

Dental treatment needs among individuals with orofacial clefts

Necessidade de tratamento odontológico em indivíduos portadores de fissuras orofaciais

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INTRODUCTION

Among the congenital malformations present in birth, the cleft lip (CL) with palate (CLP) and isolated cleft palate (CP) are the most common. The incidence of these defects varies according to geographical

ABSTRACT

Epidemiological studies can help in implementing programs to achieve optimal oral health for clefts individuals. The purpose of this retrospective study was to identify the dental treatment needs in patients with orofacial clefts in a population from Rio de Janeiro, Brazil. This study analyzed 176 dental records from individuals who born with cleft lip and palate, aged varied 0-61years, which receiving assessment at a public hospital reference of cleft rehabilitation, between 2006 to 2008. Chi-square test at a level of significance of 0.05 was used. Analysis enrolled 169 dental records after exclusion of seven dental records due to incomplete data. The sample consisted of 84 female and 85 male. The mean age was 19.7(±5.8). Forty patients had cleft lip(CL), 87 had cleft lip and palate(CLP) and 42 had cleft palate(CP). The majority of patients (85.2%) required invasive dental treatment needs, such as, restorative treatment, endodontic treatment, dental extraction and periodontal treatment. Patients with CLP presented a positive association with untreated dental caries than CL and CP ($p=0.03$). CLP patients were strongly associated with orthodontic treatment need when compared with CL and CP ($p<0.05$). We identified an extensive dental treatment needed in patients with CLP. A developing of an oral health programs is recommended for CLP individuals in this region.

Keywords: Dental caries, cleft lip and palate, dental care

RESUMO

Os estudos epidemiológicos podem ajudar na implementação de programas para alcançar uma adequada saúde bucal em indivíduos portadores de fissuras labiopalatinas. O objetivo deste estudo retrospectivo foi identificar as necessidades de tratamento odontológico em pacientes com fissuras labiopalatinas na população do Rio de Janeiro, Brasil. Este estudo analisou 176 prontuários odontológicos de indivíduos com idade variando de 0 a 61 anos, que receberam avaliação em um hospital público de referência para reabilitação da fissura, entre 2006 e 2008. O teste qui-quadrado a um nível de significância de 0,05 foi utilizado. Foram analisados 169 prontuários odontológicos após a exclusão de sete devido a dados incompletos. A amostra foi constituída de 84 mulheres e 85 homens. A idade média foi de 19,7 anos ($\pm 5,8$). Quarenta pacientes apresentavam fissura labial (FL), 87 fissura de lábio e palato (FLP) e 42 eram portadores de fissura palatina (FP). A maioria dos pacientes (85,2%) necessitavam de de tratamento odontológico invasivo, tais como, dentística, endodontia, extração dentária e periodontia. Pacientes com FLP apresentaram uma associação positiva com a cárie dentária não tratada quando comparados com pacientes portadores de FL e FP ($p = 0,03$). A presença da FLP foi fortemente associada à necessidade de tratamento ortodôntico, quando comparados com a fissura labial e fissura de palato ($p < 0,05$). Identificou-se a necessidade de um extensivo tratamento odontológico em pacientes com fissura labiopalatina. O desenvolvimento de um programa de saúde bucal é recomendado para indivíduos com FLP na região estudada.

Palavras-chave: Cárie dentária; Fissura labial; Fissura palatina; Prestação de cuidados odontológicos

location, ethnicity and socio-economic status, affecting one in every 500-1.000 births worldwide^{1, 2}. This anomaly has its origin in the failure of fusion of facial bumps and palatine processes during embryonic development which leads a dento-facial deformation in CLP individuals.

Usually, the alterations found in these

patients are in speech, eating, breathing, swallowing, dental malocclusion, and esthetics problems³. Dental anomalies are also found in CLP individuals. Morphological dental anomalies, supernumerary teeth and tooth agenesis are 4 to 6 times higher in cleft patients⁴. Enamel hypoplasia is also frequently evident^{5, 6} in CLP patients and results in roughened surfaces and a reduced mineral content⁶, which may predisposing for dental caries.

Previous studies related high prevalence of dental caries, gingival and periodontal diseases in CLP patients⁶⁻¹⁰. This condition could be attributed to poor oral hygiene, lack of knowledge, low motivation^{11, 12}, highly cariogenic diet, and the fact that the patients and their parents give the attention to other aspects of care, focusing more on the numerous surgical procedures required to correct the birth defect, so dental care is neglected¹⁰.

Numerous investigations analyzed the oral health condition in CLP patients. However no data are available to recognize the dental treatment needs among CLP patients from the Rio de Janeiro area, Brazil, which could improve oral health programs in CLP patients in this region. Furthermore, the aim of this work was to conduct a retrospective study, in order to identify dental treatment needs in CLP patients in the first visit at the public Dental Health Program.

MATERIALS AND METHODS

This retrospective study analyzed dental records of 176 patients, aged varied from 0-61years, during their first visit which at Dental Clinic at public reference hospital of craniofacial anomalies in Rio de Janeiro (Brazil) in the period 2006 to 2008. The Local Institutional Ethics Committees cleared this study.

To be included in the study sample, the dental records should contained information regarding the medical diagnostic, type of cleft, age, gender, socio-economic status, oral hygiene habits and dental treatment need. The determination of the cleft type was based on the description present in the clinical files, which cleft status was based on cleft type (CL, CLP, and CP); on cleft palate completeness (comprised of primary and secondary palates entirely) or incompleteness (comprised only secondary palate or submucous cleft palate). With regard to socioeconomic status, we collected

data regarding monthly family income, varied from number of minimum wage. The type of dental treatment included was as follow: preventive care, restoration, endodontic treatment, extraction, periodontal treatment and orthodontic treatment. We categorized the patients regarding age groups to analyze the dental treatment needs. The first group consisted of infants 0 to 3 years (n= 25), the second group on the children aged 4 to 14 years (n= 48), the third group of adolescents aged 15 to 21 years (n= 24) and the fourth group of adults having age more than 22 years (n=72).

The data was processed and analyzed using the Epi Info3.3.2 statistical software package. Chi-square or Fisher's exact tests at a level of significance of 0.05 were used.

RESULTS

Analysis enrolled 169 dental records after exclusion of seven dental records due to incomplete data. The mean age was 19.7 years (± 5.8). The sample consisted of 84 female (CL=21; CLP=40; CP=23) and 85 male (CL=19; CLP=47; CP=19) patients. The monthly family income of the majority of patients (86.4%) CLP varied from less than 1 to 4 times the minimum wage, equivalent to USD 210-630. Table 1 shows the characteristics of study population.

Table 1: Socio-demographic characteristics of the study population

<i>Gender(%)</i>	
Male	85 (50.2)
Female	84 (49.8)
Mean Age (SD)	19.7 years (± 5.8)
<i>Type of cleft (%)</i>	
CL	40 (23.6)
CLP	87 (51.4)
CP	42 (24.8)
Mean income of families	1 - 4 times minimum wage (USD 210-630)

Patients with CLP presented more invasive dental treatment need than CL and CP ($p=0.03$). CLP patients were also strongly associated with orthodontic treatment need ($p=0.00009$). Hundred and one (60.1%) patients related to receive previously dental care instructions. Seventy-nine (46.7%) patients related a cariogenic diet that includes candy and sweets more the once a day, which was associated with

dental restoration treatment need ($p=0.03$). Only 76 (45.5%) patients related brushed their teeth three times a day.

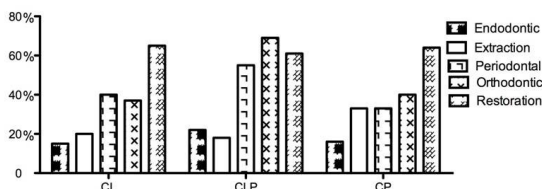
A total of 85.2% patients needed an invasive dental treatment, such as, restoration, endodontic treatment, extraction and periodontal treatment and 59.7% patients needed preventive care that included dental prophylaxis, fluoride application and oral instruction.

There was not statistical difference between dental treatment need and age group ($p>0.05$). Graphic 1 illustrates the distribution of dental treatment needs by type of cleft. Table 2 shows the dental treatment needs among cleft patients in different age groups.

Table 2: Dental treatment needs among cleft patients in different age groups.

Age groups	Restoration	Endodontic treatment	Extraction	Periodontal treatment	Orthodontic treatment	Total Patients (n=169)
0-3 years	1	-	-	-	-	25
4-14 years	31	3	14	8	31	48
15-21 years	18	4	8	15	14	24
>22 years	56	22	19	55	47	72

Note: Patients included in this study need 1 or more type of treatment.



Graphic 1: The distribution the dental treatment needs by cleft type

DISCUSSION

Our study was carried out to determine the dental treatment needs of CL/P patients that seeking for a treatment in a reference public hospital of craniofacial anomalies in order to provide more information for future oral health program and intervention. According to a previous study¹³, the need to identify high-risk groups and to facilitate the integration of oral hygiene and dental preventive habits into the treatment protocol is important in oral cleft population.

It is well established that children with special health care tended to have poorer oral hygiene than their normal counterparts¹⁴⁻¹⁶. Moreover, previous reports demonstrated that cleft patients had a high prevalence of dental caries⁶⁻¹⁰. Our findings identified an extensive dental treatment

needed in patients with CLP, regardless the type of cleft. This could be explained by low to moderate socio-economic status, cariogenic diet and worse oral hygiene due to a tendency of avoiding manipulating the cleft area. In addition, dental anomalies and defects form of lips and palate could make oral hygiene practice more difficult providing added retention areas for food and plaque¹⁷.

Orthodontic treatment was the most common treatment need, mainly in CLP patients. Patients with CLP generally encounter numerous dental and skeletal abnormalities in discrepancy in skeletal base¹⁷. In addition, several studies have shown that patients undergoing fixed appliance orthodontic treatment have a risk of dental caries¹⁸.

In our study, a great number of patients required dental restoration and the majority of these patients had CLP. According previous studies^{6, 19} children with CP or CL had better oral health than those with CLP. Older patients presented more dental treatment need than the younger. In addition, we noted a high prevalence of endodontic treatment need and extraction need, which could be attributed to caries lesion progression untreated. This information reflects the possibility that these patients were not previously included in preventive dental care measures

Our results are consistent with a previous study¹⁵ who reported that individuals with impaired hearing have a

high caries prevalence, poor oral hygiene and extensive unmet needs for dental treatment. Probably, patients with special health care needs have, in their daily lives more severe and complicated healthcare needs than dental caries and the priority of dental care may be low because of the focus on the numerous medical procedures required during their life.

It is well established that retrospective studies provide for analysis amounts of data with less investment but, on the other hand, the research has no control over the data, which can be incomplete, inaccurate or incorrect measured. Despite the small number of dental records included in this retrospective study, this is a representative number of patients that received dental treatment in this period. Our results identified a higher prevalence of untreated dental disease and consequently an extensive dental treatment needed. These findings suggested poor oral hygiene status associated with unmet dental care needs. Moreover, these results permitted to identify high-risk groups for dental caries and periodontal disease in this population. A developing of an immediate and effective oral health programs is recommended for CLP individuals, as well as a special education program for their parents.

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