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Oral health conditions of patients with special needs assisted by a specialized institution of Brazil

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ABSTRACT: *Patients with special needs, especially those who are diagnosed with Cerebral Palsy (CP) Down Syndrome (DS) and autism have an oral health often compromised. It is known that patients with these needs, often do not collaborate for the cleaning of the teeth, thereby contributing to the onset of a larger index of caries and periodontal disease. The aim of this study was to evaluate aspects of oral health of patients with PC, SD and Autism covered by the Association of Parents and Friends of Exceptional (APAE) of Parnaíba, PI, Brazil. This was a cross-sectional, descriptive study was approved by the Ethics Committee of the State University of Piauí, and became an epidemiological survey by the DMFT index analysis (decayed teeth, missing and filled), O'Leary plaque index and prevalence of oral diseases found in these three groups of patients. The highest average of the DMFT index and O'Leary plaque index was verifyed in autistic and patients with CP respectively, however it found no statistically significant difference between both groups. The DS patients showed a greater amount of oral conditions compared to the other patients evaluated, with the tongue fissured the most prevalent.*

KEYWORDS: *Autism; Dentistry; Cerebral palsy; Down's Syndrome.*

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I. INTRODUCTION

Patients with special needs (PSN) are people who have physical, mental, sensory, developmental, behavioral or emotional disabilities, as well as limited conditions that require medical attention through specialized programs or services for a period of their life or indefinitely. The pathological condition may be developmental or acquired, and may cause limitations or incapacity in daily activities. The term most commonly cited in the literature to refer to these patients is "a person with a disability (Pini et al., 2016; Adyanthaya et al., 2017).

The Brazilian population consists of approximately 160 million inhabitants. According to the World Health Organization (WHO) 10% of the population (16 million inhabitants) has some deviation from normality, and are classified as individuals with special needs. Considering the numbers presented by WHO, approximately 3% of the special individuals receive dental care, corresponding to 480 thousand patients (Brandão, 2011; Almeida-Marques et al., 2012).

In 2002, the Federal Council of Dentistry (CFO-Brazil), in resolution 22, section XI and art. 31, recognized dentistry for patients with special needs as the specialty that aims at the prevention, diagnosis, treatment and control of oral health problems of patients presenting a complexity in the biological, psychological or social system, as well as the perception and within a transdisciplinary structure with other health professionals (Espinoza, Heaton, 2016; Volpato et al., 2014).

Oral diseases such as cavities, premature tooth loss, periodontal problems, parafunctional habits and malocclusions have a high prevalence in the PSN. These conditions occur mainly because of a deficit in oral hygiene caused by the physical and psychological limitations that prevent the patient from performing a proper brushing, by the diet that is usually of soft and sticky consistency besides the difficulty in chewing and swallowing, by the various remedies that are ingested daily and by the low supply of attention in the area of dentistry (Lucena et al., 2012).

The higher prevalence of caries lesions in patients with Cerebral Palsy (CP) may be associated with the high frequency of consumption of a carbohydrate-rich pasty diet, mastication by kneading between the dorsum of the tongue and the palate, incoordination of the masticatory muscles, the presence of food residue on the palate and tongue, and poor oral hygiene. The high prevalence of periodontal disease is directly related to the difficulty of oral hygiene and the presence of mouth breathing. In addition, the use of medications such as phenytoin, nifedipine and cyclosporin predispose to gingival growth, which may aggravate the inflammatory gingival process (Tashiro et al., 2012; Clemetson et al., 2012).

Individuals with Down Syndrome (DS) have a low prevalence of caries due to the delayed eruption of permanent teeth due to the high number of diastema present that reduce the amount of proximal caries and also the salivary capacity of the teeth. In periodontal disease, it is considered that immunological deficiency is the preponderant factor for the evolution of the disease, since the organism presents difficulties to combat the bacteria that are present in the dental biofilm (Rothmaier et al., 2017; Davidovich et al., 2010). In autistic patients, pharmacological management often includes drugs that affect the salivary flow, such as methylphenidate, known as ritalin, which is related to a reduction of salivary flow, causing a clinical picture of hyposalivation, responsible for the increased risk of caries and other oral diseases. The use of antipsychotics (haloperidol) indicated in the control of tics also causes reduction of salivary flow, gingival bleeding, thrombocytopenia, which may facilitate the presence of hemorrhagic conditions in surgical procedures, associated with neutropenia, which may predispose to secondary infection and delayed cicatrization in the postoperative period (Amaral et al., 2012; Blomquist et al., 2015).

In considering the predisposing aspects of poor oral conditions in PSN, and in Parnaíba, PI, Brazil, having the Association of Parents and Friends of the Exceptional (APFE) as a reference center in the care of these patients, this study had as objective to evaluate the aspects of oral health of PSN with PC, DS and Autism assisted by this institution, considering caries, periodontal and other diseases.

II. METHODOLOGY

This cross-sectional and quantitative study was carried out in patients with Cerebral Palsy, Down Syndrome and Autism assisted by APFE of Parnaíba - PI, from August 2014 to July 2015. The research was previously approved by Research Ethics Committee of the Faculty of Medical Sciences of the State University of Piauí - FACIME/UESPI (CAAE 30862714.9.0000.5209).

The sample consisted of individuals diagnosed with CP, DS and Autism, of both genders, aged between 12 and 40 years old and who attended the APAE of Parnaíba - PI in the last four months before the period evaluated. Patients who did not fit the above mentioned items, who did not allow the clinical examination, or when caretaker or caregiver did not accept participation in the study, were excluded from the study.

Prior to conducting the clinical exams with PSN, two researchers were calibrated using the Kappa index and subsequently obtained the free and informed consent of the caregivers of the selected patients. To perform the clinical examination, a flat mouth mirror and exploratory catheter were used in natural light, where both the examiner and the person examined were seated in a well-lit, ventilated place near a water source. Carious, missing and filled teeth – Decayed, Missing and Filled Teeth Index (DMFT Index), presence of dental biofilm – O'Leary plaque index and possible oral pathologies found during the examination in a clinical file adapted to the model used at the Clinical School of Dentistry of UESPI.

The data obtained were cataloged through Microsoft Office Excel® 2010 software and later the statistical analysis with ANOVA test (95% level of significance) was performed by PASW 18 software.

III. DISCUSSION

Studies by Gaçe et al. (2014) demonstrated that patients with CP had a high incidence of caries due to factors such as: poor oral hygiene; lack of information and knowledge of caregivers on oral health; some caregivers do not worry about the oral hygiene of children with disabilities; due to low socioeconomic status and level of schooling of caregivers, reflecting a DMFT of 3.4 to 3.5. In the APFE – Parnaíba PC patients, the mean DMFT was 4.16.

Regarding the periodontal evaluation of patients with CP, Cardoso et al. (2015) carried out a study at APAE in Campina Grande-PB and obtained a high prevalence of periodontal alterations, being explained by the difficulties to perform daily oral hygiene, affected by changes in intraoral sensitivity and orofacial motor dysfunction, due to lack of information on care and also due to the use of anticonvulsants. In the APFE - Parnaíba, the O'Leary index observed in these patients was 38.9%, indicating a high biofilm incidence.

Rauhl et al. (2015), in his study with 70 patients with DS, found a mean DMFT of 6 in 32 patients and an average DMFT of 0 in only one patient, noting that in this population there was a high prevalence of caries disease. Deps et al. (2015) performed a systematic review that assessed the prevalence, incidence, or experience of dental caries in people with DS compared to a control group without DS, and the vast majority of studies

found that individuals in the control group had caries lesions or more experience of caries than those with DS, presenting statistically significant results in seven studies. In the patients with DS of the APFE - Parnaíba the mean DMFT found for the 14 patients evaluated was 3.85, the lowest compared to the other special needs (without statistical significance), thus agreeing with the study by Deps et al. (2015), since patients with DS, despite having some local determinants of caries (difficulty accessing dental care, poor eating habits, use of drugs for severe upper respiratory infections, reduced manual dexterity, poor hygiene oral, parental neglect) are compensated by "protective factors" such as: saliva buffering ability, bruxism, diastema, agenesis and microdontia.

On periodontal disease in patients with DS, Frydman and Nowzari (2012) performed a literature review that focused on periodontitis in patients with DS and studies have shown that the etiology of periodontal disease in these patients is related to poor sanitation. Limited access to care, restricted manual dexterity and reduced efficacy of self-care at home are determinants of increased levels of gingivitis, in addition to which significant amounts of periodontal pathogens have been found in patients with DS. O'Leary's index in patients with DS of APFE - Parnaíba was 34.8%, certifying that these patients are predisposed to develop periodontal disease.

Fakroon et al. (2015) verified the experience of caries and periodontal treatment of patients with autism and a control group, and found that autistic subjects had significantly lower mean DMFT in relation to the control group and the number of autistic patients with gingival inflammation which was double in relation to the control group. In the APFE - Parnaíba, the autistic patients presented a DMFT of 4.21 and an O'Leary index of 27.1%. The divergent results may be related to the inclusion and accessibility of these patients to health care programs.

Comparing the mean DMFT index of the three groups evaluated in the APFE – Parnaíba with data from Brazil (2012), it is observed that the results are in agreement with the indexes found for the age group of 12, 15 to 19 and 35 to 44 years old.

In relation to oral pathologies in the special patients, Al-Maweri et al (2015) evaluated 50 patients with DS and the most common oral pathology was fissured tongue (78%). In the APFE – Parnaíba patient groups, the number of pathology was more frequent in patients with DS, and among them, the fissured tongue was also highlighted with 50%.

IV. FINDINGS

In this study, 60 patients were evaluated, of whom 18 had CP, 14 were diagnosed with DS, and 28 had Autism.

In order to verify if there were differences in the DMFT, O'leary and number of pathologies found, the three groups were compared by analysis of variance (ANOVA), according to the type of disability, considering the level of significance for p>0.05 (Table 1).

Disability	N		*zM*	*DP*	F	*P*
Cerebral Palsy	18					
Down Syndrome	14		4.16	3.40		
Autism	28	DMFT	3.85	2.65	0.065	0.937
			4.21	3.10		
Cerebral Palsy	18					
Down Syndrome	14		38.9%	33.9%		
Autism	28	O'leary	34.8%	36%	0.841	0.436
			27.1%	26.7%		
Cerebral Palsy	18					
Down Syndrome	14	Number of	0.27	0.46		
Autism	28	Pathologies	1.07	0.82	4.216	<0.001
			0.14	0.35		

Table 1: Differences in DMFT, O'leary and pathological indexes by the kind of disability.

There was no statistically significant difference between the groups, in relation to the DMFT index [F (2.57) = 0.065, p=0.937]. Regarding the O'leary index, the results showed that there was also no statistically significant difference between the groups [F (2.57) = 0.841, p=0.436]. A statistically significant difference was found only in relation to the number of pathologies found [F (2.57) = 4.21, p<0.001]. However, to verify exactly where the differences occurred the pairwise combinations were observed in relation to this variable. (Table 2).

		$M_{difference}$	*p*
Cerebral Palsy	Down Syndrome Autism	-0.794* 0.135	0.001 1.00
Down Syndrome	Cerebral Palsy Autism	0.794* 0.929*	0.001 0.001
Autism	Cerebral Palsy Down Syndrome	-0.135 -0.929*	1.00 0.001

Table 2: Comparison with the pair of diseases.

The greatest number of pathologies were found in participants with DS both in relation to those with CP (Difference = 0.794, p<0.001) and those with autism (Difference = 0.929, p<0.001). There was no statistically significant difference between the number of pathologies found in patients with PC and autism (Difference = 0.135, p=1.00). Among the most prevalent pathologies in DS patients, the fissured tongue (50% of the sample) was highlighted (Figure 1).

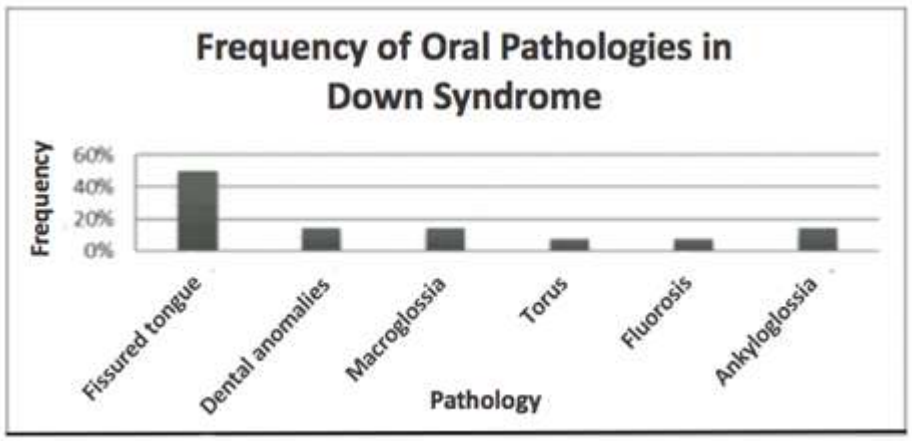

Figure 1: Frequency of oral pathologies in patients with Down Syndrome.

V. CONCLUSION

The DMFT Index did not present a significant difference between the special needs assessed. There was no statistically significant difference when the O'Leary Index was observed among patients with DS, CP and Autism. The pathologies were predominantly observed in the group with DS, with a higher occurrence of fissured tongue. However, other pathologies such as migratory erythema, ankyloglossia, and fluorosis were present in patients with CP and Autism.

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