Waldbott, G.L., Burgstahler, A.W. and McKinney, H.L.: *Fluoridation: The Great Dilemma*. Coronado Press, Lawrence, Kansas, 1978, p. 359.
5. Shea, J.J., Gillespie, S.M. and Waldbott, G.L.: Allergy to Fluoride. *Ann. Allergy*, 25:388-391, 1967.
6. Feltman, R. and Kosel, G.: *Prenatal and Postnatal Ingestion of Fluorides - Fourteen Years of Investigation - Final Report*. J.

- Dent. Med., 16:190-199, 1961.
7. Reference #4, pp. 110-126.
 8. Editorial. Restraint in Use of High-Dose Fluorides to Treat Skeletal Disorders. J.A.M.A., 240:1630-1631, 1978.
 9. Federal Register, Oct. 20, 1966, Vol. 31, No. 204.
 10. Waldbott, G.L.: Hydrofluorosis in the U.S.A. Fluoride, 1:94-102, 1968.
 11. Abukurah, A.R., Moser, A.M., Baird, C.L., Randall, R.E., et al.: Acute Sodium Fluoride Poisoning. J. Am. Med. Assoc., 222:816-17, 1972.

G.L.W.
