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## Fluoridation and Hip Fractures

by John R. Lee, M.D.

The costs and health effects of osteoporotic fractures in the US are enormous. The total cost of fracture care is now about \$9 billion/year. It is estimated that about 350,000 hip fractures occur per year and the incidence is rising.

A study by the University of Iowa's Department of Preventive Medicine and Environmental Health, calculated that the lifetime risk of a fracture of the hip, spine or distal forearm is almost 40% in white women and 13% in men from age 50 years onward. Hip fractures account for 87-100% of fracture-related nursing home placements and 87-96% of short-term fracture costs.

In an effort to treat osteoporosis and prevent hip fracture, some doctors administer "therapeutic" doses of fluoride. Four US studies have examined the effect of these "therapeutic" doses and all of them found that, even though bone density appeared to increase, hip fracture rates increased within three years of treatment. In addition, all reported significant periarticular joint pain and gastrointestinal side effects in the treated subjects.

Dr. L. V. Avioli, Shoenberg Professor of Medicine at the Washington University School of Medicine, concluded that "sodium fluoride is accompanied by so many medical complications and side effects that it is hardly worth exploring in depth as a therapeutic mode for post-menopausal osteoporosis." Dr. Saul Genuth, chairman of the FDA advisory committee that analyzed the fluoride/fracture findings, was quoted in the Medical World News as saying the FDA "should quietly forget about fluoride."

More recently, attention has shifted to lower dosages of fluoride, such as found in fluoridated water. There are now at least eight studies that showed an increase of hip fracture incidence in fluoridated communities. They are summarized here:

In 1986, M.R. Sowers et al, in a retrospective study, found an increased fracture rate in both pre- and postmenopausal women relative to their water fluoride exposure.

In 1991, M.R. Sowers et al completed a prospective study again showing that water fluoride was

correlated with more than double the unfluoridated fracture rates.

In 1991, Jacobsen et al showed a very strong positive correlation of hip fracture to fluoridation.

In 1991, C. Cooper et al showed a statistically significant increase of hip fracture incidence in England relative to fluoride content of drinking water ranging from 0 to 1 mg/L [ppm].

Also in 1991, C. Keller compared hip fracture rates in 216 US counties with natural fluoride concentrations in drinking water and found significantly higher fracture rates in counties with fluoride levels of >1.2 ppm.

D.S. May and M.G. Wilson reported finding that, as the percentage of persons exposed to fluoride in water increased, the hip fracture rate generally increased.

In 1992, C. Danielson et al reported that the risk of hip fracture was approximately 30% higher for women and 40% higher for men in fluoridated communities. Among women at age 75, the risk was about twice as high in fluoridated communities.

In 1995, H. Jaqmin-Gedda et al, scientists from the University of Bordeaux, France, studied hip fracture rates in 75 civil parishes in southwestern France and found (after adjustment for multiple alternative variables) an increased risk [odds ratio] for hip fracture of 1.86, i.e., 86% more likely, in parishes with water fluoride levels higher than 0.11 ppm.

In addition, a number of studies suggest fluoride induces pathologically mineralized bone and a deterioration in the overall strength of bone. A 1994 report by P. Fratzi et al in the Journal of Bone & Mineral Research described abnormal bone mineralization after fluoride treatments. In that same year, C.H. Sogaard et al reported a marked decrease in trabecular bone quality after just five years of sodium fluoride therapy. Pediatric orthopedists are finding that, here in the US, sports injuries to the young are rising sharply - ranging from stress fractures of the lower spine in young gymnasts to tendonitis in swimmers.

In 1992, orthopedic surgeon Carl L. Stanitski observed: "We are seeing more and more stress fractures in children and more and more injuries caused by repetitive use." Some might argue that overuse and too much training are the cause, but others are concerned that something is causing defective bone and connective tissue of US kids, and that something might well be fluoridation.

Conclusion: All studies of fracture rates relative to long-term fluoridation exposure indicate a significant increase in fracture risk from fluoridation. The increased fracture risk due to fluoridation appears to range from 40-100%, depending on the age of the subjects studied. For women in their seventh decade who have been exposed to life-long fluoridation, the risk of hip fracture is approximately doubled. The risk increases with fluoride concentration at all levels over 0.11 ppm. Increased bone and connective tissue injuries of US youngsters should alert us to the probability that our high fluoride environment is adversely affecting our youngsters as well as our elderly.

John R Lee, MD, is the former director of the Marin Medical Society in California and the author of Optimal Health Guidelines, Optimal Fluoridation and Gilbert's Disease and Fluoride Toxicity. The full text of this article was published in the research journal, Fluoride (Vol. 26 No. 4, pages 274-277, 1993).

#### JAMA on Fluoride and Hip Fractures

"Hip Fractures and Fluoridation in Utah's Elderly Population,' a study by C. Danielson et al [Journal of the American Medical Association, August 12, 1992, 268:746-8], compared the incidence of femoral neck fractures in a community with long-standing water fluoridation (to 1 ppm) with the incidence in two communities without water fluoridation (less than 0.3 ppm). The findings of this report support other epidemiologic studies suggesting that fluoride increases the risk of hip fracture."

- Journal of the American Medical Association

"A review of recent scientific literature reveals a consistent pattern of evidence - hip fractures, skeletal fluorosis, the effect of fluoride on bone structure, fluoride levels in bones and osteosarcomas - pointing to the existence of causal mechanisms by which fluoride damages bones.... [Fluoridation] proponents must come to grips with a serious ethical question: is it right to put fluoride in drinking water and to mislead the community that fluoride must be ingested, when any small benefit is due to

the topical action of fluoride on teeth."

- Australian and New Zealand Journal of Public Health, 1997