Evidence-Based Dentistry (2000) 2, 19

www.nature.com/ebd

summary

Occlusal grinding in the primary dentition effective in preventing a posterior crossbite

Harrison JE, Ashby D. Orthodontic treatments for posterior crossbites (Cochrane Review). In: The Cochrane Library, Issue 1, 1999. Oxford: Update Software

Objectives To identify and evaluate orthodontic treatments used to expand the maxillary dentition and correct posterior crossbites.

Data sources Medline, Cochrane Library, handsearching of English language orthodontic journals (1970–1997).

Selection criteria All published randomised clinical trials (RCTs) reporting quantitative outcomes data on the crossbite correction, molar and/or canine expansion, signs and symptoms of temporomandibular joint dysfunction or respiratory disease.

Data collection and analysis Odds ratio, 95% confidence intervals (CI), relative risk, relative risk reduction, absolute risk reduction, and the number need to treat were calculated for event data. The weighted mean difference and 95% CI were calculated for continuous data.

Results Five randomised and seven controlled clinical trials met the review criteria and were included. Trials comparing occlusal grinding in the primary dentition with/without an upper removable expansion appliance in the mixed dentition versus no treatment, banded versus bonded rapid maxillary expansion, banded versus bonded slow maxillary expansion, transpalatal arch with/without buccal root torque and an upper removable expansion appliance versus quad-helix were identified.

Conclusions Occlusal grinding in the primary dentition with/without the addition of an upper removable expansion plate was effective in preventing a posterior crossbite in the primary dentition from being perpetuated to the mixed and permanent dentitions. No evidence was found for a difference in treatment effect (molar and canine expansion) in trials comparing banded versus bonded rapid maxillary expansion, banded versus bonded slow maxillary expansion, transpalatal arch with/without buccal root torque, or upper removable expansion appliance versus quad-helix.

Full text in *The Cochrane Library*, UK Cochrane Centre, Summertown Pavillion, Middle Way, Oxford OX2 7LG, UK.

Commentary

This review examines an apparently simple clinical problem, 'orthodontic treatment for crossbites'; however, it actually deals with several disparate questions, none of which is particularly controversial. It is useful to know that early occlusal grinding, with or without additional expansion, can affect the permanent dentition. After all, if the occlusion can hold a crossbite, it seems reasonable that it would be able to hold a corrected crossbite. If grinding works, fine; if not, expand with some sort of appliance. But which one?

Much of the remainder of Harrison and Ashby's 'value-added' review examines various methods of expansion, many of which differ only superficially. For most orthodontists, the choice between, say, bonded and banded attachments, is a practice management decision that has little to do with osteoblasts and osteoclasts. Thus, the conclusion that 'further studies, with appropriate sample sizes, are required' would seem designed more to advance the cause of evidence-based dentistry (certainly a worthwhile goal) than to improve the clinical practice of orthodontics. Ultimately, however, our resources are limited. They should therefore be applied only to the most clinically significant questions. From the present review, a long-term comparison of the effects and stability of slow and rapid expansion on crossbite and, more importantly, on arch perimeter (perhaps a far more common reason for expansion than posterior crossbite) would seem the most important. The question of clinical significance, however, prompts a final question: Is there a limit to the sorts of questions that can be explored via the processes of evidence-based dentistry?

Harrison and Ashby point out that none of the trials 'stated whether ethical approval and/or informed consent had been obtained'. Perhaps this deficiency was a simple publication oversight; however, given the 'criteria for review and selection for abstracting' employed by *Evidence-Based Dentistry* (i.e., 'random allocation of the participants to the different interventions'), the need for informed consent may prove an insuperable problem. In practice, it dictates that only a narrow band of relatively simple therapeutic questions can be addressed. More significant contrasts, such as the difference between adult orthodontics and surgery, may of necessity go unexplored merely because of the difficulty of randomising treatments of differing morbidity to fully informed subjects. How then are we to proceed? By examining only those comparisons that can support randomisation? I would argue that, for a limited number of questions, we must be prepared to develop, explore, and respect alternatives less exalted than the randomized clinical trial.

Lysle E Johnston Jnr
School of Dentistry, The University of Michigan, USA