Prescribing systemic antibiotics when replanting avulsed teeth

Abstracted from

Hinckfuss SE, Messer LB.

An evidence-based assessment of the clinical guidelines for replanted avulsed teeth.

Part II: prescription of systemic antibiotics. *Dent Traumatol* 2009; **25**: 158–164

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Question: Do systemic antibiotics prescribed at the time of replantation of an avulsed permanent tooth improve the chances of periodontal healing?

Data sources Four databases were searched for relevant citations: Ovid Medline, Cochrane Library, PubMed and ISI Web of Science.

Study selection Studies were included if they were conducted on human permanent anterior teeth and they reported systematic antibiotic use and periodontal healing outcomes. Only English language papers were considered.

Data extraction and synthesis A meta-analysis was conducted using a random-effects model. Heterogeneity was assessed using Cochran Q test and I^2 statistic.

Results Three studies were included in the meta-analyses involving, in total, 326 teeth: 247 (76%) of these were treated with systemic antibiotics, whereas 79 (24%) had no systemic antibiotic therapy following replantation. There was no statistically significant difference between prescribing or not prescribing antibiotics for acceptable periodontal healing without progressive root resorption (common odds ratio, 0.90; standard error of the mean, 0.29; 95% confidence intervals, 0.51–1.58)..

Conclusions There was inconclusive evidence for an association between systemic antibiotic therapy and an increased likelihood of acceptable periodontal healing. Pending future research to the contrary, dentists are recommended to follow current guidelines in prescribing systemic antibiotic therapy when replanting avulsed teeth.

Commentary

The question of whether prescribing systemic antibiotics at the time of replantation is of benefit to the patient is an important one, with the need to maximise the chances of success of the replantation having to be balanced against the need, in general, to reduce the use of antibiotics unless of definite advantage to the patient. The only evidence supporting the use of systemic antibiotics at the time of replantation following avulsion of a permanent tooth comes from

animal studies, and differences in methods between the studies (eg, antibiotics in animal studies are often given by intra-muscular injection) makes it problematic to extrapolate those results to humans. Although the results of their meta-analyses indicate that there is no advantage to prescribing systemic antibiotics, the authors are correct in being cautious about applying this information to the care of patients. The analyses were based on the pooled results from just three studies, and the authors highlight their uncertainties as to how similar the three studies were in design.

All three centres gave systemic antibiotics to the majority of their patients (at least 75% of their cases), but there was no reporting of why some patients were not given antibiotics. It is possible that clinicians were using their clinical skill to decide which individuals were most likely to benefit from antibiotics (for example, where pulp extirpation was to be delayed because of anticipated revascularisation of an immature incisor that was replanted after a short extra-oral time), and which people would not, when pulp extirpation was planned in the near future. This would allow a very different interpretation of the results than the arguably more likely scenario: that the decision whether or not to prescribe systemic antibiotics was down to individual clinician's idiosyncrasies. If this was the case, and there was apparently no information in the papers reviewed here to say otherwise, then the case for prescribing antibiotics routinely would seem to be weakened. This is particularly the case if the intention is to extirpate the pulp from replanted teeth with mature apices within 7–14 days, as is the recommendation from the first part of this review, by the same authors.¹ Clearly, there is a need for further research. This well-conducted and -reported systematic review has done what a good systematic review should do in cases where there can be no clear conclusion: highlight the question, and highlight the data needed to answer that question.

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1. Hinckfuss SE, Messer LB. An evidence-based assessment of the clinical guidelines for replanted avulsed teeth. Part 1. Timing of pulp extirpation. *Dent Traumatol* 2009; **25**: 32–42.

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