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REVIEW ARTICLE

Prevalence of orofacial clefts in Saudi Arabia and neighboring countries: A systematic review

Heba Jafar Sabbagh *, Peter Anthony Mossey, Nicola P.T. Innes

Preventive Dental Sciences, King Abdulaziz University, Jeddah, Saudi Arabia

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KEYWORDS

Prevalence;
Saudi Arabia;
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Middle East

Abstract Cleft lip and/or palate are among the most common birth defects in the world. The prevalence of these conditions varies considerably across geographic areas and ethnic groups.
Objective: The aim of this study was to carry out a systematic review and appraisal of the literature on the prevalence of cleft lip and/or palate in Saudi Arabia and comparable Middle Eastern countries.
Materials and methods: All published articles on orofacial clefts (OFC) in Saudi Arabia and its bordering countries in the Middle East with similar and comparable population characteristics were reviewed in July 2010.
Results: After reviewing the articles, only eight matched the inclusion criteria. Three studies were carried out in two regions in Saudi Arabia (Riyadh and Al-Qaseem). The other five studies were set in Dubai, Oman, and Jordan. The prevalence of cleft lip and/or palate reported in these studies varied greatly from 0.3 to 2.4 per 1000 live births. The birth prevalence of orofacial clefts in males was reported to be higher than in females. The isolated cleft palate prevalence was reported to be higher in females in most of the studies.
Conclusion: The eightfold variation in the prevalence of orofacial clefts between highest and lowest prevalence is likely to be due, at least in part, to problems with ascertainment, but there may also be underlying genetic or environmental factors that require further investigation.

* Corresponding author. Address: Dental School, Dundee University, UK. Tel.: +966 505668481.
E-mail address: Hjsabbagh@gmail.com (H.J. Sabbagh).

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1. Introduction

Orofacial clefting (OFC) describes a spectrum of disorders from partial or complete fissuring of the upper lip, with or without fissuring of the palate [i.e., cleft lip and palate (CLP) or cleft lip (CL)] to fissuring of the palate alone [i.e., isolated cleft palate (CP)] (Mossey and Castilla, 2001). These features may present alone, as part of a syndrome, or along with other associated abnormalities (Mossey et al., 2009). Collectively, OFCs are known to be the most common craniofacial defects and one of the most common structural birth defects throughout the world (Christensen et al., 2004). The estimated overall global birth prevalence of OFC is one affected individual in every 700 newborn babies (World Health Organization, 2003). However, in spite of OFCs occurring in all races, the prevalence of individual OFC conditions vary considerably across geographic areas and ethnic groupings. For example, OFC more commonly occurs among Asian than African populations. It is important to understand the prevalence of craniofacial anomalies in every community to determine the size of the problem, the effort needed to improve the quality of life of these patients, and the efficacy of interventions. Even though efforts have been made to record the frequency of birth defects over the years, accurate epidemiological data do not exist for many countries (Mossey and Little, 2002).

In Saudi Arabia, nearly 355,000 children are born each year (Ministry of Health, 2008). There is a high rate of consanguineous marriage, which could be indicative of a high prevalence of congenital anomalies (Narchi and Kulaylat, 1997). However, there is currently no national register for OFC prevalence in Saudi Arabia. Therefore, a systematic review of the literature for the Saudi population was undertaken to search for information on the prevalence of OFC, which might give a clearer picture. The literature search was expanded to include studies carried out in other Middle Eastern countries with similar and comparable population characteristics to allow for comparisons and to provide context. Therefore, the aim of this study was to carry out a systematic review and appraisal of the literature on the prevalence of OFC in Saudi Arabia and comparable Middle Eastern countries.

2. Materials and methods

2.1. Protocol for the literature search

A protocol for the systematic assessment of the literature on the prevalence of OFC in Saudi Arabia and other Middle Eastern countries was developed. The Middle Eastern countries included were: Jordan, Syria, UAE, Qatar, Kuwait, Bahrain, Oman, and Yemen. All of these countries border Saudi Arabia. The populations of these countries are comparable to the Saudi population in terms of the following characteristics: ethnic group, religion, tradition, culture, high rate of consanguineous marriage, and high birth rate. Iraq was excluded because of the suspected high prevalence of teratogenic defects resulting from long-term conflict (Fathallah, 2007).

The literature search protocol that was formulated consisted of the following: keyword identification, development of a search strategy, selection of search engines, and definition of inclusion/exclusion criteria for identified studies. The search strategy consisted of combinations of three keyword groups: (1) prevalence, epidemiology; (2) orofacial cleft, cleft palate, cleft lip, craniofacial anomalies; and (3) Jeddah, Riyadh, Saudi Arabia, Middle East, Arabia, Jordan, Syria, United Arab Emirates, UAE, Qatar, Kuwait, Bahrain, Oman, and Yemen. The search engines used were PubMed and Scopus. In addition, certain keywords were used to search Google (from the year 1980 to 2010), the Saudi Dental Journal (SDJ), the Saudi Medical Journal (SMJ), Jordan Medical Journal, Syrian American Medical Journal, Avicenna Journal of Medicine, Syria Medical Journal, Kuwait Medical Journal, International Arab Journal, Oman Medical Journal, Yemeni Journal for Medical Sciences, Bahrain Medical Bulletin, Journal of Bahrain Medical Society, and Qatar Medical Journal. The searches