Patients with oro-facial clefts have more dental anomalies

Abstracted from

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Prevalence of dental anomalies in nonsyndromic individuals with cleft lip and palate: A systematic review and meta-analysis. *Cleft Palate Craniofac J* 2012; **49**: 194–200.

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Question: Are individuals born with isolated oral clefts more likely to have dental anomalies than unaffected individuals?

Data sources Medline, BIRME, OVID, Embase reviews and the Cochrane Library. Additional articles of potential relevance were identified by manual searches.

Study selection Observational controlled studies with non-syndromic forms of oral clefts matched for dental anomalies in primary and/or permanent teeth. There were no language restrictions.

Data extraction and synthesis Two authors reviewed all abstracts independently, compared results and reached consensus on inclusion/exclusion. Authors of the included studies were contacted for missing, relevant data. Quality assessment of the studies was carried out using a modified version of the Loney scoring system.¹

Results There were six studies selected for inclusion, none of which assessed as being at low risk of bias; four were rated as having moderate risk of bias and two at high risk of bias. The dental anomalies were collected into three distinct subgroups. Not all studies included each of the subgroups in their data collection: tooth agenesis was recorded in five studies with 1880 participants; supernumerary teeth in three studies with 1342 participants; and morphologic irregularities in four studies with 1502 participants. There were significant associations between patients with isolated oral clefts and tooth agenesis (OR = 12.31; 95% CI 3.75–40.36), presence of supernumerary teeth (OR = 4.99; 95% CI 2.58–9.64) and morphologic irregularities (OR = 5.69; 95% CI 3.96–8.19).

Conclusions The evidence suggests that individuals who are born with isolated oral clefts are more likely to have dental anomalies in the permanent dentition than those with no oral clefts.

Commentary

Overall data suggest that babies are born with oro-facial clefting in around one in 700 live births (although there is a seven-fold variation in reported prevalence) and this seems to be influenced by a number of factors including socio-economic status, ethnicity and geographic area.

Possible links between dental anomalies and oral clefting in the permanent dentition have been reported in the mainstream literature since the early 1960s.² These anomalies range from malformed teeth at the site of the cleft, through generalised hypodontia, microdontia, supernumerary teeth and increased asymmetry between the right and left side of the dentition, to enamel formation defects, delayed chronological dental formation and impacted canines. The association between defects at the site of the cleft and tooth formation aberrations probably makes clinical sense to most of us, given that the developmental events associated with oral clefts and tooth germ developments have a close temporal and anatomic relationship in the embryo. Indeed the most common anomaly is the congenitally missing maxillary lateral incisor. However, it is not clear how strong such a link is and whether there is also an association between clefts and the reported dental anomaly co-morbidities that are more generalised or more distant to the cleft site.

This systematic review attempted to look at this question. The authors have pooled all of the controlled clinical trials they could find comparing dental anomalies in 'cases' (children with clefts) and 'controls' (groups of unaffected children). A fairly comprehensive literature search was carried out, although there is no mention of attempts to access the grey literature. They then look at any association (using meta-analysis) and also attempted to portray the exact nature of the abnormalities seen (by grouping them).

Unfortunately, there were only six studies that met the inclusion criteria and their quality was not high. The main limitations seem to be with data collection, both in the methods used and in what was collected/reported. There were no sample size calculations nor was population representative sampling carried out. In fact, most of the studies were carried out in dental schools, with 'convenience sampling'. Many of the studies did not report exactly where the dental anomaly was, ie whether it was on the cleft side or non-cleft side, and this limits interpretation of the data. In addition, the authors had to impute some of the non-reported data, based on what was reported. One other methodological factor that has to be taken into consideration is that the authors used a controversial approach to the meta-analysis, weighting studies rated as being at moderate risk of bias more than those rated as being at high risk of bias.

Despite the methodological issues related to the studies and the meta-analysis that reduces the strength of its conclusions, the authors' main conclusions; that dental anomalies (morphologic irregularities, supernumerary teeth and agenesis) are more commonly found in individuals with oral clefting compared with individuals with no clefting is supported by their findings.

Why is seeking to understand the nature and extent of the association between oral clefts and dental anomalies important? Dental treatment needs for this group of patients can be better estimated for service planning purposes. Linking certain types of dental anomalies within families might be helpful in the future for subphenotyping clefts. And for the clinician, the usefulness lies in being able to inform and raise awareness with patients (and parents of affect-

ed children) that there is an increased chance of a higher need for future dental treatment once the permanent teeth have erupted. It further supports the need to have specialists in paediatric dentistry as part of multidisciplinary clinics for oral cleft patients.

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Evidence-Based Dentistry (2012) **13**, 82–83. doi:10.1038/sj.ebd.6400877