

Incidence of Oro-Facial Cleft with/without Syndromes in Saudi Arabian Population: A Retrospective Audit and Review of Literature

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Citation: AlHayyan WA, ElHayek S, AlOtabi S, AlGhanim SH. (2020) Incidence of Oro-Facial Cleft with/without Syndromes in Saudi Arabian Population: a Retrospective Audit and Review of Literature. J Oral Med and Dent Res. 1(2):1-5.

Received: August 23, 2020 | **Published:** September 10, 2020

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Abstract

Aim: The present study calculates the incidence of occurrence of oro-facial cleft patients in King Abdulaziz Medical City (KAMC) tertiary care hospital in Riyadh city, KSA.

Material and Methods: The data utilized in this study was obtained from the birth data registry in the hospital covering the period between January 2014 and December 2018. Additional data for all oro-facial clefts related to the birth year, type of cleft, gender and associated syndromes were as well collected.

Results: The total number of oro-facial cleft patients born over the 4 year period from 2014 to 2018 was found to be 78 patients with an incidence of 1.8 ‰ live births with a male to female ratio of 1:1.

Among all oral cleft types, cleft palate represented the most common type with a percent of 38.5% (n:30) followed by isolated cleft lip (26.9%; n:21) and unilateral cleft lip and palate (24%;n:19).The least common type found were bilateral cleft lip and palate representing only 10.9% (n:19), followed by facial cleft with 3.4% (n:6). Fifteen percent (n=12) of cases had associated syndromes while 84.6% (n=66) had isolated oral clefts.

Conclusion: The incidence of oral cleft in KAMC Riyadh city is in concordance with the worldwide ratio and similar to the incidence reported in the Middle East area.

Keywords

Craniofacial anomalies; Incidence; Oro-facial cleft

Introduction

Oro-facial clefts, particularly cleft lip and palate, are the most common congenital deformities among newborns. Oro-facial clefts represent 65% of all head and neck anomalies [1]. Both environmental and genetic factors contribute to the etiology of oro-facial cleft the etiology of oro-facial cleft is complex and yet there is no single risk factor have been identified in literature yet [2].

The prevalence of occur of oro-facial cleft vary among different ethical groups and geographic area with the highest prevalence among Asian population and the lowest in Africans and Southern European. The prevalence of oro-facial clefts has been reported to vary from 0.19-2.69 per 1000 live births. However, the most accepted incidence rate of oro-facial clefts worldwide is 1 in every 700 live births [2].

In Riyadh city, there have been few reports on the prevalence of oro-facial clefts [3,4]. However, there are no available data regarding the prevalence of oro-facial clefts from KAMC, Riyadh city, KSA, a 1025-bed capacity facility that provides health care services to the National Guard forces and their dependents, as well as civilian employees and their dependents.

Lack of birth defect registry in the KAMC makes the exact number of oro-facial patients unknown. Oral cleft and craniofacial anomaly department is newly established in the hospital, knowing the incidence of oro-facial cleft facilitate the understanding of the health impact of oro-facial. This study aimed to estimate the incidence of oro-facial clefts using registry data from the in KAMC, Riyadh city, KSA.

Materials and Methods

This study was conducted at the KAMC, Riyadh city, KSA. Riyadh city is the largest city in Saudi Arabia and contains about 25% of the Saudi population, an estimated 30 million people. However, Saudi Arabia has no birth defect registry system. At the KAMC, initial electrical registry system was fully activated since 2014. This is a simple registration system that records information such as a patient's name, sex, age, and type of oral cleft, as well as the treatment interventions and outcomes.

For the purpose of the study, oro-facial clefts were classified as cleft lip (CL; right or left, unilateral or bilateral), unilateral cleft lip and palate (UCLP; left or right), cleft palate (CP; soft or hard or both) or bilateral cleft lip and palate (BCLP; left or right) or facial cleft. The medical records of oro-facial cleft patients from 2014 to 2018 were abstracted from the registry system of the cleft center in KAMC, Riyadh city, KSA. The data on the cleft type, sex, year of birth and medical condition were analyzed.

Results

A total of 78 eligible oro-facial cleft patients in KAMC were registered in the system from June 2014 to December 2018. Males comprised 50% of cases (n=39) while females comprised the other 50% (male to female ratio, 1:1) (Table 1). Fifteen percent (n=12) of cases had associated syndromes while 84.6% (n=66) had isolated oro-facial clefts.

CP was the most common oral cleft type (38.5%, n=30) followed by CL (26.9%; n=21) and UCLP (24.4%; n=19). Bilateral CLP and facial clefts represented a minority (n=19 [10.9%] and n=6 [3.4%], respectively) (Table 1).

		Cleft lip (%)	Cleft palate	Unilateral cleft lip and palate	Bilateral cleft lip and palate	Medical status		Total
						Syndrome (%)	Non-syndrome (%)	
Gender	Female	9	20	8	2	5(12.5)	34(87.1)	39 (50)
	Male	12	10	11	6	7(17.9)	32(82)	39 (50)
Total (%)		21 (26.9)	30 (38.5)	19(24.4)	8(10.3)	12(15)	66(84.6)	78(100)

Table 1: Demographic distribution of study population percentage.

The incidence rate of oro-facial clefts during the study period ranged from 1–2.4 per 1000 live births (Table 2). The overall incidence of oral clefts during the study period was 1.8 per 1000 live births.

Year	Number of cases	Live birth (N)	Incidence rate per 1000 live birth
2014	21	8552	2.4
2015	12	7041	1.7
2016	17	8557	1.9
2017	19	8910	2.1
2018	9	8835	1
Total	78	41.895	1.8

Table 2: Tabulation of Cleft Cases When compared to the Live Births in Each Year of the Study and Incidence rate of Oro-facial Cleft per Years.

Discussion

Oro-facial clefts are associated with variety of complications, including poor feeding, hearing loss, low self-esteem and speech difficulties, which significantly reduce both patients and their caregiver's quality of

life. The lack of and inconsistencies in the literature regarding oral clefts constitutes a challenge to understanding their health impact. In KAMC, Riyadh city, KSA, a computerized registry system was established in 2013, and became fully active in 2014. This registry system exhibits some limitations, such as unavailable demographic data and lack of classification in few cases but with no real impact on the overall result.

The incidence of oral clefts in this study was consistent with the globally-reported prevalence of 1 in every 700 live births (World Health Organization, 2003). In addition, our results consistent with the overall mean prevalence of oral clefts in the Middle East area, which was 1.25 per 1000 live births.

In Saudi Arabia, there are few published studies regarding the incidence of oral clefts, with a high variation, ranging from 0.3 per 1000 live births in Riyadh city [3] to 2.19 per 1000 live births in Al-Qassim city [5]. This variation has been attributed to the lack of a universal registration system.

In this study, CP was the most common type of oral cleft compared to CL and CLP, which is inconsistent with that reported in the literature; however, the observation of different patterns was recorded [6]. This could be related to the fact that the KAMC, Riyadh city, KSA, is a referral center where more complicated cases are seen.

No difference in sex proportions was detected in this study, as the incidence of oro-facial clefts showed a 1:1 male to female ratio. This result differs from the global trend that shows that males are more commonly affected compared to females [4,7,8]. Other variations in gender ratio have been reported in the literature [9]. The registry system exhibited some limitations such as unavailable demographic data and lack of classification in few cases but with no real impact of the overall results.

Conclusion

The overall prevalence of oro-facial clefts in the KAMC, Riyadh city, Saudi Arabia follows the global pattern of oro-facial clefts as well as those of the Middle East region.

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