HIDDEN PIECES IN THE PUZZLE OF FLUORIDE POISONING

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“A history of enigmatic descriptions... in the medical literature has allowed [fluoride poisoning] to become one of the most misunderstood, misdiagnosed, and misrepresented health problems in the United States today.” So begins a new article titled “Fluoride Poisoning: A Puzzle with Hidden Pieces” by Phyllis J Mullenix, PhD, abstracted on pages 328–329 in this issue of Fluoride.

In his recent book The Fluoride Deception, reviewed earlier in Fluoride, Christopher Bryson presents a telling account of Mullenix’s own experimental research on neurotoxicological effects of fluoride and the puzzling nature of studies, both published and unpublished, on environmental and occupational fluoride poisoning.

In her new article, Mullenix develops a penetrating analysis of industrial data, in part only recently revealed, which years ago should have played a role in setting occupational safety standards for airborne fluoride. These data demonstrate that gaseous and particulate fluorides are deleterious respiratory tract irritants at exposure levels lower than those affecting the skeleton and, even acting alone, can cause serious clinical disease.

She presents three examples of the failure of researchers to publish important data in the open medical literature. Her “puzzle pieces” concern health effects due to inhalation of fluorides and dermal exposures to them. The first two examples compare published and unpublished injury reports among uranium hexafluoride workers engaged in the development of the atom bomb and atomic energy. The third example concerns the effects of long-term inhalation of fine particles of calcium fluoride by dogs—a study carried out by Davis et al. at the Kettering Laboratory and funded by a group of fluoride industries but never published.

For each of these studies, Mullenix details what she found in both the published and unpublished literature. Her tables summarize salient hazards concerning disabling injuries from uranium hexafluoride and fluorine and pertinent parts of the inhalation study by Davis et al. For the unique Davis study, Mullenix provides a table of the design features and another table on the exposure results. The findings of this study, which were suppressed for almost a half-century, greatly enhance our understanding of the threshold respiratory effect of fluoride and provide crucial evidence that links lung damage to particulate airborne fluoride acting apart from uranium.

Mullenix also documents misrepresentation by the American Dental Association through its journal, wherein serious distortions in a dental study of workers in the Manhattan Project were reported that differ significantly from the findings in the original unpublished report.

From the data she has assembled, Mullenix argues for a return to more stringent exposure standards for airborne fluoride and fluorine. These changes consist in reductions of occupational standard for airborne fluoride from 2.5 mg/m³ to 1.0 mg/m³ and the current threshold limit value of fluorine from 1 ppm or 1.6 mg/m³.
to 0.1 ppm. They also include recognition of respiratory and dental problems as occupational risks of fluoride exposure that merit appropriate compensation for damage to health.

If these changes were to be implemented, they would not correct past and present injustices to affected individuals. Moreover, it is unlikely they would punish those who were complicit in carrying out the deception that both Mullenix and Bryson found has taken place in the interests of facilitating and protecting industrial uses of fluoride at the expense of our ability to prevent, diagnose, and treat fluoride poisoning.

In concluding her paper, Mullenix summarizes her case as follows: “Review of unpublished information regarding the effects of chronic inhalation of fluoride and fluorine reveals that current occupational standards provide inadequate protection. Medical information needed to minimize the risks of fluoride poisoning in an occupational setting was kept from the entire medical community. The manipulation and omission of important data set the course for gross underestimation of the number of cases of fluoride poisoning in the United States. Regulatory change is needed immediately to correct past distortions and restore confidence that harmful inhalation exposures to fluoride and fluorine are prevented.”

This reassembly analysis of hidden pieces of the fluoride puzzle represents a major step toward resolving the apparent enigma surrounding fluoride poisoning and is a significant and an important contribution to the field of occupational and environmental health.

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REFERENCES