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Systemic effect of water fluoridation on dental caries prevalence.

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Abstract

OBJECTIVES:

The aim of this study was to evaluate the systemic effect of water fluoridation on dental caries prevalence and experience in Cheongju, South Korea, where water fluoridation ceased 7 years previously.

METHODS:

A cross-sectional survey was employed at two schools where water fluoridation had ceased (WF-ceased area) and at two schools where the water had never been fluoridated (non-WF area). The schools in the non-WF area were of a similar population size to the schools in the WF-ceased area. Children of three age groups were examined in both areas: aged 6 (n = 505), 8 (n = 513), and 11 years (n = 467). The differences in the mean number of decayed or filled primary teeth (dft) and the mean number of decayed, missing, or filled permanent teeth (DMFT) scores between areas after adjusting for oral health behaviors and socio-demographic factors were analyzed by a Poisson regression model.

RESULTS:

The regression model showed that the DMFT ratio for children aged 11 years in the WF-ceased area was 0.581 (95% CI 0.450-0.751). In contrast, the dft ratio for age 6 in the WF-ceased area was 1.158 (95% CI 1.004-1.335). Only the DMFT ratio for age 8 (0.924, 95% CI 0.625-1.368) was not significant.

CONCLUSIONS:

While 6-year-old children who had not ingested fluoridated water showed higher dft in the WF-ceased area than in the non-WF area, 11-year-old children in the WF-ceased area who had ingested fluoridated water for approximately 4 years after birth showed significantly lower DMFT than those in the non-WF area. This suggests that the systemic effect of fluoride intake through water fluoridation could be important for the prevention of dental caries.

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