The Failure of Fluoridation in Chile. A Critical Analysis after Eleven Years

by

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Fluoridation has acquired the unenviable distinction of having become the most controversial issue in the history of dentistry. In one country after another throughout the world, wherever water supplies have been fluoridated or wherever fluoridation has even been considered, it has been vigorously opposed by increasing numbers of dentists, physicians, public health officials, biochemists, physiologists, and other professional and scientific workers. These opponents claim that fluoridation is not safe and that it does not really prevent dental caries. They say that fluoride, at the most, merely retards or delays the appearance of tooth decay for a period of one, two, or perhaps three years. This is certainly not prevention in the true sense of that word.

In Chile, fluoridation was first introduced in 1953 in the city of Curico[1]. Twelve years later, 65% of the entire Chilean population was being fluoridated[2]. In its official report of 1964, after eleven years of fluoridation, the National Health Service of Chile concluded that fluoridation had markedly decreased the incidence of dental caries in that country[3]. But many people in Chile disagree with the National Health Service. So, in Chile, as in other countries throughout the world, fluoridation has become a highly controversial issue. On December 19, 1966, Dr. Adolfo BRINER of the National Health Service publicly acknowledged the growing opposition to fluoridation, but did not succeed in convincing critics that fluoridation was safe and effective[4]. On January 18, 1967 Dr. Hugo SIEVERS, President of the Scientific Society of Chile, warned of the dangers of fluoridation and urged that it be stopped at once[5].

A scientific debate of fluoridation is scheduled to be held in Santiago, Chile, on April 28, 29 and 30, 1967, under the joint auspices of the Scientific Society of Chile and the Chilean Society of Bromatology, Nutrition, and Toxicology.

Each country differs in certain respects from other countries. These differences must be recognized, considered, and evaluated before any public health measure that is used in one country is adopted by another country. Unfortunately, the National Health Service of Chile introduced fluoridation into that country without previously studying conditions that are unique to Chile. In other words, the National Health Service first began to fluoridate. Then, when it encountered criticism, it attempted to justify what it had already done by conducting the kinds of studies that it should originally have carried out before it went ahead with fluoridation. But the results which are now available after eleven years conclusively show that fluoridation is a complete fiasco.

The Chilean population was fluoridated long before 1953, when the National Health Service began to artificially fluoridate the community water supply of Curico.

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A nutritional survey of Chile, carried out in 1935 under the League of Nations [6], reported that tea consumption was unusually high in Chile, especially among poor people whose teeth are particularly rotten. Even young children in Chile drink tea daily. According to the International Tea Committee [7], the consumption of tea has doubled since 1936–1938. A single cup of tea can provide one milligram of fluorine [8]. It has been shown that the amount of fluoride in human bones is directly related to the amount of tea that is consumed [9]. But Chileans also drink, on the average, 137 grams of wine per day [10]. This quantity of wine alone can provide up to 4.9 milligrams of fluoride [11, 12]. The coffee which Chileans also consume in large amounts may be prepared from coffee beans containing as much as 243 parts per million of fluorine, 31% of which is extracted during the percolation process [13]. Seafood, which many Chileans eat, has a high fluorine content.

From these and other sources, the Chilean population had therefore been getting one milligram or more of fluorine per day for many years before the fluoridation program was started by the National Health Service. Consequently, the very high incidence of caries in Chile, which is why fluoridation was introduced in 1953, conclusively proves that fluoridation does not and cannot prevent caries, at least in Chile. This is understandable since one would not expect artificial fluoridation to do what natural fluoridation had been unable to accomplish. This, in turn, poses an interesting question: — Since fluoridation does not prevent caries in Chile, why would it be effective in any other country? (We will concern ourselves with fluoridation in other countries at a later date).

Our interpretation of the official report of the National Health Service of Chile reveals that eleven years of fluoridation have not decreased the incidence of dental caries in Curico. This is the first city that was fluoridated in 1953. Because the National Health Service concluded that fluoridation prevented tooth decay in Curico, it then went ahead and fluoridated other cities until now 65% of the entire population of Chile is being fluoridated.

If the statistics compiled by the National Health Service are not reliable, then there is no basis whatsoever on which that agency can justify its fluoridation program in Chile. If, on the other hand, the data are reliable, then they clearly show that there is an unidentified factor in Curico which prevents caries, and that this factor operates independently of the fluoride added to the water supply. Because of this unknown factor, there is really no valid and acceptable "control" city in the strict sense of the word, and the entire eleven year fluoridation program in Chile is therefore scientifically invalid!

According to the official report issued by the National Health Service [3], the data for DMF (decayed, missing, and filled teeth) in the first permanent molars of eleven and fourteen year old children in Curico show that the decrease in caries is entirely due to this as yet unidentified factor and that fluoridation had no effect at all on caries. The eleven year old children were born in 1953, when fluoridation was started. Consequently, the enamel of their first permanent molars was calcified in the presence of fluoride. But in the case of the fourteen year old children, the enamel of their first permanent molars was already calcified by 1953, and could therefore not have been affected by fluoridation. Nevertheless, the decrease in caries of the first permanent molars, as reported in 1964 by the National Health Service [3], was exactly 31% for both age groups. This effect could therefore not possibly have been due to
fluoridation, but was caused instead by some anti-caries factor that was operative before and during fluoridation.

Eleven years of fluoridation have already produced harmful effects in Curico because 13% of the eight to nine year old boys in that city now have mottled enamel. All responsible authorities agree that mottled enamel is the earliest symptom of fluoride poisoning. Despite the fact that the National Health Service of Chile officially reported this amount of mottled enamel in Curico, the Journal of the American Dental Association has stated that no mottling occurred in Curico! [14]. One therefore wonders about the reliability of other information concerning fluoridation which appears in the Journal of the American Dental Association!

Since fluoridation is uneconomical, it is something which a country like Chile cannot afford. For example, the National Health Service reported that the annual cost of fluoridation in the Province of Santiago amounts to only $E^{0.074}$ per person [15]. Although this may be true arithmetically, it does not represent the true cost of the fluoridation program. To fluoridate the water in the Province of Santiago requires $E^{109,000}$ worth of fluoride each year, exclusive of other expenses [15]. But children up to the age of twelve, who are supposed to be benefitted by fluoridation, are only a part of the total population that is fluoridated and drink only a small percentage of the fluoridated water. Simple calculations from population data [16] and the amount of water fluoridated in the Province of Santiago [15] show that less than $E^{100}$ worth of fluoride is consumed each year by children up to the age of twelve. All the rest of fluoride and all the rest of the $E^{109,000}$ are wasted.

But the true cost of fluoridation is even greater than this. There are now many people in the National Health Service and other agencies whose positions depend on fluoridation. These people continue the present fluoridation program, write reports about the alleged benefits of fluoridation, try to fluoridate more and more communities, write still more reports, travel abroad to tell the world about fluoridation in Chile, etc. Obviously, the salaries, retirement pensions, and other expenses of all these people engaged in such activities must be included in calculating the true cost of fluoridation.

Such considerations reveal that fluoridation has accomplished the following three things in Chile:

1. Since fluoridation has not prevented caries, it has actually increased the cost of dental care. People in Chile still have to pay the same amount of money for the same amount of dental treatment, but now they are also paying the additional cost of fluoridation over a period of many years.

2. Fluoridation has created still another bureaucracy within the National Health Service.

3. Only two groups are really benefitting from fluoridation in Chile. These are as follows: (a) the commercial companies which sell fluoride to Chile, and (b) those individuals in the National Health Service and other agencies whose positions were created by fluoridation and now depend on the continuation of this program.

It is of the utmost importance that the entire fluoridation program in Chile be stopped immediately and re-evaluated. But such a study must be carried out by an independent group which has heretofore not been involved with that program. Any objective re-evaluation of fluoridation cannot be conducted by people in the National Health Service or other agencies which now have a vested interest in continuing fluoridation. These people will not, after eleven years, suddenly reverse themselves and
admit that they have been wrong, especially when their professional reputations, their positions, their salaries, their retirement pensions, and the very existence of their bureaucracy now depend on the continuation of fluoridation.

References