REVISTA DE ODONTOLOGIA DA UNESP
www.revodontolunesp.com.br
Original Article

© 2018 - ISSN 1807-2577

Epidemiological profile of patients with disabilities undergoing dental treatment under general anesthesia

Perfil epidemiológico de pacientes com deficiência submetidos a tratamento odontológico sob anestesia geral

Cyntia Paula Oliveira de Souza LIMA[a], Graziane Ribeiro COUTO[a], Alina Lúcia de Oliveira BARROS[b], Gabriela Mancia de GUTIERREZ[c*], Maria Teresa Botti Rodrigues SANTOS[c]

[a]ABO – Associação Brasileira de Odontologia, Aracaju, SE, Brasil
[b]UFS – Universidade Federal de Sergipe, Serviço de Odontologia do Hospital Universitário, Aracaju, SE, Brasil
[c]Universidade Cruzeiro do Sul, Programa de Pós-Graduação em Odontologia, São Paulo, SP, Brasil

How to cite: Lima CPOS, Couto GR, Barros ALO, Gutierrez GM, Santos MTBR. Epidemiological profile of patients with disabilities undergoing dental treatment under general anesthesia. Rev Odontol UNESP. 2021;50:e20210012. https://doi.org/10.1590/1807-2577.01221

Resumo

Introdução: A anestesia geral é comumente utilizada no tratamento odontológico de pessoas com deficiência, ansiosos ou com difícil comportamento, que necessitem de tratamentos complexos e/ou extensos. **Objetivo:** Avaliar o perfil epidemiológico da pessoa com deficiência submetida a tratamento odontológico sob anestesia geral pela equipe da Unidade de Odontologia para Pacientes com Necessidades Especiais da Universidade Federal de Sergipe. **Material e método:** Através da análise de 371 prontuários de pacientes assistidos entre agosto de 2002 e março de 2019. **Resultado:** Observou-se que 56,1% dos pacientes eram do sexo masculino, que a faixa etária mais prevalente foi de 11-20 anos de idade e que as condições médicas mais frequentes foram a deficiência intelectual, seguida pelas múltiplas deficiências. Quanto aos procedimentos odontológicos, observou-se que em 94,1% dos pacientes foram realizadas 4.056 extrações dentárias e em 52,3% dos pacientes 1.156 restaurações. Em 30,2% dos pacientes foram realizadas extrações múltiplas totais. O exame radiográfico foi realizado em 51,8% dos pacientes. Em relação a procedência dos pacientes, 58,8% eram provenientes de outros municípios do estado, distinto da capital. Os retornos ao serviço para acompanhamento e prevenção foi observado em 38,5% dos pacientes. **Conclusão:** Há uma grande necessidade de intervenção precoce da odontologia, com ações preventivas específicas para esse grupo de pacientes, com enfoque no interior do estado de Sergipe.

Descritores: Anestesia geral; pessoas com deficiência; assistência odontológica para pessoas com deficiências; cirurgia bucal.

Abstract

Introduction: General anesthesia is commonly used in the dental treatment of people with disabilities, anxious or difficult behavior, who need complex and/or extensive treatments. **Objective:** The aim of this study was to evaluate the epidemiological profile of patients with disabilities undergoing dental treatment under general anesthesia by the team of the Dental Unit for Patients with Special Needs of the Federal University of Sergipe. **Material and method:** Through the analysis of 371 dental records of patients assisted between August 2002 and March 2019. **Result:** The analysis showed that 56.1% of patients were male, the most prevalent age group was 11-20 years, and the most frequent medical conditions were intellectual disability, followed by multiple disabilities. Relative to dental procedures, in 94.1% of the patients, it was observed that 4,056 dental extractions were performed and in 52.3% of patients, 1,156 restorations were performed. In 30.2% of patients, total multiple extractions were performed. Radiographic examination was performed in 51.8% of patients. As regards the origin of patients, 58.8% were from municipalities in the state, other than the capital. Return to the service for follow-up and prevention was observed in 38.5% of

patients. **Conclusion:** There is great need for early dental intervention, with specific preventive actions for this group of patients, focusing on those from interior regions of the state.

Descriptors: Anesthesia general; disabled persons; dental care for disabled; oral surgery.

INTRODUCTION

Disabled people have been considered individuals with any type of condition that causes them to need differentiated care for a period or throughout their lifetime, thus they are classified as individuals who have some simple or complex, acute or chronic, temporary or definitive states of changed physical, organic, mental or social condtions[1].

In Brazil, about 45.6 million people have some type of disability, corresponding to 23.91% of the Brazilian population, and of these, 18.8% have visual, 7.0% motor, 5.1% hearing and 1.4% intellectual disability[2]. In Sergipe, the prevalence of people with disabilities was estimated at 518,901 inhabitants, which corresponds to 25.09% of the state population, exceeding the national average[2].

The need for dental care for patients with disabilities is increasingly frequent, mainly due to the increase in life expectancy; however, dental professionals still have difficulties in attending this group of patients. This is because dental teams not only require previous training, qualification and specific knowledge to provide care for this group of people, but these individuals also require ergonomic adjustments to meet the needs of their limitations[3,4].

Persons with disabilities are a high risk group for the development of oral diseases such as dental caries, periodontal disease and malocclusion[5-7]. Some risk factors have been reported to justify the predisposition of this group to the aforementioned diseases, such as enamel defects, inability to perform oral hygiene, poor dietary habits that include eating pasty foods, frequent carbohydrate intake, inadequate movements of chewing muscles and tongue, changes in salivary flow and the chronic use of medications[8-10].

In addition to the conditions leading to predisposition to oral diseases, people with disabilities are victims of some factors that impair their access to dental care and aggravate their oral health status such as difficulty in commuting to the place of dental care; financial limitation; lack of knowledge and/or negligence of parents/caregivers regarding oral health. Not only is there an insufficient number of professionals but some also have insufficient qualification since there is a shortage of graduate courses in this field of public health care. Moreover, in the private sector, these disabled people change the dental office routine[3,11,12].

The modality of general anesthesia is produced by pharmacological compounds, in which an induced state of unconsciousness accompanied by complete loss of protective reflexes is observed, including the inability to independently maintain respiratory functions[13].

The most widely used method for inducing general anesthesia in dentistry is intravenous and the maintenance of anesthesia with the use of anesthetic gas mixtures. Nasoendotracheal intubation is the most indicated in dentistry, since absence of the probe in the oral cavity facilitates procedures performed by the dentist[14].

The University Hospital (HU) of the Federal University of Sergipe (UFS), located in the city of Aracaju, operates the Oral Diagnostic and Dental Unit for Patients with Special Needs (UDOPE). This Unit. considered a reference service for outpatient and hospital dental care of people with disabilities, forms part of the Unified Health System (SUS) and is a field of internship for undergraduate Dentistry students at UFS.

The majority of patients treated at UDOPE belong to a needy population that not only faces economic and social difficulties, but many other difficult factors as well, such as inability to collaborate and understand, therefore, indicating the need for dental treatment under general anesthesia.

The aim of this study was to trace the epidemiological profile and dental procedures performed in patients with disabilities, assisted in the operating room under general anesthesia at the Diagnostic and Dental Unit for Patients with Special Needs (UDOPE), University Hospital (HU), Federal University of Sergipe (UFS).

METHOD

This study was submitted to the Ethics Research Committee of the Federal University of Sergipe and after its approval under protocol No. 0034.0.107.000-11, it was conducted according to rules of Resolution 466/2012 of the National Health Council.

This was an observational, retrospective study with secondary data obtained from medical records of patients treated at UDOPE, who underwent dental procedures under general anesthesia, in the period from August 2002 to March 2019. Medical records of patients with incomplete data such as absence of birth date, origin and procedures performed were excluded from the study.

The following data were collected directly from the medical records, with reference to age, gender, origin, medical diagnosis, previous dental care experience, date of first consultation at UDOPE, date of request for preoperative examinations, age of first dental treatment under general anesthesia, attempt of outpatient consultation with or without psychological strategy, protective stabilization and / or conscious sedation; prior dental procedures performed, performance and type of radiographic examination, return for maintenance appointments, and whether there was need for further intervention in the operating room. The medical diagnosis was based on the International Classification of Diseases – ICD-10, WHO[15], issued via medical report.

It is important to point out that for the purposes of UDOPE dental records, parents and/or guardians signed the term of informed consent for dental treatment, which states that all data obtained can be used for didactic and scientific purposes.

Responses were compiled and entered into a spreadsheet created for this purpose, using Microsoft Office Excel version 2016 software for data tabulation. The data obtained were submitted to descriptive analysis by distribution of absolute (n) and relative (%) frequencies.

RESULT

After analyzing 385 medical records, it was observed that all patients were treated in the operating room, but 2 of them underwent drug sedation and 12 had incomplete data, totaling 14 medical records excluded from the research. The final sample consisted of 371 medical records evaluated representing 421 visits to the operating room for dental treatment under general anesthesia in the period from August 2002 to March 2019. The findings showed that 32 (8.6%) patients returned for dental treatment under general anesthesia, 6 (1.6%) returned for the third time and 2 (0.5%) returned for the fourth time.

The mean age of patients receiving the first dental care at UDOPE was 22 ± 12.4 years and the average age of patients undergoing dental treatment under general anesthesia was 23.9 ± 11.9 years. Relative to the age group of patients at the time of the first dental appointment, the most prevalent age group was observed to be 11-20 years old, and consisted of 140 (37.7%) patients, followed by the age group of 21-30, with 94 patients (25.3%) (Figure 1). Relative to the age at the time of the first dental treatment under general anesthesia in the operating room, the most prevalent age group was also 11-20 years, and consisted of 144 (38.8%) patients, followed by the age group of 21-30 years, with 114 patients (30.7%) (Figure 1). Relative to gender, there was predominance of males, with 208 patients (56.1%).

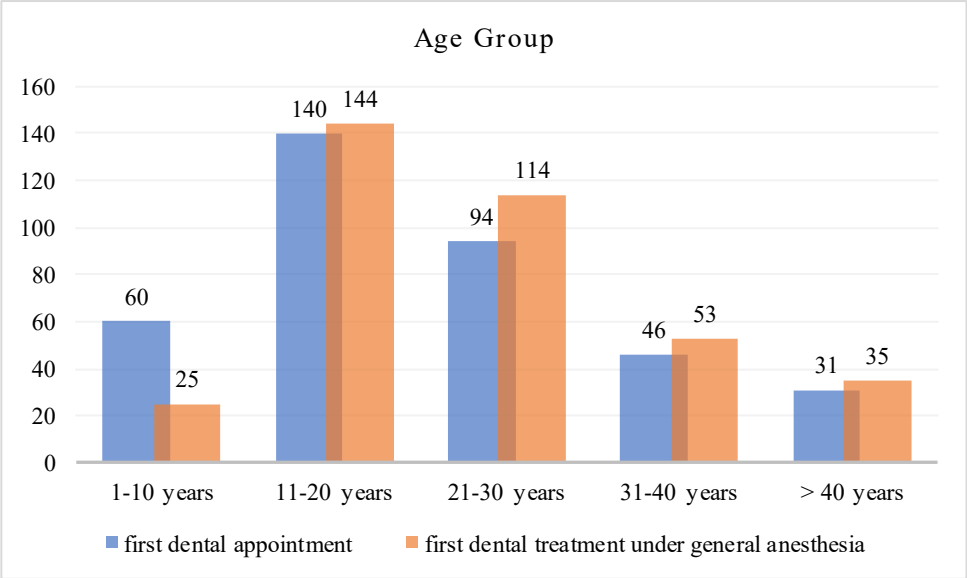

Figure 1. Age distribution of patients when they were admitted to the UDOPE service and underwent first dental treatment under general anesthesia.

Table 1 highlights the absolute and relative frequency of the medical diagnosis variable in which the most prevalent medical conditions were observed to be intellectual disability found in 103 (27.8%) patients, followed by multiple disabilities, with 59 patients (15.9%) and cerebral palsy (CP), with 52 patients (14.0%). Among syndromes, Down syndrome was the most prevalent, in 24 patients (57.1%) followed by Cri-Du-Chat syndrome, in 4 patients (9.5%).

Table 1. Distribution of medical diagnosis of patients undergoing dental treatment under general anesthesia at UDOPE/HU/UFS

Medical Diagnosis	ICD-10	Patients (n)	%
Intellectual disability	F70-79	103	27.8%
Multiple disabilities	More than one	59	15.9%
CP	G80	52	14.0%
Sydromes	Q00-99	43	11.6%
Epilepsy	G40	42	11.3%
Autism spectrum disorder	F84.0-84.1	36	9.7%
Psychiatric disorders	F10-48	26	7.0%
Others	G71.10, G93.4, S04.9, G70, G91.3, G35	6	1.6%
Chronic systemic	E70, E84.0, I27.0, I13.0	4	1.1%
Total		371	100%

Of the 371 medical records evaluated, a large percentage (94.1%) was found to be dental extractions, totaling 4,056 teeth extracted, followed by restorations (52.3%) totaling 1,156

restorations. In 112 patients (30.2%), complete multiple extractions were performed. The other dental procedures performed in these patients included supra-gingival and sub-gingival scraping, gingivoplasty, lingual frenectomy, biopsy, scar excision, and drainage of abscesses (Table 2).

Table 2. Distribution of dental procedures of patients undergoing dental treatment under general anesthesia at UDOPE/HU/UFS

Dental procedures	Patients (n)	%
Extractions = 4056	349	94.1%
Restorations = 1156	194	52.3%
Complete Multiple Extractions	112	30.2%
Supra and Sub-gingival Scraping	149	40.2%
Prophylaxis	168	45.3%
Topical Fluoride Application	187	50.4%
Other procedures	14	3.8%

Considering the origin, 218 (58.8%) came from other municipalities in the state, with 147 (39.6%) living in the capital Aracaju and only 6 (1.6%) were from another state. As can be observed in Figure 2 as regards the relationship between origin of patients and regions of Sergipe, many of the patients, 209 (56.3%), referred for dental treatment under general anesthesia belonged to the Greater Aracaju region, metropolitan region consisting of the municipalities of Aracaju, Barra dos Coqueiros, Nossa Senhora do Socorro and São Cristóvão. The other regions referred 156 (42.1%) patients of whom 29 (7.8%) were from the southern region of Sergipe, 28 (7.5%) were from the "Agreste Central Sergipano" region, 26 (7.0%) were from the "Baixo São Francisco" region, 25 (6.7%) from the Mid-southern region, 21 (5.7%) from the Eastern region, 16 (4.3%) from the "Médio Sertão Sergipano" region, 11 (3.0%) from the "Alto São Francisco" region, and 6 (1.6%) from other states.

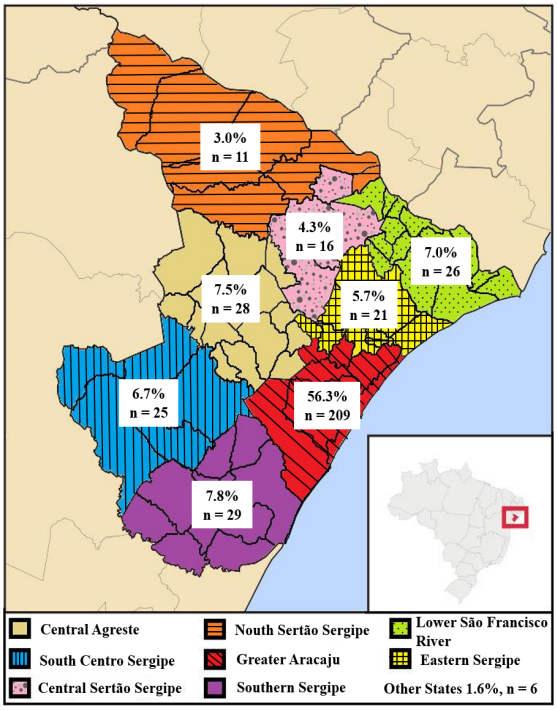

Figure 2. Distribution of origin according to regions of the state of Sergipe. Source: Adapted from Santo & Meiado, 2015.

Relative to patients treated under general anesthesia, 250 (67.4%) had previously undergone some type of dental treatment prior to entering the UDOPE. With regard to the attempts to receive dental treatment on an outpatient basis at UDOPE, before opting for general anesthesia in the operating room, 72 patients (19.4%) had previously undergone a dental procedure. As regards behavioral management strategies used in the service patients before going to the operating room, 89 (24.0%) patients were submitted to some type of psychological strategy, 79 (21.3%) underwent protective stabilization and 58 (15.6%) received conscious sedation. The most commonly used medications for conscious sedation, on an outpatient basis, were benzodiazepines, administered to 35 patients, followed by the association of medications used in 8 patients.

When analyzing the waiting time between the request for a preoperative exam and the day of the dental procedures under general anesthesia, 120 (32.3%) patients were found to have waited from 7 to 12 months, 102 (27.5%) from 04 to 06 months, 86 (23.2%) from 01 to 03 months, 24 (6.5%) from 13 to 18 months, 19 (5.1%) less than one month, 13 (3.5%) from 19 to 24 months and only 7 (1.9%) waited for a period longer than 24 months. Relative to periodic returns for preventive outpatient maintenance after treatment under general anesthesia, a low percentage of patients was observed, 143 (38.5%), attended at this time, which is considered of extreme importance for the maintenance of the oral health of these patients.

Relative to dental radiographic examination, 192 patients (51.8%) underwent some type of intra or extraoral radiography. The majority of them, 169 (88%), had panoramic radiography (PAN), 14 patients (7.3%) had periapical radiographs and 9 patients (4.7%) had PAN and periapical radiographs taken.

As regards referral of patients to the UDOPE service, it was observed that 153 patients (41.2%) were referred by dentists, 99 (26.7%) by some type of physician, specialist or general practitioner, 91 patients (24.5%) by professionals from other areas and 28 (7.5%) came without referral.

DISCUSSION

General anesthesia is a last resource to guarantee the right to oral health of people with disabilities, who are unable to cooperate or receive dental care at outpatient level, due to their disability or medical condition[16].

The UDOPE/HU/UFS patients treated under general anesthesia during the study period evaluated were mostly male, as observed in other studies[17-19]; however, Özkan et al.[20] found a higher percentage of women in their study. One of the most frequent reasons for the prevalence of males in the operating room for dental treatment is their physical strength, which prevents adequate stabilization necessary to perform outpatient dental procedures[21].

Relative to the age group of those receiving their first treatment at UDOPE, there was predominance of age between 11 and 20 years, an age considered relatively advanced for starting with oral health care, which confirmed the low priority given to the oral health of people with disabilities. This resulted from the difficulties found in accessing oral health services for prevention and treatment, and the low socioeconomic status of families, who often lived far away and needed expensive transportation[22]. Considering the age at which patients underwent dental treatment under general anesthesia, it is also worth highlighting the predominance of the age group of 11-20 years, a reality very close to that reported by Ohtawa et al.[21], who found that patients undergoing general anesthesia were under 20 years of age. In another study conducted in the state of Minas Gerais, the authors found a worse reality, and the most prevalent age group in the study population was 21-31 years[19]. Monitoring the dental conditions of patients with disabilities from early childhood is extremely important to work in the prevention of oral diseases.

When evaluating the origin of patients referred to UDOPE and observing that the majority (58.8%) came from other municipalities in the state, other than the capital, a discussion was raised about the possibility that primary care was not being resolutive for solving part of the oral problems of this population group. Furthermore, the lack of specialized professionals in the non-metropolitan region, to care for disabled people, led to the aggravation of oral diseases and need for treatment in the operating room[18]. When the origin of patients classified by health region of Sergipe was analyzed, the Aracaju region and surroundings (region closest to the service) prevailed, and the "Alto São Francisco" region (region with the longest distance from the service) was the region that referred fewer patients. This type of information may indicate the difficulties with transportation to the Dental Unit for Patients with Special Needs (UDOPE), experienced by these patients, aggravated by the long distances from their residences.

With regard to the medical diagnosis of patients undergoing general anesthesia, intellectually disabled patients were the most prevalent group, as has been observed in other studies[18,21,22] since cognitive impairment in this group of patients prevents them from understanding the need to collaborate with the dental procedure to be performed. Other studies have found cerebral palsy as being the most prevalent diagnosis[19,23].

Another important datum extracted from studies concerned the previous experience disabled people had with dental treatment, showing that a significant percentage of them had previously received some dental care, despite the accumulation of oral problems. Thus, it is not known whether they had sought dental care at a late stage or whether the lack of technical skills of professionals who provided the dental care prevented them from undergoing appropriate treatment, resulting in extensive, more complex and time-consuming treatments, requiring general anesthesia.

As general anesthesia for dental treatment should be the last resource to use, techniques such as psychological strategy, protective stabilization and conscious sedation should be appropriately used to try to provide outpatient care and avoid treatment in the operating room[23]. The UDOPE follows this approach with its patients, and according to data obtained, only 19.4% of patients underwent outpatient treatment; This occurred due to the extension of the treatment required or lack of cooperation by disabled patients, the majority of them were clearly indicated to undergo general anesthesia for treatment.

The waiting time for having dental treatment performed under general anesthesia from the time of making the request for preoperative examinations until the date of surgery varied greatly. This ranged from a period of less than 01 month to a period longer than 24 months, and the most prevalent waiting time was from 7 to 12 months. The vast majority waited less than one year to have dental treatment performed under general anesthesia. Longer waiting times may have been related to the patient's medical condition, long waiting time for availability of the operating room or difficulty with undergoing preoperative examinations, since the patients of this service depend on the Unified Health System (SUS) for the exams and for a place in the surgical center.

The majority of patients who come to UDOPE in search of specialized dental care are referred by a health professional, and the sum of referrals made by physicians or other health professionals was higher than those made by dentists. These data may have been related to the difficulty of disabled people regarding access to dental care due to the low coverage by the public service in serving this population. The socioeconomic status of families may also have influenced the late search for dental care, expressing the low priority they attributed to oral health[24].

Imaging helps in the diagnosis and planning of outpatient or surgical treatment. The UDOPE protocol is the prescription of dental radiographs, when requesting preoperative examinations for patients who will undergo dental treatment under general anesthesia. However, of the patients evaluated, nearly half did not allow examination due to lack of cooperation. This result was similar to that found by Mallineni, Yiu[25], where 31% did not undergo radiographic examination for the same reason.

Considering the data relative to dental procedures performed, the number of dental extraction was found to be much higher than that of dental restorations, findings that were compatible with those in the literature[20,22], and discordant with those in other studies in which the number of restorations was higher than that of extractions[19,21,24]. It is important to highlight that studies that found higher numbers of restorative procedures than those of extractions were reporting on services that offered endodontic treatment among the dental procedures performed in the operating room under general anesthesia. Whereas UDOPE does not offer this type of procedure due to the lack of radiography apparatus in the HU/UFS operating room.

Taking into account the total number of multiple extractions of disabled people, this must still be considered a reality in this population since it involved 30.2% of the total number of patients evaluated. This situation was due to their poor state of oral health as a result of their worsening of caries lesions and periodontal disease[23,26]. These results were consistent with the interpretation that early care of these patients would tend to avoid the radical treatment of extracting all the teeth.

The UDOPE does not have an oral rehabilitation service, so patients who underwent multiple extractions did not receive rehabilitative prosthetic treatment, making it unfeasible for them to return to the service. Only 38.5% returned to the clinic for follow-up and prevention, as all patients who underwent total multiple extractions were referred to other services for oral rehabilitation. Follow-up appointments after treatment in the operating room are extremely important because these patients are at high risk for caries, and these consultations decreased from 96% to 32% in two years in patients that underwent treatment under general anesthesia.[25]

Findings relative to returns for a new dental treatment intervention in the operating room, showed that a small proportion of patients were readmitted for the second time in the operating room for treatment under general anesthesia, in agreement with findings of Castro et al.[19] (2010) showing that only 16.81% returned for treatment in the operating room, mainly due to preventive support.

CONCLUSION

The large number of dental procedures that were performed on patients with special needs suggested the need for early dental intervention, with specific preventive actions for this group of patients and their caregivers, focusing on those living in the interior regions of the state. Dental treatment under general anesthesia was the choice for many disabled people mainly due to their inability to collaborate as a result of their physical, intellectual, behavioral or psychiatric disability that made it impossible to provide outpatient care.

REFERENCES

1. Brasil. Ministério da Saúde. Saúde Bucal. Caderno de Atenção Básica, 17 [Internet]. Ministério da Saúde. Brasília; 2008 [citado 2020 Jul 5]. Disponível em: http://bvsms.saude.gov.br/bvs/publicacoes/saude_bucal.pdf

2. Brasil. Secretaria dos Direitos Humanos da Presidência da República. Cartilha do Censo 2010 – Pessoas com deficiência [Internet]. SDH-PR/SNPD. Brasília; 2012 [citado 2020 Aug 10]. Disponível em: http://www.unievangelica.edu.br/novo/img/nucleo/cartilha-censo-2010-pessoas-com-deficienciareduzido.pdf

3. Rocha LL, Santrain MVL, Vieira-Meyer APGF. Access to dental public services by disabled persons. BMC Oral Health. 2015 Mar;15(1):35. http://dx.doi.org/10.1186/s12903-015-0022-x. PMid:25887657.

4. Spangler CC. Making treatment of special needs patients an important part of your growing dental practice. Dent Clin North Am. 2016 Jul;60(3):649-62. http://dx.doi.org/10.1016/j.cden.2016.02.009. PMid:27264856.

5. Anders PL, Davis EL. Oral health of patients with intellectual disabilities: a systematic review. Spec Care Dentist. 2010 May-Jun;30(3):110-7. http://dx.doi.org/10.1111/j.1754-4505.2010.00136.x. PMid:20500706.

6. Oliveira AC, Paiva SM, Martins MT, Torres CS, Pordeus IA. Prevalence and determinant factors of malocclusion in children with special needs. Eur J Orthod. 2011 Aug;33(4):413-8. http://dx.doi.org/10.1093/ejo/cjq094. PMid:20956386.

7. Zhou N, Wong HM, Wen YF, Mcgrath C. Oral health status of children and adolescents with intellectual disabilities: a systematic review and meta-analysis. Dev Med Child Neurol. 2017 Oct;59(10):1019-26. http://dx.doi.org/10.1111/dmcn.13486. PMid:28627071.

8. Ortega AOL, Guimarães AS, Ciamponi AL, Marie SKN. Frequency of parafunctional oral habits in patients with cerebral palsy. J Oral Rehabil. 2007 May;34(5):323-8. http://dx.doi.org/10.1111/j.1365-2842.2006.01703.x. PMid:17441872.

9. Santos MTBR, Ferreira MCD, Guaré RO, Diniz MB, Rösing CK, Rodrigues JA, et al. Gingivitis and salivary osmolality in children with cerebral palsy. Int J Paediatr Dent. 2016 Nov;26(6):463-70. http://dx.doi.org/10.1111/ipd.12220. PMid:26726753.

10. Yogi H, Alves LAC, Guedes R, Ciamponi AL. Determinant factors of malocclusion in children and adolescents with cerebral palsy. Am J Orthod Dentofacial Orthop. 2018 Sep;154(3):405-11. http://dx.doi.org/10.1016/j.ajodo.2017.11.042. PMid:30173844.

11. Williams JJ, Spangler CC, Yusaf NK. Barriers to dental care access for patients with special needs in an affluent metropolitan community. Spec Care Dentist. 2015 Jul-Aug;35(4):190-6. http://dx.doi.org/10.1111/scd.12110. PMid:25891784.

12. Gutierrez GM, Diniz MB, Lima BFA, Santos KK, Santos MT. Barriers to access to dental treatment for people with physical disabilities in a Brazilian metropolis. Pesqui Bras Odontopediatria Clin Integr. 2018 Sep;18(1):e3946. http://dx.doi.org/10.4034/PBOCI.2018.181.95.

13. American Dental Association – ADA. Guidelines for the use of sedation and general anesthesia by dentists [Internet]. Chicago: American Dental Association; 2016 [cited 2020 Jun 17]. Available from: https://www.ada.org/en/~/media/ADA/Education%20and%20Careers/Files/ADA_Sedation_Use_Guidelines

14. Lim MAWT, Borromeo GL. The use of general anesthesia to facilitate dental treatment in adult patients with special needs. J Dent Anesth Pain Med. 2017 Jun;17(2):91-103. http://dx.doi.org/10.17245/jdapm.2017.17.2.91. PMid:28879336.

15. World Health Organization – WHO, ICD-10 International Statistical Classification of Diseases and Related Health Problems. 10th Revision [Internet]. Geneve: WHO; 2019 [cited 2020 Aug 20]. Available from: https://icd.who.int/browse10/2019/en

16. Dougherty N. The dental patient with special needs: a review of indications for treatment under general anesthesia. Spec Care Dentist. 2009 Jan-Feb;29(1):17-20. http://dx.doi.org/10.1111/j.1754-4505.2008.00057.x. PMid:19152563.

17. Shin B, Yoo S, Kim J, Kim S, Kim J. A survey of dental treatment under general anesthesia in a Korean university hospital pediatric dental clinic. J Dent Anesth Pain Med. 2016 Sep;16(3):203-8. http://dx.doi.org/10.17245/jdapm.2016.16.3.203. PMid:28884154.

18. Santos JS, Valle DA, Palmier AC, Amaral JHL, Abreu MHNG. Utilização dos serviços de atendimento odontológico hospitalar sob sedação e/ou anestesia geral por pessoas com necessidades especiais no SUS-MG, Brasil. Cien Saude Colet. 2015 Fev;20(2):515-24. http://dx.doi.org/10.1590/1413-81232015202.06732014. PMid:25715145.

19. Castro AM, Marchesoti MGN, Oliveira FS, Novaes MSP. Avaliação do tratamento odontológico de pacientes com necessidades especiais sob anestesia geral. Rev Odontol UNESP. 2010 Maio-Jun;39(3):137-42.

20. Özkan AS, Erdoğan MA, Şanlı M, Kaçmaz O, Durmuş M, Çolak C. Retrospective evaluation of dental treatment under general anaesthesia. Turk J Anaesthesiol Reanim. 2015 Oct;43(5):332-6. http://dx.doi.org/10.5152/TJAR.2015.82542. PMid:27366523.

21. Ohtawa Y, Tsujino K, Kubo S, Ikeda M. Dental treatment for patients with physical or mental disability under general anesthesia at Tokyo Dental College Suidobashi Hospital. Bull Tokyo Dent Coll. 2012;53(4):181-7. http://dx.doi.org/10.2209/tdcpublication.53.181. PMid:23318923.

22. Lee P-Y, Chou M-Y, Chen Y-L, Chen L-P, Wang C-J, Huang W-H. Comprehensive dental treatment under general anesthesia in healthy and disabled children. Chang Gung Med J. 2009 Nov;32(6):636-42. PMid:20035643.

23. Dall Magro AK, Dall Magro E, Kuhn GF. Perfil clínico dos pacientes especiais tratados sob anestesia geral no Hospital São Vicente de Paulo de Passo Fundo entre os anos de 2005 e 2010. RFO. 2010 Set-Dez;15(3):251-4.

24. Salles PS, Tannure PN, Oliveira CAGR, Souza IPR, Portela MB, Castro GFBA. Dental needs and management of children with special health care needs according to type of disability. J Dent Child. 2012 Sep-Dec;79(3):165-9. PMid:23433620.

25. Mallineni SK, Yiu CKY. A retrospective review of outcomes of dental treatment performed for special needs patients under general anaesthesia: 2-year follow-up. ScientificWorldJournal. 2014;2014:748353. http://dx.doi.org/10.1155/2014/748353. PMid:25610913.

26. Sari ME, Ozmen B, Koyuturk AE, Tokay U. A retrospective comparison of dental treatment under general anesthesia on children with and without mental disabilities. Niger J Clin Pract. 2014 May-Jun;17(3):361-5. http://dx.doi.org/10.4103/1119-3077.130243. PMid:24714018.

CONFLICTS OF INTERESTS

The authors declare no conflicts of interest.

*CORRESPONDING AUTHOR

Gabriela Mancia de Gutierrez, Universidade Cruzeiro do Sul, Programa de Pós-Graduação em Odontologia, Rua Galvão Bueno, 868, São Paulo - SP, 01506-000 São Paulo - SP, Brasil, e-mail: gabrielamancia@hotmail.com

Received: March 6, 2021
Accepted: September 16, 2021