

Toothbrushing in patients with neurological and / or motor disorders

Escovação dental em pacientes com desordens neurológicas e motoras

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DESCRIPTORES:

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RESUMO

O objetivo deste estudo foi identificar as características e dificuldades encontradas por pais e / cuidadores durante a realização da escovação dental em pacientes com desordens neurológicas e motoras. Foi aplicado um questionário a 40 pais / cuidadores de pacientes especiais, com idade de 3 a 32 anos, os quais estavam em atendimento na Faculdade de Odontologia de Ribeirão Preto da Universidade de São Paulo. Os dados obtidos foram avaliados por meio de análise estatística descritiva. Foi observado que as mães foram as principais responsáveis pela higienização bucal dos pacientes especiais, realizada 3 vezes ao dia, na pia do banheiro. Todos os pais relataram dificuldades durante a escovação dental, incluindo a inabilidade do paciente para cuspir e enxaguar a boca, dificuldade para manter a boca aberta durante o procedimento, presença de movimentos voluntários e involuntário e reflexo de vômito constante. Estas dificuldades reportadas pelos cuidadores indicam a necessidade de treinamento para realizar a higiene bucal em pacientes especiais com o objetivo de melhorar a qualidade de vida desses indivíduos.

Keywords:

Special Needs Patients. Guardians; Oral Health Care. Toothbrushing.

ABSTRACT

The purpose of this questionnaire-based study was to identify the characteristics and difficulties in undertaking toothbrushing in special needs patients with neurological and / or motor disorders. A questionnaire addressing aspects of the patients' oral homecare was applied to 40 caregivers of special needs patients aged 3-32 years who were undergoing dental treatment. Data were analyzed by descriptive statistics. Mothers were most often reported as the person in charge of performing toothbrushing, which was usually performed three times a day at the bathroom sink. All respondents mentioned difficulties during toothbrushing, including the patients' inability to rinse the mouth and spit, their inability to open the mouth and keep it open during brushing, the presence of voluntary and involuntary movements, and vomiting reflexes. These difficulties reported by guardians further indicate that guardians need to be trained for performing oral hygiene in special care patients in order to improve the quality of life for these patients.

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INTRODUCTION

The International Association for Disability and Oral Health classifies special needs patients according to the extension of the psychomotor disability and / or the areas affected by the pathology. This may involve physical or congenital defects, intellectual deficits, communication and sensory deficiencies, behavioral or psychological deviations, chronic systemic diseases, endocrine and metabolic disorders, social deviations, and special physiological conditions (13).

Special needs patients, especially those with mental, neurological, and / or motor disorders usually exhibit poor oral health. The prevalence, incidence, and severity of dental caries and periodontal diseases are higher compared to non-disabled patients (8, 17), mainly because special needs patients with mental, neurological, and / or motor disorders present decreased dexterity and are unable to brush their teeth satisfactorily (6).

In order to optimize the prevention of dental and oral diseases in special needs patients and enroll them in a preventive dental care routine, parents / caregivers should be provi-

ded with elementary information regarding the prevention of dental caries and periodontal diseases (6).

Daily mechanical control of dental biofilm at home is the most efficient and safe way to control caries and periodontal diseases. However, clinical practice has shown that patients with neurological and / or motor disorders usually present poor oral hygiene and their parents / caregivers usually refer to home toothbrushing as a challenging activity. Therefore the purpose of this questionnaire-based study was to identify characteristics and difficulties in undertaking toothbrushing in special needs patients with neurological and / or motor disorders, who are unable to brush their teeth unassisted.

METHODS

This study was approved by the Ethics in Research Committee at the School of Dentistry of Ribeirão Preto (Protocol # 2003.1.440.58.7). Informed consent was obtained from parents or guardians prior to the interview.

Forty guardians of special needs patients with neurological and / or motor disorders were selected at the Center for Formation of Human Resources Specialized in Dental Care for Special Needs Patients at the School of Dentistry of Ribeirão Preto at the University of São Paulo. The sample consisted of male and female patients, aged 3-32 years.

Parents / guardians were asked to answer a questionnaire addressing aspects of the patients' oral health homecare: who performs tooth brushing at home, how many times per day the patients have their teeth brushed, at what time and where toothbrushing was performed, how the patient was positioned for toothbrushing, whether physical constraint was required during toothbrushing, whether any device was employed to keep the patient's mouth open during toothbrushing, and whether any instructions on toothbrushing had previously been provided by a dental professional.

Data regarding the factors that could impair toothbrushing were also collected, including the patient's ability to rinse his / her mouth, capacity to open the mouth and keep it open during toothbrushing, as well as the presence of voluntary / involuntary movements, or vomiting reflexes. Additionally, the use of dental floss, mouthrinse or electric toothbrush was investigated. Data were analyzed by descriptive statistics.

RESULTS

In 85% of the cases, the mother was reported as responsible for the patients' oral hygiene. For 35% of the patients, toothbrushing was performed three times a day (in the morning, after lunch and prior to bedtime). Fifty-seven percent of the patients had their teeth brushed at the bathroom sink, whereas for 42.5% of patients toothbrushing was performed in the bed / sofa, on the mother's lap, or during the bath.

Regarding the patients' position during toothbrushing, 67.5% of the interviewees reported that the patients remained standing, 10% were in a prone position, and 22.5% were seated. Twenty-seven of the patients required physical restraint during oral homecare although none of the interviewees reported the use of any device to keep the patients' mouth open during toothbrushing.

All parents / caregivers answered that they had received previous instructions on toothbrushing from a dental professional and that they indeed face difficulties when brushing the patients' teeth. Only 20% of the patients were able to rinse and spit, and 90% of them were not able to open the mouth and keep it open during toothbrushing. In 52.5% of the cases, the

patient's voluntary and / or involuntary movements hampered toothbrushing; 35% of parents / caregivers mentioned that toothbrushing elicited vomiting reflexes in the patients.

In 75% of the cases, flossing was mentioned to be impossible. A total of 37.5% of the patients used antimicrobial agents, and only 2.5% reported the use of an electric rather than manual toothbrush.

DISCUSSION

Several conditions lead to the development of dental caries and periodontal diseases in special needs patients. The patients' total or partial inability to perform toothbrushing adequately without assistance exacerbates poor oral health.

The importance of mechanical control of the dental biofilm is well established. Significant decreases in plaque and gingival indexes can be obtained in special needs patients with adequate toothbrushing and flossing (2, 4, 10). Since home-based mechanical control of dental biofilm is a convenient and inexpensive preventive approach, knowledge of the characteristics and difficulties of oral homecare in special needs patients with neuromotor deficits is important in order to overcome these shortcomings. Toothbrushing is the easiest, most rational and effective way of maintaining oral health.

Our findings support previous studies reporting that mothers are primarily responsible for the oral hygiene of these patients (15). Guardians reported that they undertook toothbrushing while the patient was on the bed or sofa, on the mother's lap, or in the bath. These can be considered the most comfortable positions for oral care, according to the patient's needs. In some cases, physical restraint was required during toothbrushing, and the need for help was mentioned frequently. Most patients were unable to spontaneously open or keep their mouths open during toothbrushing; 57.5% of them presented voluntary and / or involuntary movements that hampered brushing. These findings confirm how challenging oral homecare may be in these special needs patients.

The efficacy of chlorhexidine gluconate for the control of dental biofilm and gingivitis has been widely demonstrated (14, 16), being especially indicated for special needs patients (5, 14, 15). However, the outcomes of this survey showed that only 37.5% of the parents/caregivers used antimicrobial agents in spite of being aware of their importance in caries and periodontal disease control (3, 5, 7, 12, 14).

The use of electric toothbrush rather than manual toothbrush was reported by only one respondent (2.5%), which may be explained by the lack of information on this product and its higher cost compared to conventional brushes, as all patients in the present study belonged to a low-socioeconomic level population. We believe that electric toothbrushes would be of great help for the oral hygiene of patients with neurological and / or motor deficiencies because electric toothbrushes are effective for reduction of dental biofilm, gingival bleeding, and even periodontal pocket depth (1, 9). The greatest advantage of electric toothbrushes is that their use does not require professional training in brushing techniques or manual skills (11).

Movement limitations or motor coordination difficulties can be partially overcome by continuous training aided by physical therapy and modification of the toothbrush handle for easier handling. The use of electric, adapted, or custom-made toothbrushes should also be further stimulated. In more severe cases, prescription of antimicrobial agents and scheduling of more frequent professional care sessions are essential approaches to complement home-based oral hygiene measures (6).

A relevant finding from this survey was that all inter-

viewees had already been instructed by dental professionals with regard to toothbrushing. However, in practice, this instruction seemed not to be sufficient to modify the oral home-care provided to the patients. Special care dentists have an important supportive role for parents / caregivers of disabled patients to help render oral homecare less challenging.

CONCLUSION

The outcomes of this questionnaire-based study showed that among patients with neurological and / or motor disorders, the mother is most often responsible for home oral healthcare. The patients usually have their teeth brushed three times a day at the bathroom sink. Toothbrushing is hampered by several conditions including the patients' inability to rinse/spit and keep their mouth open, voluntary / involuntary movements, and vomiting reflexes during brushing.

REFERENCES

01. Aass AM, Gjermo P. Comparison of oral hygiene efficacy of one manual and two electric toothbrushes. *Acta Odontol Scand* 2000;58:166-70.
02. Abreu MHNG, Paixão HH, Resende VLS, Pordeus IA. Mechanical and chemical home plaque control: a study of Brazilian children and adolescents with disabilities. *Spec Care Dent* 2002;22:59-64.
03. Allen DR, Davies R, Bradshaw B, Ellwood R, Simone AJ, Robinson R, Mukerjee C, Petrone ME, Chaknis P, Volpe AR, Proskin HM. Efficacy of a mouth rinse containing 0.05% cetylpyridinium chloride for the control of plaque and gingivitis: a 6-month clinical study in adults. *Compend Contin Educ Dent* 1998;19(2):20-6.
04. Carr MP, Sterling ES, Bauchmoyer SM. Comparison of the Interplak and manual toothbrushes in a population with mental retardation/developmental disabilities (MR/DR). *Spec Care Dent* 1997;17:133-6.
05. Clavero J, Baca P, Junco P, González MP. Effects of 0.2% chlorhexidine spray applied once or twice daily on plaque accumulation and gingival inflammation in a geriatric population. *J Clin Periodontol* 2003;30:773-7.
06. Fourniol Filho A. *Pacientes Especiais e a Odontologia*. São Paulo: Santos; 1998.
07. Franco CF, Pataro AL, Souza LCR, Santos VR, Cortés ME, Sinisterra RD. In vitro effects of a chlorhexidine controlled delivery system. *Artif Organs* 2003;27:486-91.
08. Gordon SM, Dionne RA, Snyder J. Dental fear and anxiety as a barrier to accessing oral health care among patients with special health care needs. *Spec Care Dent* 1998;18:88-92.
09. Grossman E, Proskin H. A comparison of the efficacy and safety of an electric and manual children's toothbrush. *J Am Dent Assoc* 1997;128:469-74.
10. Haffajee AD, Arguello EI, Ximenez-Fyvie LA, Socransky SS. Controlling the plaque biofilm. *Int Dent J* 2003;53:191-9.
11. Heins P, Bartizek RD, Walters PA, Biesbrock AR. Plaque removal efficacy of a battery-operated power toothbrush compared to two control manual toothbrushes in single use studies. *Am J Dent* 2002; 15(28A-32A).
12. Keijser JAM, Verkade H, Timmerman MF, Van der Weijden FA. Comparison of 2 commercially available chlorhexidine mouth rinses. *J Periodontol* 2003;74:214-8.
13. Mugayar LRF. Guia de prevenção odontológica. In: Mugayar LRF. *Pacientes portadores de necessidades especiais: Manual de odontologia e de saúde oral*. São Paulo: Pancast;

2000. p. 251-259.

14. Pannuti CM, Saraiva MC, Ferraro A, Falsi D, Cai S, Lotufo RFM. Efficacy of a 0.5% chlorhexidine gel on the control of gingivitis in Brazilian mentally handicapped patients. *J Clin Periodontol* 2003;30:573-6.
15. Pomarico L, Souza IPR, Tura LFR. Oral health profile of education and health professionals attending handicapped children. *Braz Oral Res* 2003;17:11-6.
16. Steelman R, Holmes D, Hamilton M. Chlorhexidine spray effects on plaque accumulation in developmentally disabled patients. *J Clin Pediatr Dent* 1996;20(4):333-6.
17. Willershausen B, Lenzner K, Hagedorn B, Ernst CP. Oral health status of hospitalized children with cancer: a comparative study. *Eur J Med Res* 1998;3:480-4.