RESEARCH SUMMARY

Use of bitewing radiography in children

An investigation into the use of bitewing radiography in children in Greater Glasgow

G. K. Taylor and L. M. D. Macpherson *Br Dent J* 2004; 196: 563–568

Aim

In recent years there have been a number of reviews and guidelines published with respect to the diagnosis and management of caries in children. Bitewing radiography remains the recommended method of choice for caries diagnosis in most circumstances. The aims of the study were to investigate the usage of bitewing radiography by general dental practitioners (GDPs) in Greater Glasgow, for the diagnosis of caries in children and to assess the usefulness of the technique as perceived by these dental practitioners.

Design

A questionnaire for self completion was sent to all GDPs with an NHS list number in the Greater Glasgow area.

Results

An 80% response rate was obtained with 303 GDPs responding. Less than half the dentists (44%) indicated that they always carried out caries risk assessments for all children, but 71% reported doing this for 6 and 7-year-old children. Approximately 60% of dentists stated they had read the recent radiation and caries management guidelines. Only 72% stated that they used radiography as a caries diagnostic tool in children, with 12 GDPs (4%) indicating they would never consider using bitewing radiography in children. Only 17% would consider taking bitewing radiographs in children under 6 years, and the majority of dentists (61%) reported that they would first consider taking radiographs in the 6–11-year-old age group. However, only a low proportion of children in this age band had dental x-rays taken. Bitewing radiography was considered to be more important for 12-year-olds than for 6-year-olds. Recommended methods for decreasing radiation exposure such as rectangular collimation and film holders were not being used universally, with 41% and 58% respectively using these devices.

Conclusions

A significant proportion of dentists in Greater Glasgow are not complying with recent guidelines and recommendations and it would appear that the value of bitewing radiography as a diagnostic tool in children is not being fully exploited.

COMMENT

As is often the case with research, this paper raises as many questions as it answers. There is confirmation that bitewing radiography for children is underused in primary care, especially with regard to the primary dentition, but why is this so? While the majority of GDPs considered bitewing radiography as very valuable for diagnosing caries in 12-year-olds, relatively few felt it was of similar value for primary teeth in 6-year-olds. If the belief is that restoration of caries in primary teeth may be safely left until the caries is clinically obvious, then it should be borne in mind that by that stage, the pulp of the tooth is almost always involved.¹ This might provide an explanation as to why the success of restorations placed in primary care in preventing abscess formation can be disappointing. However, the findings are probably just a reflection of current attitudes in primary care regarding the management of the carious primary dentition. This is a subject which will require well organised, prospective clinical trials comparing the outcomes of quality restorative care (of which appropriate bitewing radiography will be a key part) and prevention against a prevention only approach before valid guidelines can be developed.

It was surprising to note that half of the GDPs never used rectangular collimation, a technique that can significantly reduce the patient's radiation dose.² The likelihood of rectangular collimation being used by practitioners was increased the more recently they had graduated, and this also applied to the use of film holders and the taking of bitewings of 6-year-olds. This indicates the importance of getting it right in undergraduate education and, rather than always focusing on how up-to-date GDPs are, it would be very interesting to determine just how many clinical teachers are thoroughly familiar with IRR99 and I(ME)R2000; not this one, as yet, anyway!

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1. Duggal M S, Nooh A, High A. Response of the primary pulp to inflammation: a review of the Leeds studies and challenges for the future. *Eur J Paediatr Dent* 2002; 3: 111–114.
2. Documents of the NRPB, 1994; 5: 8.

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IN BRIEF

- Implications for undergraduate and postgraduate teaching.
- How can guidelines be better discriminated and implemented.
- Is there an under-prescription of dental radiography for children and what factors may influence this?