Ambient Science, 2016: Vol. 03(Sp1); 23-25
DOI:10.21276/ambi.2016.03.sp1.ra01

Published by: National Cave Research and Protection Organization, India

ambient SCIENCE
Vol. 3(Sp1):23-25
Year 2016

Research ARTICLE

Occurrence of Cleft Lip and Palate in terms of Maternal Health, Parents' Kinship, and Neonate Weight: a Case Study in the Infants of Southeastern part of Iran

Sirous Risbaf Fakour[1], Soraya Bakhshani[2]*, Saeed Bakhshani[3]

[1]Department of Oral and Maxillofacial Surgery Dental Research Center- Zahedan University of Medical Science, Zahedan, Iran
[2]Oral and Maxillofacial Radiology, Mashhad University of Medical Sciences , Mashhad, Iran
[3]Department of Medicine, Zahedan University of Medical Science, Zahedan, Iran.

Study Area: Zahedan, Iran
Coordinate: 29°29'47"N 60°51'46"E

Key words: Cleft lip, Cleft palate, Oral clefts, Craniofacial deformity

Abstract

Oral clefts including cleft lip (CL), cleft palate with or without cleft lip (CP/L) are one of the most common congenital deformities. The present study was conducted through a descriptive-retrospective study to examine the frequency of cleft lip and palate based on demographic factors including mother's health condition, parents kinship and weight of infants born in hospitals of Zahedan during 2001_2011 years. The result is based on the available hospital records of 142534 live births (there were 71717 boys and 70817 girls) collected from 4 hospitals of Zahedan city. Results indicate that mothers of about 0.12% of neonates were not having any disease history whereas 0.15% neonates born with cleft palate, lip, or lip and palate were from such mothers who were suffering from some diseases during pregnancy. Conclusively, the higher occurrence rate of clefts among baby boys was from such mothers who had the positive history of illness during pregnancy time or parents were kinship.

Introduction:

The prevalence of craniofacial abnormalities is high in neonates. Cleft lip and palate is the first prevalent abnormality appeared on the face and the fourth congenital anomaly (Peterson et al; 2008). The highest and the lowest prevalence of cleft lip with or without cleft palate is seen among Native Americans with 3.7 per 1,000 births and in blacks with 0.3 per 1,000 births, respectively (Vanderas, 1987). However, the prevalence of cleft palate alone with about 0.14 per 1,000 births is common in different races(Gorlin *et al.,* 2001). Since 1950, the infants were born with congenital anomalies was increased from 0.7% to 1.3% (Jagomagi *et al.,* 2010). The prevalence of cleft in Asians is 2 per 1,000 births (Cooper *et al.,* 2006). The highest and the lowest prevalence of cleft lip and palate were reported from Europe; Netherland-1.46 per 1,000 births, France- 0.67 per 1,000 births, Finland- 0.97 per 1,000 births (Wyszynski , 2002), Poland- 1.85 per 1,000 births (Antoszewsk, 1997) and in Germany- 2 per 1,000 births (Hruskova *et al.,* 1998).

Some studies suggest that environmental factors along with genetic disorders are effective in the creation of cleft. Various factors have been reported to play the major roles in craniofacial abnormalities (Badovinac *et al.,* 2007, Loffredo *et al.,* 2001, Proffit *et al.,* 2013, Nanci, 2008, Ghasempour & Keshvari 2003, Stott-Miller *et al.,* 2010). According to a cross-sectional study conducted in the year 2003 in Gorgan Educational and Treatment Center on 37,951 births, where neonate age, abnormality type, ethnic type, parents' age, and kinship marriage were considered. The prevalence of cleft lip and palate was found approximately 0.97 per 1,000 births. This rate was 1.08 per 1,000 births in male and 0.86 per 1,000 births in the female. The prevalence of cleft lip and palate in the ethnic groups of Fars, native Turkmen, and Baloch were 0.86, 0.89, and 1.47 per 1,000 births, respectively (Golalipor , & Mohamadian, 2005). Kinship marriage was reported in 29.7% of parents of abnormal neonates and 29.7% of mothers consumed different medicines during pregnancy. The highest prevalence was seen in winter than in autumn. The mean age of mothers and fathers was 35.5 and 28.5 years, respectively (Golalipor & Mohamadian, 2005).

Except in Sistan and Baluchistan region, where the majority of people are Iranian Balochs with a high rate of kinship marriage, till date on the subject various studies have been conducted in various parts of the world, The present study was aimed to investigate the prevalence of cleft lip and palate in neonates in the South-east of Iran

*Corresponding Author: *bakhshani_s@yahoo.com*

ISSN- 2348 5191 (Print) & 2348 8980 (Electronic)

Ambient Science, 2016: Vol. 03(Sp1); 23-25
DOI:10.21276/ambi.2016.03.sp1.ra01

(Zahedan city) up till 12-years period in terms of maternal health during pregnancy, kinship relation of parents, and neonate weight.

Materials and methods:

The research subject includes all the files of infants born between the year 2001-20012 in four identified hospitals of Zahedan.The information such as gender of an infant, the weight of the infant, their health condition, and age of mothers were collected from the files available in the hospitals and registered in the infant information registration form. We scanned hospital records of 142534 infants which include 71717 boys (50.31%) and 70817 girls (49.69%). The data were analyzed using SPSS_21. The research maintained the ethical codes of 7 and 17 concerning the privacy of personal information and observing all rights of the people involved (relevant organization).

Table-1: Frequency distribution of newborns based on mother's health condition and weight of newborns

Mother's health condition	F	%	Weight of Infant	F	%
With history of illness	12809	9	Under 2500 g	18529	13
Without history of illness	129706	91	Equal or Above 2500g	124005	87
Total	142534	100	Total	142534	100

Results:

The frequency distribution of cleft palate, lip, and lip and palate in terms of maternal health was depicted in Table 2 and the frequency distribution of newborns with cleft palate, lip, and lip and palate in terms of maternal health were depicted in Table-3. According to Table 2, about 0.12% mothers of neonates born with cleft palate, lip, or lip and palate were not having any history of disease and 0.15% mothers of neonates were having a history of disease during pregnancy. About 58% of newborns with cleft born from mothers with a history of the disease and about 51% of them born from mothers without a history of the disease had simultaneous cleft lip and palate (Table-3). The mentioned diseases were diabetes, hypothyroidism, hypertension, history of convulsion, and preeclampsia reported in the mothers of neonates born with a cleft.

The frequency of patients with cleft palate, lip, and lip and palate related to their respective body weights is depicted in Table-4. As per the observation, about 0.12% of neonates with a weight of 2500 g or higher and 0.1% of neonates with a weight lower than 2500 g were born with cleft palate, lip, and lip and palate. In addition, cleft lip and palate is higher than cleft palate or lip alone in both groups (Table-4).

As per the hospital's record the Kinship Parents of 177 neonates (68%) with cleft palate, lip, or lip and palate were not reported in hospital records and only the presence or absence of kinship could be investigated in 55 neonates born with cleft palate, lip, and lip and palate (Table-5). Parents of about 82% of newborns with Cleft were of reported kinship. Surprisingly, the cleft palate was more prevalent in children of such parents who were without kinship but simultaneous cleft lip and palate was more prevalent in neonates of parents with kinship.

Table-2. Prevalence of cleft based on mother's health condition

Mother's health condition	Cleft palate F(%)	Cleft lip F(%)	Lip & palate cleft F(%)	Total
With history of illness	2 (0.016)	6 (0.048)	11 (0.086)	19 (0.15)
Without history	38 (0.03)	37 (0.028)	77 (0.06)	152 (0.118)

Table-3.Frequency distribution of infants with cleft based on mother's health condition

Mother's health condition	Cleft palate F(%)	Cleft lip F(%)	Lip & palate cleft F(%)	Total
With history of illness	2(10.5)	6(31.6)	11(57.9)	19
Without history of illness	38(25)	37(24.3)	77(50.7)	152

Table-4. Prevalence of cleft based on Weight of newborn

Weight of newborn baby	Cleft palate F(%)	Cleft lip F(%)	Lip & palate cleft F(%)	Total
Under 2500 g	3(0.016)	3(0.016)	12(0.064)	18(0.1)
Equal or Above 2500g	38(0.03)	40(0.032)	76(0.06)	154(0.12)

Table 5. Frequency distribution of newborns with cleft based on Parent's kinship

Parent's kinship	Cleft palate F(%)	Cleft lip F(%)	Lip & palate cleft F(%)	Total
+ve	12(21.82)	9(16.36)	24(43.63)	45(81.82)
-ve	4(7.27)	6(10.91)	10(18.8)	0(0)

Discussion:

The total incidence of cleft according to neonates' weight was about 1 per 1,000 which were found independent to their respective body weights. As the body weight of about 78% of neonates had a normal or higher than 2500 g, which indicates no relationship of cleft with neonate' weight before birth. Unfortunately, after birth, since cleft lip and palate affects neonates feeding, their weight gain may disturb (Jagomagi *et al.*, 2010).

Cleft lip and palate in the weight group of less than 2500 g was higher (66.7%) than the neonates belongs to the weight group of more than 2500 g (49.4%).

Ambient Science, 2016: Vol. 03(Sp1); 23-25
DOI:10.21276/ambi.2016.03.sp1.ra01

We found, about 11% of mothers gave birth to neonates with cleft had a history of drug consumption or disease, the rate resembles the report of Ahmadi-Rozbehani (2002), but lower than the rate of Shadpour & Shahryari (2001)- 24.4% and Golalipoor & Mohamadian (2005)- 29.7%. Interestingly, in the present study, the highest rate of the cleft in terms of combined cleft lip and palate was seen in ailing mother.

We found the cleft lip alone was more prevalent in children of parents without kinship and cleft lip and palate was more prevalent in children of parents with kinship. However, in the present status, we cannot comment in this regard since we found only the information about kinship in 55 cases and the parents' kinship was not specified in 177 neonates. Form 55 cases, 82% of parents were relatives and if we generalize it to the other 117 cases, it can be stated that cleft lip and palate was more likely in neonates of parents with kinship. This conclusion is consistent with previous findings where a higher likelihood of birth of neonates with a cleft in parents with kinship was broadly reported (Ghasempour & Keshvari 2003).

In general, differences and similarities of the present research with other studies may be due to various existed varying factors such as population, sample size, time of diagnosis, cleft classification, clinical degree description, consideration of still-births and abortions in base population. Consideration of syndromes and disorders associated with cleft, and data collecting resources (archive, hospital and non-hospital labors, sending of questionnaire, and use of multiple resources) also could not be denied.

Acknowledgements:

We thank the staffs of Ali–ebn-Abitaleb, Khatam, NabiAkram and Tamin-e-Ejtemai Hospitals for their kind cooperation. Our sincere regards are also with the research committee of Zahedan University of Medical Sciences for their support and participation in this study.

References:

Ahmadi-Rozbehani, N. (2002): **The study of eatiology and epidemiology of cleft lip and palate in neonates borned in zayeshgah-e- Qods and TaminEjtemai Hospitals of Zahedan during 2001-2002**. MD thesis, Zahedan University of Medical Sciences.

Antoszewsk, K.J. (1997): The incidence of cleft lip and (or) palate in children of lodz in the year (1982-1991). *Pol. Merkureiuz Lek.*, 3:2-10.

Badovinac, R.L., Werler, M.M., Williams, P.L., Kelsey, K.T. & Hayes, C. (2007): Folic acid-containing supplement consumption during pregnancy and risk for oral clefts: a meta-analysis. *Birth Defects Res. A,* 79:8-15.

Cooper, M.E., Ratayand, J.S., Marazita, M.L., (2006): Asian oral-facial cleft birth prevalence. *Cleft Palate Craniofac. J.,* 43(5):580-589.

Ghasempour, M. & Keshvari, K. (2003): Frequency of cleft lip and palate in newborns of yahyanejad hospital in Babol. *Payesh,* 3:175-181.

Golalipor, M. & Mohamadian, S. (2005): Epidemiologic study of cleft lip and palate in a six-year period Gorgan. *J. Babol Uni. Med. Sci.*, 2:41-47.

Gorlin, R.J., Cohen, M.M.Jr. & Hennekam, R.C.M. (2001): **Syndromes of the Head and Neck. 4th ed.** New York: Oxford University Press, 453-460 PP.

Hruskova, H., Calda, P., Zizkaand, Z & Krofta, l. (1998): Cleft lip and palate: prenatal diagnosis and counseling. *Ceska gynecology,* 5:382-387.

Jagomagi, T., Sootsand, M. & Saag, M. (2010): Epidemiologic factors causing cleft lip and palate and their regularities of occurrence in Estonia. *Stomatologija, Baltic Dental Maxillofacial J.,* 12(4):105-108.

Loffredo, L.C. Souza, J.M., Freitas, J.A. & Mossey, P.A. (2001): Oral clefts and vitamin supplementation. *Cleft Palate Craniofac., J.,* 38(1):76-83.

Nanci, A. (2008): **Ten cates oral histology: development, structure and function**. 7th ed. Pub. by Mosby Elsevier.

Proffit, W.R., Fields, H.W. & Sarver, D.M, (2013): **Contempory orthodontics. 5th ed.** Elsevier 114-21PP.Mosby Elsevier.

Peterson, L.J., Ellis, E., Hupp, J.R. & Tucker, T.R. (2008): **Contemporary oral and maxillofacial surgery . 5th ed.** St, Louis: Mosby, Elsivier. 583-603 PP.

Shadpour, T.H & Shahryari, A.A. (2001): The prevalence of cleft and palate in Qazvin and its ecology in patients reffering to dental university. *J. Qazvin Uni. Med. Sci.* 18:76-80

Stott-Miller, M., Heike, C.L., Kratz, M. & Starr, J.R. (2010): Increased risk of orofacial clefts associated with maternal obesity: casecontrol study and Monte Carlo-based bias analysis. *Paediatr. Perinat. Epidemiol.*, 24(5):502512.

Vanderas, A.P. (1987): Incidence of cleft lip, cleft palate, and cleft lip and palate among races: a review. *Cleft Palate J.,* 24(3):216-25.

Wyszynski, D.F. (2002): **Cleft lip and palate: from origin to treatment.** New York: Oxford University Press, 10192PP.