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Evaluating Parental Anxiety Levels Associated with Nasoalveolar Molding in Cleft Lip and/or Palate Patients

Abstract: *To find out the impact of NAM, gender of the parents or the patients and type of cleft on the anxiety levels of the parents of clp patients.This quasi experimental study included The parents of newborn unilateral or bilateral cleft lip and/or palate patients. The VASA was administered at 30 parents were a part of the study .The mean anxiety level at T0 was greater than at T1,T2 and T3 which was significant. The gender of the patients and the parents did not affect the anxiety levels at various time intervals. Anova test showed that the anxiety levels were not affected by the type of cleft except at T2.The NAM seems to impact the anxiety levels of parents significantly. Also. The gender of the patient or the parents does not have an impact on the anxiety levels.*

Key Words: Anxiety, NAM Therapy, Cleft Lip, Cleft Palate

Introduction

Dentofacial Orthopedics or Nasoalveolar Molding (NAM) is the therapy undertaken to prepare cleft lip and palate (CLP) infant for surgical procedures; it brings the cleft segments closer to each other thereby reducing the severity of the defect. (El-Ghafour 2020). NAM can lengthen the columella, and reposition the premaxilla and the nasal cartilages. (Alfonso 2024) However, NAM can be expensive, time consuming and can cause irritation of the skin. (AlAnazi 2020) Frequent clinical visits required for NAM makes parental compliance mandatory, further adding to the parental stress associated with having a child with a craniofacial deformity.

Numerous studies have indicated that cleft not only influences the self-esteem of the child, but also impacts the quality of life of the parents. (Bhutiani 2020) (Glaeser 2023) One study showed that anxiety and depression were higher in parents of clp patients after NAM and before lip surgery. (Hornblow 1976) (Magyar 2023). According to another study, NAM in cleft lip and palate does not affect the oral health and function, this also does not overcome the social challenges. (Namdar 2022)

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Since parental well-being can affect the compliance with
NAM, it is important to know whether NAM has any impact on the anxiety levels of parents. To date, knowledge regarding this in the Pakistani population is lacking. Moreover, a systematic review by Abd el-ghafoor (Nelson 2012) shows that evidence is lacking to show any effect of NAM on the burden of care. Therefore, this study's aim is to find out whether the NAM has any effect on the anxiety levels of the parents or not. The null hypothesis is that NAM does not have any significant relation with the anxiety levels of the parents. The objectives include to find out the anxiety levels of parents at t0 (before impression), T1 (after impression), T2 (before plate insertion), T3 (after plate insertion) and see whether NAM has any relation with anxiety levels, to see the relation of gender of parents and patients with anxiety levels, to find out the effect of type of cleft on anxiety levels.

Material and Methods

This quasi experimental study was conducted in the Orthodontic and Dentofacial Orthopedics Department of KCD, Peshawar from October 2022 to March 2023. Ethical approval was granted by the ethical committee of KCD, Peshawar (letter number; 25 ADR/KCD). The sampling technique employed was non-probability consecutive sampling. By using Open epi, the sample size was calculated to be 30, by keeping the power as 80%, confidence interval 95% and mean difference as 4.61 from a previous study.

The parents of newborn unilateral or bilateral cleft lip and/or palate patients who were without a syndrome reporting to the Orthodontics Department of KCD, Peshawar for treatment were included in the study. Patients accompanied by guardians instead of parents, those having a language barrier were excluded from the study. The included participants gave a written informed consent.

The treatment employed is Nasoalveolar Molding, which prepares the infant for surgical repair of cleft lip and palate. Nasoalveolar molding is the treatment modality which involves the use of an acrylic plate for the purpose of reducing the palatal defect. It also includes a nasal stent, which improves the collumella height and deviated nasal tip. When lip taping is included, the lip defect also improves. The protocol for nasoalveolar molding includes impression of the palate, followed by construction of NAM plate and finally its insertion.

The research tool employed for the purpose of this study was the Visual Analogue Scale for Anxiety (VASA). The VASA is a 10 cm line which shows the increasing levels of anxiety from 0 to 10 in that present moment; 0 represents "not at all anxious", 10 represents "extremely anxious". Scores towards the left show decreased anxiety levels, those on the right show increased anxiety levels. (Sarmadi 2023) The VASA was administered at the following time intervals;

T0 = before taking impression for the NAM plate

T1 = after impression taking for the NAM plate

T2= before plate insertion

T3= after plate insertion

The parents were supposed to point which number they thought was appropriate for their anxiety levels at the time. All the data recorded was analyzed through IBM SPSS 25.0. Frequencies and percentages were calculated for categorical variables such as gender and type of cleft. Mean and standard deviation were calculated for age and VASA score. A paired sample's t test was employed to check the relation of treatment progression with anxiety levels at the different time intervals. The ANOVA was employed to check whether type of cleft had any significant relationship with anxiety levels or not. Also an independent sample's t test was done to check whether the gender of the patient and parents had any impact on the anxiety levels.

Results

Out of the total 30 parents, 14 were males (47%) and 16 were females (53%). Whereas, the total number of newborn babies in this study was 19 of which 13 were males and 6 females. The mean age of the patients was 54.58 days 49.38 days. The mean age of the parents was 29.10 years 6.008. Of the 19 patients included in this study, 7 babies had bilateral cleft lip and palate (37%), 8 had uni lateral clp (42%) and 4 had isolated cleft palate (21%)

The mean anxiety score at different time intervals is given in figure 1. The anxiety level at T0 was greater than at T1 which was significant. (p=<0.01). The mean anxiety score at T0 was again greater than at T2 or T3 which was also significant. (p=<0.05) (Table 1)

Whereas, the anova test showed that the anxiety levels were not affected by the type of cleft except at T2, at which the anxiety levels were affected by type of cleft (p=0.13) (Table 2) Post hoc tukey's test showed that the anxiety scores of parents of unilateral cleft lip and palate differed significantly than

those of isolated cleft palate. Therefore, the anxiety scores at T2 for unilateral cleft lip and palate were significantly higher than those of isolated cleft palate.

Independent sample's t test showed that the gender of the babies did not affect the anxiety levels at various time intervals (Table 3). Similarly, the Anxiety levels were not affected by gender of parents as shown in table 4 (p value>0.05)

Figure 1

Mean anxiety levels at T0, T1, T2, T3.

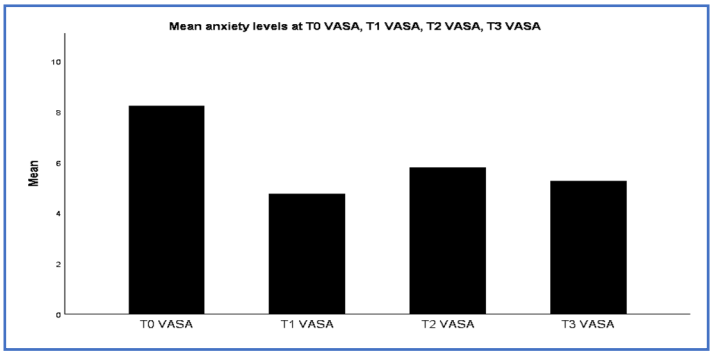

Table 1

Paired sample's t test Results

Pair	Mean Difference	95% confidence Interval		P Value
		Upper	Lower	
T0-T1	3.46 2.92	2.37	4.55	<0.001
T0-T2	2.43 3.15	1.25	3.61	<0.001
T0-T3	2.96 3.82	1.53	4.39	<0.001

Table 2

ANOVA for type of Cleft

Type of Cleft	Mean Anxiety Score at			
	T0	T1	T2	T3
Bilateral	9.10 ± 1.72	5.50 ± 2.99	5.50 ± 3.68	5.30 ± 2.79
Unilateral	8.69 ± 2.62	5.31 ± 2.59	7.31 ± 2.46	5.38 ± 2.87
Cleft palate	6.14 ± 4.84	2.71 ± 2.56	3.43 ± 3.30	5.00 ± 3.83
P value	0.130	0.093	0.041	0.964

Table 3

Independent Sample's t Test for Relationship of Gender of Patient with Anxiety Levels

Gender of Patients	Mean Anxiety Levels at			
	T0	T1	T2	T3
Female	8.17 ± 3.48	4.00 ± 2.33	4.83 ± 3.18	3.33 ± 2.49
Male	8.28 ± 3.04	5.28 ± 3.14	6.44 ± 3.43	6.56 ± 2.59
P value	0.893	0.253	0.400	0.659

Table 4

Independent Sample's t Test for Relationship of Gender of Parents with the Anxiety Levels at T0,T1,T2 and T3

Gender of Parents	Mean Anxiety Levels at			
	T0	T1	T2	T3

Female	8.13 ± 3.36	4.94 ± 3.08	5.81 ± 3.67	6.06 ± 3.37
Male	8.36 ± 3.05	4.57 ± 2.70	5.79 ± 3.14	4.36 ± 2.24
P value	0.62	0.84	0.48	0.07

Discussion

In this quasi experimental study, patients undergoing NAM therapy at Khyber College of Dentistry were selected to study the anxiety levels of the parents.

The anxiety scores were highest at T0 (8.23 3.17) as compared to T1, T2 or T3. This might have been due to the fact that the parents were not aware of the treatment and the deformity itself at T0 as they had not met with a doctor yet for NAM. Hence, after the impression taking at T1, the anxiety levels dropped as now they had an idea of the treatment required. This is similar to Yilmaz's results. In their article, the anxiety levels were highest at T1 (before any intervention) and T2 (after impression taking). Where as, AL Anazi et al pointed out that the oral function and health domains are not different between the non cleft and cleft group. But the cleft group showed lower scores in the social domain of the oral health related quality of life questionnaire.

The results indicate that the anxiety levels are not affected by the type of cleft except at T2 (p value = 0.041) In contrast to this; Yilmaz et al's study shows that the anxiety levels were more in parents of bilateral clp as compared to unilateral.[6] Whereas at T2, the anxiety levels in parents of unilateral clp was more than bilateral, which was in turn more than that for isolated cleft palate.

Neither the gender of the parents nor the patients had any significant impact on the anxiety levels. Most studies have been done on mothers of cleft babies. (Shadani 2023) Studies have indicated that mothers and fathers go through considerable stress. (Yilmaz 2019)

This study had a limitation; the study was done at a single center so the results cannot be generalized.

Conclusion

The NAM seems to impact the anxiety levels of parents significantly. Also. The gender of the patient or the parents

does not have an impact on the anxiety levels. The type of cleft was only significant at T2 (before plate insertion) whereas it did not seem to have a significant relationship with anxiety levels at T0, T1 and T3.

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