Community fluoridation — are there benefits?

Changes in the percentage of 5-year-old children with no experience of decay in Dudley towns since the implementation of fluoridation schemes in 1987 by M. M. Gray and J. Davies-Slowik Br Dent J 2001; 190: 30-32

Objective
To compare changes in dental health between non-fluoridated Stourbridge and the towns of Dudley, Sedgeley and Coseley, Brierley Hill and Kingswinford, and Halesowen that were artificially fluoridated in 1987

Basic research design
BASCD co-ordinated studies of total samples of 5-year-old children

Clinical settings
State funded primary schools in the Dudley Health Authority area

Participants
All 5-year-old children present on the day of examination in the years in which total population studies were conducted

Interventions
Drinking water fluoridation commenced in 1987

Main outcome measure
The percentage of children with no experience of decay in their primary dentition

Results
The percentage of children with no experience of decay in the fluoridated towns increased but remained the same in non-fluoridated Stourbridge

Conclusion
Drinking water fluoridation is associated with an increase in the percentage of 5-year-old children with no experience of tooth decay

In Brief
- The issue of community fluoridation is relevant to everyone interested in improving dental health
- This paper illustrates clearly the benefits of fluoridation
- There are few other up-to-date articles demonstrating the benefits of community water fluoridation

Comment

In the 1980s, several water fluoridation schemes were started in the West Midlands. Although many data have been published from cross-sectional studies, this is the first publication to report specifically on the effect of one of these new schemes. It is important that evaluation of fluoridation schemes continue to be undertaken as this is the only way in which effectiveness or otherwise of this public health measure can continue to be assessed.

Surely, there is overwhelming evidence that water fluoridation remains the most effective method of preventing dental caries? The recently published systematic review of water flouridation by the Centre of Reviews and Dissemination of the University of York drew attention to the much smaller number of studies that were included in that review compared with the number the authors had anticipated. There were few prospective studies. Dr Gray's prospective study is one of the unpublished reports included in that review.

It compares whole populations of children aged five at three time points over 9 years in seven Dudley towns. The proportion of children with no dental caries increased in six towns, all of which were in the new fluoridation scheme. The remaining unfluoridated town showed an increase in the proportion of children with decay. In other words, dental health among those aged five improved where fluoride had been added to the water and deteriorated where it had not.

Might another factor have been responsible? The study design is only of moderate strength and it is, therefore, possible that something else happened that was responsible for the change in caries levels. The examiners were not blind to the children's fluoridation status and might have been influenced by this. Other confounding factors might have been responsible but the study design does not allow for their identification. However, given that the social class make-up of the communities (the most likely confounding factor) remained unchanged, over the time period, it is difficult to suggest another plausible alternative than that water fluoridation was responsible for the decline in caries.

This study found a marked reduction in the number of children affected by caries even against a presumed background of using fluoridated toothpaste. This paper provides evidence to support the use of water fluoridation as a public health measure in towns with moderate levels of caries.

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