Predicting pain in children with carious primary teeth

Objective

To provide a pain-predictive model for the non-operative management of carious deciduous teeth from the analysis of data from a retrospective analysis of clinical case notes of children regularly attending two general dental practices and receiving preventive care.

Design

A clearly defined protocol was used to determine the fate of deciduous teeth diagnosed as carious into dentine but symptomless and left unrestored from the sequential examination of the clinical records of 480 children attending at least annually.

Results

The age of the children at the first visit when carious teeth were diagnosed ranged from 0.8 to 12.3 years, with the majority of children (243/480) presenting by 6 years of age. In all, 250 teeth from 162 children were extracted because of pain or became painful and were treated. The remaining 318 children did not report pain on subsequent visits. The strongest predictor of pain was age on diagnosis, the other factors being tooth type and extent of the cavity when first seen. Data from the present study provides a model that enables a child with deciduous caries to be placed into one of six pain–predictive groups associated with a risk of pain or infection if the teeth are not restored but provided with preventive care only.

Conclusion

In these patients, the majority of unrestored carious deciduous teeth remain symptomless until shed. A higher risk of subsequent pain or infection was associated with the development of caries in younger patients, disease extending beyond single surfaces, and disease in lower deciduous molars. The results provide evidence to aid the treatment planning of carious deciduous teeth in children receiving regular preventive dental care.

IN BRIEF

- The paper presents a retrospective analysis of the outcome of the non-restoration of carious deciduous teeth.
- Multi-surface cavities presenting early in lower molar teeth were most likely to produce pain or infection.
- A pain-predictive model is generated from the data analysis.
- The model may provide a basis for further development.

COMMENT

Following the publication of the results of recent studies[1,2,3] in the North of England there has been a protracted debate on the dental care of young children in the letters pages of the *BDJ*. It is therefore very helpful to see the second paper in the series by Levine *et al.* in print. The previous paper[3] and the findings of our research team[1] demonstrated that approximately 80% of carious primary teeth remained symptomless until they exfoliated. When analyses were performed at the patient level, nearly half (48%) of the children who had primary molars with approximal caries had experienced at least one episode of pain.[2] Given this picture, it would be beneficial if we could accurately predict which children are at greatest risk of developing pain. Levine *et al.* have presented a methodology to categorise children according to their pain risk. The main factors which increased risk were, age when caries was diagnosed, tooth type and extent of carious lesion. Using these criteria the study population was divided up into six groups according to their risk of developing pain. None of the children in group 1 were recorded as having pain, however 67% of children in group 6 had a history of pain. A flow chart is presented to help clinicians classify children into one of the six risk groups.

This research has implications for both dental public health and primary dental care. The UK has a very long history of producing high quality epidemiological surveys of dental caries, but no matter how painstakingly the counting of decayed, missing and filled teeth is performed, these data cannot provide us with an understanding of the impact of caries on the lives of children and their families. Using the techniques described by Levine *et al.*, to look at clinical findings and then estimate the likelihood of pain arising, has the potential to be a more useful tool in planning services for children. For clinicians, this work will help identify those children at greatest risk of experiencing pain. However, even if we can accurately predict pain the key question remains — what do we do about it? Should primary care dentists treat high–risk children to prevent toothache from happening, or only provide treatment when pain arises? Currently we do not have a good enough research base to provide definitive advice to clinicians and parents on this key issue.

Fundamental questions are now being asked about how we approach the care of young children with carious teeth, the authors quite rightly highlight the need for randomised controlled trials to provide answers to these questions.

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