

LEAD POISONING— THE SILENT EPIDEMIC

Lead poisoning, once an occupational disease of painters and a hazard to moonshine drinkers, is now approaching epidemic proportions in the nation's ghettos. The problem, is well defined, neatly packaged with cause and cure known.

Children naturally put odds and ends into their mouths, and in older houses where maintenance has been virtually nonexistent and where leaded paint chips are readily available, the result can be lead poisoning. Fortunately, leaded paint has not been widely used on interior surfaces for nearly 30 years.

City health departments recognize plumbism as a silent epidemic and have launched screening programs to detect lead poisoning before the symptoms become evident. When plumbism is detected, the child is treated with chelating agents such as BAL and EDTA.

Before chelation therapy was developed, more than 60% of the plumbism cases were fatal. Today, less than 5% of the reported cases are terminal, but a large number of the victims suffer from brain damage.

While the cause and cure of plumbism are well known, diagnosis is more difficult. For example: lead elevation in blood is easily

measured, but is transitory and declines when ingestion stops; lead is stored in calcified tissue such as bone and bone biopsy is not a practical method for testing children on a large-scale basis.

Three scientists—Herbert L. Needleman from Harvard Medical School and Orhan C. Tuncay and Irving M. Shapiro from University of Pennsylvania—recently reported a practical method for identifying children with raised body levels of lead. They collected the exfoliated, primary teeth from dental clinics serving children from the "lead belt," of Philadelphia and determined the lead content of 69 teeth by atomic absorption spectrophotometry. Their calculations showed that the average lead per tooth was 51 plus or minus 109 parts per million (ppm). None of the teeth from the inner city children showed levels of lead less than 2 ppm.

In contrast, the mean tooth lead in deciduous teeth collected from dentists serving suburban children was 11.1 plus or minus 14.8 ppm. Twenty-five percent of the deciduous teeth contained 2 ppm or less of lead, and 10% had levels too low to be detected by atomic absorption spectrophotometry. Obviously, plumbism is virtually nonexistent in the suburban areas.

It was pointed out by the three

scientists that the differences in their findings at the lower end of the scale suggest that city children are also exposed to a higher level of lead in the atmosphere than children in the suburbs. Plumbism in zoo animals has also been traced to atmospheric lead. Victims ranged from reptiles to primates, with the cats especially vulnerable because they lick off the lead that settles on their fur as well as breathe lead in the air. The combustion of leaded gasoline is the major source of atmospheric lead.

In areas where children eat leaded paint, lead levels in teeth were high; in areas where children are not exposed to leaded paint,

tooth levels were low. On the basis of these findings, it is now under way to study neurological and functions of children who have brain damage.

In some areas leaded paint is still used by furniture makers to decorate toys, furniture. Safety-conscious retailers of these items urge Foster D. Snell, a chemist for lead and other metals. Snell uses atomic absorption technique described by Needleman et al. (*Nature* 235: 111) for measuring lead in teeth.

HYPERAUREOTACTOSIS

Remember old Midas and his rare disease—hyperaureotactosis. Everything he touched changed to gold. Eating was no fun when his teeth cracked on a solid gold lamb chop. He finally sought a cure after Miss Midas was transmuted into element number 79.

Some of our clients, because of things we have done for them, seem to think that we at Snell are also infected with hyperaureotactosis. Well, we are not that unfortunate (fortunate)? We can't solve

every problem or every R&D idea into

What we do is find a way to do it. Our people are a touch of modern science in their attempts to produce successful new products for you, to find a solution to your problem, to supply the knowledge you need to understand the situation and sell so that you can compete with others.

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