Original Research Article

Prevalence of Cleft Lip with or without Cleft Palate and Its Related Factors in Infants Born in Tabriz

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ABSTRACT

Introduction: Considering that the prevalence of cleft palate anomalies depends on the geographical area and race and so far, no epidemiological study has been conducted in Sari, in this study we decided to investigate the prevalence of cleft lip with or without cleft palate and related factors. We will deal with it among newborns born in the city of Tabriz. Material and Methods: This descriptive-analytical study was conducted during the years 2015-2020 in the hospitals of Tabriz University of Medical Sciences. The total case of newborns was examined for cleft lip and palate and risk factors were obtained. Results: 80 cases of cleft lip/cleft lip and palate were found. Most mothers have no history of experiencing these conditions. Also, among the 25 cases that mentioned the history of drug use in the first trimester of pregnancy; Levothyroxine (6 cases), insulin drug (4 cases), calcium supplement drug (4 cases) and residues (11 cases) as a combination of these drugs with several other drugs including antibiotics and ranitidine was reported. Conclusion: The findings of the present study indicate that the overall prevalence of oral clefts among the study population in the three mentioned medical centers was 1.2 per 1,000 births and mainly occurred unilaterally.

Keywords: Prevalence, Cleft Lip, Cleft Palate, Risk Factor
Introduction

The formation of the components of the face and oral cavity in the process of evolution requires the coordination and regular connections of soft and hard tissues [1-3]. Any disturbance in this path leads to developmental abnormalities [4]. During the fourth week of the embryo, with the emergence of lateral-medial nasal appendages, maxillary appendages, and the alveoli, the basis for the formation of the face and oral cavity begins [5-7]. Incomplete connection of nasal and maxillary appendages causes cleft lip and incomplete connection of palatal appendages causes cleft palate. The spectrum of gap formation can be very diverse [8-10]. The cleft may cover only the upper lip, or it may progress to the point where the nostrils and soft palate are completely involved. The cleft palate may involve only the small tongue, or the widened soft and hard palate may affect both [11-13]. In many cases, a combination of lip and palate involvement is seen. Dental anomalies such as changes in the shape, size, number and position of teeth are observed in patients with cleft palate. Most of these babies struggle with problems such as facial beauty problems, speech disorders, eating disorders and lack of self-confidence. Genetics is one of the major causes of cleft palate [14-16]. According to some, environmental factors along with genetics are important factors in the occurrence of this anomaly [17-19]. Cases such as birth weight, maternal age at pregnancy, family history of cleft palate, history of drug use in the first trimester of pregnancy, smoking and alcohol use are also considered as risk factors for oral cleft palate [20-22]. According to published reports, the first statistical information about the occurrence of oral fissures was announced by Frobelius in 1864 in St. Petersburg. Among 180,000 babies, he observed 118 cases of cleft lip and palate. In other words, the prevalence is 0.65 cases per 1,000 births. In general, the prevalence of cleft lip and palate can be affected by geographical area and racial factors [23-25]. On the other hand, the prevalence of this anomaly is high among Asian and American countries and has the lowest prevalence in African countries. Considering that the prevalence of cleft palate anomalies depends on the geographical area and race and so far, no epidemiological study has been conducted in Sari, in this study we decided to investigate the prevalence of cleft lip with or without cleft palate and related factors. We will deal with it among newborns born in the city of Tabriz.
Material and Methods

This descriptive-analytical cross-sectional study was performed using the information in the records of patients born in hospitals in Tabriz in the years 2015 to 2020. The sampling method in these three centers was counting.

The status of patients in the studied medical centers and in the mentioned period was also obtained from the hospital archives. In the next step, the number of files obtained from the system were reviewed and matched by the physical files of the same patients, and disease-related factors such as variables related to infants (sex and birth weight) and factors related to the mother (mother's age at pregnancy, Family history of cleavage, consanguineous marriage, history of drug use in the first trimester of pregnancy, history of alcohol consumption and smoking) were collected.

Then the data were entered into SPSS V. 23 software and statistically analyzed. Central indices such as mean and scatter indices such as standard deviation were used to describe and Fisher's exact test was used to analyze the data. P-value values less than 0.05 were considered significant.

This study was registered in the ethics committee of Tabriz University of Medical Sciences under the number IR.TBZMED.REC.1398.269. The samples participating in this study completed the informed consent form and then entered the study.

Results

In this study, out of a total of 65,522 births registered in this study in the city of Tabriz during the period 2015-2020, 80 cases of cleft lip / cleft lip and palate were found. Therefore, according to the information obtained, the prevalence of oral clefts in this study was estimated to be 1.2 per 1000 births.

Table 2 shows the frequency distribution of different types of oral incisions. According to these findings, out of 80 oral clefts found, 38 (47.5%) were lip clefts and 42 (52.5%) were cleft lip and palate. The prevalence of both types of cleft palate was more unilateral. Also, the difference between the types of gaps in terms of the area involved was not statistically significant (P-value = 0.647). It should be noted that in this study, no cases were observed as CP or isolated cleft.
palate. No statistically significant difference was found between the sexes in terms of the prevalence of oral cleft type (P-value = 0.33).

On the other hand, boys were infected 1.35 times more than girls. In other words, cleft palate in the present study was found more in male infants than female infants; However, there was no statistically significant difference. The mean neonatal weight was 3,405.6 ±789's, indicating that 86.3% of cleft infants weighed more than 2,500 g. Also, the mean age of the mother of these infants during pregnancy was 27.8 ± 5.4 years and 72.5% of them were less than 30 years old. Most mothers have no history of experiencing these conditions. Also, among the 25 cases that mentioned the history of drug use in the first trimester of pregnancy; Levothyroxine (6 cases), insulin drug (4 cases), calcium supplement drug (4 cases) and residues (11 cases) as a combination of these drugs with several other drugs including antibiotics and ranitidine Was reported.

Discussion

The present descriptive-analytical cross-sectional study was performed by the information and details recorded in the medical records of infants with cleft lip and palate born in hospitals in Tabriz and also short interviews with their mothers [26-28]. The prevalence of oral clefts in this study is estimated to be 1.2 per 1,000 live births. In the study of Eder Tehran, this number was 1.3. Another study reported the prevalence of cleft lip and palate as 0.97 per 1,000 live births. Also in other studies, the prevalence of this complication in north-east, center and south-west of Iran has been 1.9, 0.86 and 0.80, respectively [29-31].

The prevalence of oral clefts in a study in South America was 2.8 per 1,000 live births, in East Africa 0.77 per 1,000 live births, in East Asia 1.94 per 1,000 live births, and in southwest Asia 1.3 per 1,000 live births. And in the north of England, it was 1.5 per 1,000 live births. Cleft lip and palate (CLP) and cleft lip (CL) are the most common congenital birth defects, the prevalence of which varies according to geographical and racial origin.

Populations with Asian and American races are among the highest and African regions are among the lowest prevalence of these anomalies [32-34]. The prevalence of oral fissures in the present study seems to be close to the mentioned areas in Southwest Asia. In the present study,
among different types of oral incisions, CLP was the most common and CL was the second most common [35-37]. This is in line with many studies. It should be noted that no case of CP was observed in this study. However, in many of the above studies, which examined larger sample sizes and wider areas, CP was also one of the most common cleft lip and palate abnormalities. Out of 80 cases of cleft lip and palate, 10% of mothers of affected infants reported a family history of this complication. In a study in East Africa, nearly one-third of mothers reported having relatives with a cleft lip and palate [38-40].

Although in the above two studies, there is no evidence group to prove that oral clefts can be hereditary complications, but in several other studies, the trend of this anomaly has been reported. As mentioned, birth defects are caused by the interaction of various genetic and environmental factors [41].

Conclusion

The findings of the present study indicate that the overall prevalence of oral clefts among the study population in the three mentioned medical centers was 1.2 per 1,000 births and mainly occurred unilaterally. However, due to the complexity of the genetic role of these complications, their occurrence in family and relatives is relatively low. The risk of a baby with a birth defect having a sibling with the same condition is less than 5%. Contradictions between the findings regarding the role of genetics in the occurrence of this type of abnormality among family and relatives need further study to clarify the dimensions of this issue in the future.

References

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