Abstract

The aim of this work was to determine the natural fluoride concentrations in public water supplies in Piauí State, Brazil, in order to identify cities in risk for high prevalence of dental fluorosis. For each city, two samples of drinking water were collected in the urban area: one from the main public water supply and another from a public or residential tap from the same source. Fluoride analyses were carried out in duplicate using a specific ion electrode and TISAB II. From a total of 222 cities in Piauí, 164 (73.8%) samples were analyzed. Urban population in these towns corresponds to 92.5% of the whole state with an estimated population of 1,654,563 inhabitants from the total urban population (1,788,590 inhabitants). A total of 151 cities showed low fluoride levels (<0.30 mg/L) and 13 were just below optimum fluoride concentration in the drinking water (0.31-0.59 mg/L). High natural fluoride concentration above 0.81 mg/L was not observed in any of the surveyed cities. As a conclusion, most of the cities in Piauí have low fluoride concentration in the drinking water. The risk for a high prevalence of dental fluorosis in these urban areas due to natural fluoride in the water supplies is very unlikely. Thus, surveys about the dental fluorosis prevalence in Piauí should be related with data about the consumption of fluoridated dentifrices and other fluoride sources.

Keywords

Dental caries, Fluoridation, Surveillance, Dental fluorosis.