

ANALYSIS OF THE DEGREE OF KNOWLEDGE OF DENTAL SURGEONS FACED WITH MEDICAL AND DENTAL EMERGENCIES IN THE DENTAL OFFICE

Gustavo Anderson de Souza Lima

Department of Dentistry, ``Centro
Universitário Leão Sampaio`` (UNILEAO),
Juazeiro do Norte - CE, Brazil.

Francisco Leandro Rodrigues Rocha

Department of Dentistry, ``Centro
Universitário Leão Sampaio`` (UNILEAO),
Juazeiro do Norte - CE, Brazil.

Mariana Vasconcelos de Melo Lima

Department of Medicine, ``Centro
Universitário Maurício de Nassau``
(UNINASSAU), Recife, Pernambuco, Brazil.

Cecília Gomes de Sá Cândido

Department of Dentistry, ``Centro
Universitário Leão Sampaio`` (UNILEAO),
Juazeiro do Norte - CE, Brazil.

Pedro Felipe Sousa Resende

Midwest Dental Arts Inc., Palm Bay, USA.

Felipe Moitinho Herédia

Tecnoarte Proteses Odontol, Americana, São
Paulo, Brazil.

Carlos Alberto de Oliveira Aglio

Tecnoarte Proteses Odontol, Americana, São
Paulo, Brazil.

All content in this magazine is
licensed under a Creative Com-
mons Attribution License. Attri-
bution-Non-Commercial-Non-
Derivatives 4.0 International (CC
BY-NC-ND 4.0).



Jefferson David Melo de Matos

Department of Biomaterials, Dental Materials and Dental Prosthesis, ``Universidade Estadual de São Paulo`` (Unesp), `` Instituto de Ciência e Tecnologia`` , São José dos Campos - SP, Brazil.

Department of Restorative Dental Sciences, Center for Dental Biomaterials, University of Florida (UF Health), Gainesville, Florida.

Francisco Aurelio Lucchesi Sandrini

Department of Dentistry, ``Centro Universitário Leão Sampaio`` (UNILEAO), Juazeiro do Norte - CE, Brazil.

Abstract: Medical and dental emergencies are life-threatening situations. Dental surgeons in general have difficulties when dealing with the initial management of medical and dental emergencies. This work aims to analyze the degree of knowledge of dentists in the face of medical and dental emergencies in the dental office. This way, a qualitative cross-sectional study was carried out through the application of forms after approval by the ethics and research committee containing questions that covered specific questions about medical and dental emergencies. -graduation at the ``Centro Universitário Doutor Leão Sampaio`` (Unileão) and at the Caririense Postgraduate Center (Cecap), and 70 dentists were approached, however 50 dentists agreed to participate in the research. In view of the data (58%) of the dentists stated that they considered themselves capable of handling a situation of airway obstruction, (18%) stated that they considered themselves capable of handling a situation of Ludwig's angina, (36%) stated who consider themselves able to handle an anaphylactic shock situation, (28%) stated that they consider themselves able to handle an acute myocardial infarction situation, (12%) stated that they consider themselves able to handle a vascular accident situation brain, (48%) stated that they considered themselves able to manage an acute asthma attack. When asked if they had studied medical emergencies at graduation, (82%) had studied medical emergencies at graduation. It was concluded that most dentists interviewed are not prepared to resolve medical and dental emergencies in the dental office.

Keywords: Odontological office. Dentist. Emergencies. Medical.

INTRODUCTION

A medical emergency can be understood as a complication that has a high possibility of a patient dying. It is an occurrence that can often

be triggered by a crisis of fear or anxiety, by some preexisting illness and even by incidents in the transoperative period. Therefore, it is a situation that requires a quick and safe intervention, where the dental professional needs knowledge and techniques to be able to control the situation (QUEIROGA et al., 2012).

According to Fiuza et al., (2013) dental care provided by dentists must involve the patient in general, not just the oral cavity. It is known that the image of the dentist for some reflects feelings of fear, anxiety and pain. The dental surgeon is aware of this perspective of patients, and that these feelings can trigger the appearance of some medical or dental emergency during dental care.

In addition to carrying out a good anamnesis and well-done physical examinations, it is the responsibility of the dental surgeon to use techniques to control the anxiety and fear generated, either through conversation or through pharmacological use, providing safety and efficacy in carrying out the treatment, minimizing the possibility of an emergency arising in the office (CAMINHA et al., 2018).

Gehlen and Cé (2015), in their study, concluded that dentists do not consider themselves capable of dealing with an emergency situation, and that there is a major failure on the part of universities in not offering a discipline that addresses the issue of medical emergencies in the office. dental. Since dentists can still be held responsible for their patient's life in accordance with the laws in force in the civil code and penal code.

The dentistry professional who cares about the general health and life of his patient is aware of the possible consequences that dental procedures can bring when preventive and safety measures are not adopted in urgent and emergency procedures, and most of these urgencies and emergencies could be avoided through a detailed and careful anamnesis,

awareness and registration of the patient's signatures in medical records (KIFFER and ABREU, 2011).

According to Lúcio and Barreto (2012), the dental surgeon and his oral health assistant or oral health technician must be prepared to resolve medical and dental emergencies in the office, in addition, dental offices must present the basic support kit of life and some materials needed for first aid, because with this knowledge and equipment in your favor, the resolution will be done in a safer and faster way.

Dental surgeons are giving greater importance to investing in machines, modern materials and are forgetting to invest in their own knowledge, in their own updating through extracurricular courses and specializations. Dental surgeons who work in surgical specialties must be aware that there is a greater probability of medical emergencies occurring during the surgical process, however, all dental surgeons must deal with emergency situations safely and effectively (CONRADO et al., 2007).

Faced with the expectation of the difficulties faced by the dental surgeon in the face of the initial handling of medical and dental emergencies, a deeper analysis on the subject is necessary, since a more in-depth knowledge through courses, training in medical and dental emergencies will make the quicker and safer service and resolution of these possible events in the office, thus avoiding possible deaths. Thus, the present research aims to analyze the degree of knowledge of dentists in the face of medical and dental emergencies in the dental office.

METHODOLOGY

RESEARCH CHARACTERIZATIONS

A qualitative cross-sectional study was carried out to analyze the degree of knowledge of dentists in the face of medical and dental

emergencies in the dental office.

RESEARCH SAMPLE

The research was carried out with dentists who were taking postgraduate courses at the ``Centro Universitário Doutor Leão Sampaio`` (Unileão) and at the Caririense Postgraduate Center (Cecap), the participants were asked to answer forms. Initially, 70 dentists were approached, however, the sample consisted of 50 dentists, who agreed to participate in the research.

INCLUSION CRITERIA

Dental surgeons who were taking postgraduate courses at the ``Centro Universitário Doutor Leão Sampaio`` (Unileão) and at the Caririense Postgraduate Center (Cecap) were included in the survey. participate in the survey by answering the form.

EXCLUSION CRITERIA

Individuals who were not dental surgeons, individuals who were not taking postgraduate courses at ``Centro Universitário Doctor Leão Sampaio`` (Unileão) or at the Caririense Postgraduate Center (Cecap), individuals who did not accept participating in the survey, professionals who were emergency course instructors and dentists who had dual training (Dentist and Physician).

RESEARCH VARIABLES

The variables analyzed were: gender, specialization or areas of expertise, time since graduation, do you feel able to solve medical and dental emergencies, have you ever witnessed a medical or dental emergency in the dental office, do you have a first aid kit in the office where you work, during graduation he had the discipline of medical emergencies.

RESEARCH INSTRUMENTS

A form was prepared containing questions that covered specific questions about taking anamnesis, ability to identify signs and symptoms of medical emergencies, ability to diagnose emergency situations, and whether they had witnessed any medical and dental emergencies in the office.

RESEARCH PROCEDURES

The research was carried out through the analysis of the data collected through the forms applied to the dentists, and analyzed in relation to the information obtained. Data collection was carried out from August 2019 to September 2019.

STATISTICAL ANALYSIS

The data collected by the researchers were analyzed using the Microsoft Office Excel 2016 program and descriptive statistics measures and graphing were performed for a better representation of the studied variables. The possibility of correlation between the variables was analyzed using Pearson's correlation, where the results range from -1 which is a very strong negative correlation to + 1 which means a very strong positive correlation and the closer to "0" the less correlation exists between the variables.

ETHICAL ASPECTS

The research was carried out after approval by the Ethics and Research Committee of the Certificate of Presentation for Ethical Appreciation (CAAE) 16894819.2.0000.5048, guaranteeing the anonymity of the participants, as personal identification data were not collected in the research, thus maintaining compliance with resolution 466/2012 of the National Health Council.

RESEARCH RISKS

The survey presented a minimal risk of embarrassment to the participant, who might feel uncomfortable for not knowing any of the questions. However, this was minimized, as the form did not contain any type of identification of the participant, and later the form was analyzed, maintaining the anonymity of the participants.

RESULTS

Initially, 70 (100%) dentists were approached, of which 20 (28.6%) refused to participate in the research, totaling 50 (71.4%) of the final sample, 42 (84%) were female and only 8 (16%) were male. Considering the postgraduate areas that were part of the study, it was divided into improvement in surgery 7 (14%); improvement in endodontics 11 (22%); specialization in pediatric dentistry 16 (32%); improvement in periodontics 1 (2%) and specialization in orthodontics 15 (30%) illustrated in Graph 1.

When evaluating the presence of a medical emergency course in their graduation curriculum, 41 (82%) answered yes, and 9 (18%) answered no, as shown in Graph 2. Regarding basic life support training, 27 (54%) answered that they had and 23 (46%) answered that they did not. When asked if the office where they worked had a first aid kit, about 13 (26%) answered yes and 37 (74%) answered no. And if the oral health team they worked for had basic life support training, 10 (20%) answered yes and 40 (80%) answered no. When asked about the time since graduation, 36 (72%) had graduated for less than 3 years, 14 (28%) had graduated for more than 3 years.

Considering the knowledge and ability to handle a medical and dental emergency situation, Graph 3 illustrates the number of dentists who stated that they considered themselves capable of handling medical and dental emergencies and the initial conduct

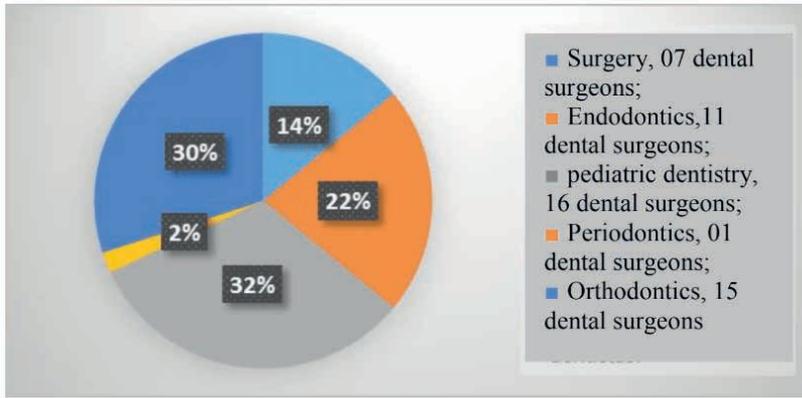
in the face of the described situations. An evaluation of the correlation between the fact of considering oneself able to solve a situation and the correct answer regarding the conduct in these situations was carried out. The following correlation values were obtained between the professional judging himself as capable and the correct answers to: airway obstruction (0.16); Ludwig's angina (-0.078); anaphylactic shock (0.13) and acute myocardial infarction (0.022).

Considering the knowledge and ability to solve a situation of Stroke, about 6 (12%) answered that they considered themselves able to solve it and that 44 (88%) did not consider themselves able to solve it, as illustrated in graph 4. When questioned if they measured vital signs in initial assessments, 30 (60%) answered yes and 20 (40%) answered no.

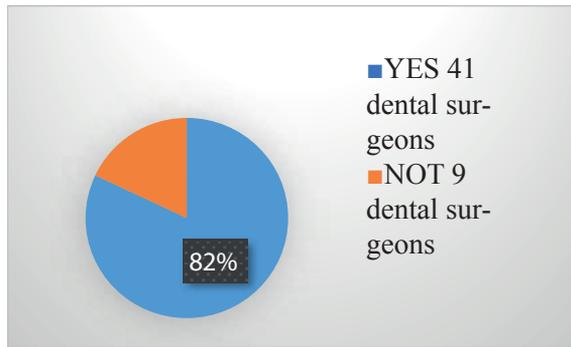
Considering the knowledge and ability to solve an Acute Asthma Crisis situation, about 24 (48%) answered that they considered themselves able to solve it and that 26 (52%) did not consider themselves able to solve it, as shown in graph 5. When asked if they had ever witnessed a medical emergency in the office, 7 (14%) answered yes and 43 (86%) answered no. As for dental emergencies, 6 (12%) answered yes and 44 (88%) answered no.

DISCUSSION

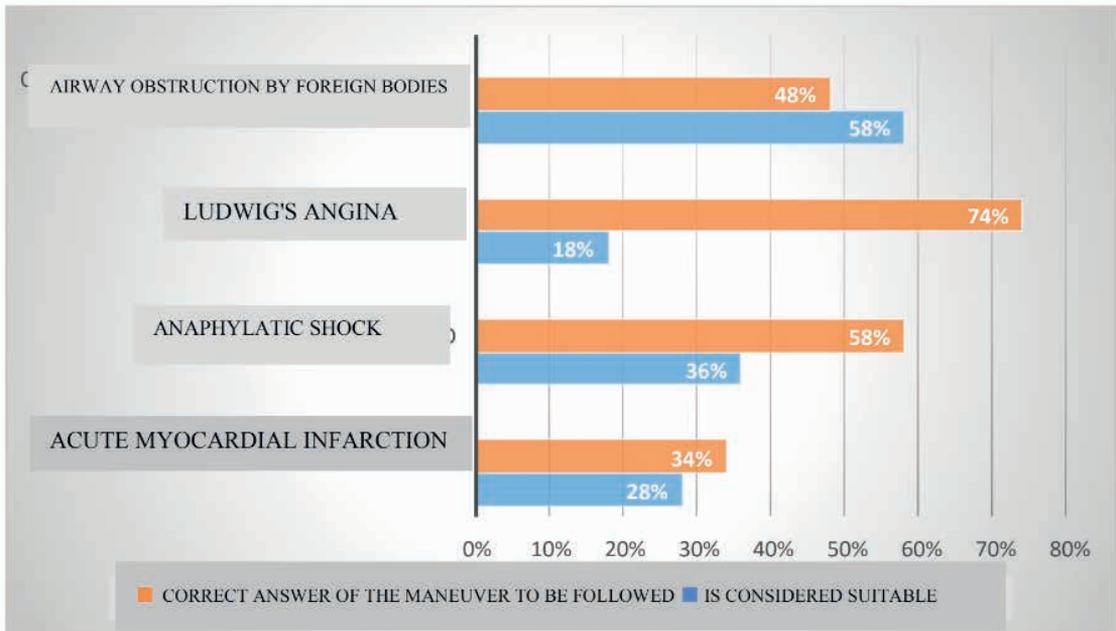
The present study was carried out by initially approaching 70 dentists, however, 50 of them agreed to participate in the research by applying a form containing a questionnaire to dentists who had already graduated and who were taking postgraduate courses at the Centro Universitário ``Centro Universitário Doutor Leão Sampaio`` (Unileão) and at the Cariense Postgraduate Center (Cecap), 50 (71.4%) dentists were validated in total, 20 (28.6%) did not want to participate in the research. Of the final sample, 42 (84%) were



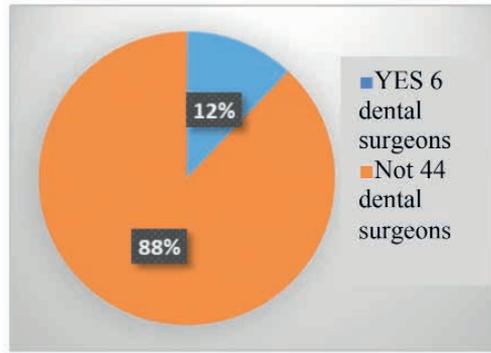
Graphic 1- Postgraduate course in progress.



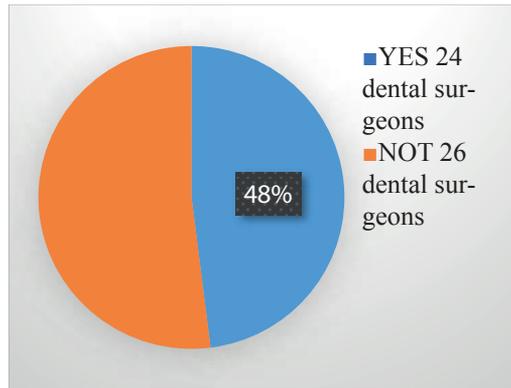
Graph 2- Discipline of medical emergencies in graduation.



Graph 3- Rate of responses in situations of medical and dental emergencies and the correct response regarding the maneuver to be followed in the face of emergencies.



Graph 4- He is considered able to conduct a situation of cerebrovascular accident.



Graph 5- He is considered capable of managing an Acute Asthma Crisis situation.

female and 8 (16%) were male, showing that the rate of female graduates who are looking for updates and training is higher when compared to men.

As for the postgraduate areas interviewed in the courses of improvement in surgery (14%), improvement in endodontics (22%), specialization in pediatric dentistry (32%), improvement in periodontics (2%) and specialization in orthodontics (30%), the results showed that about 82% had the discipline of medical emergencies during graduation, disagreeing in quantity with Queiroga et al. (2012), as it shows that this large number of dentists who took the medical emergencies course may be related to the fact that most students graduated from an institution where this course is offered as an optional course. In their study, they emphasize that it is important to include a mandatory subject on urgency and emergency in the curricular matrix of the dentistry course for all institutions. Because the insertion of a discipline of theoretical-practical medical emergencies with internships in hospitals or in simulators (dolls) during graduation promotes greater knowledge and preparation of dental surgeons in relation to the resolution of these emergencies, also providing a practical experience of medical emergencies. Because the theoretical discipline does not always leave dentists prepared to conduct an emergency situation.

When asked if they had basic life support training, the results showed that 54% of dentists stated that they had basic life support training, corroborating Victorelli et al., (2013) in which this study demonstrated that even with the knowledge of basic life support, only a minority of dentists would be prepared to identify medical emergencies and act in serious situations that arise in the office.

In the present study, a correlation was made between the number of dentists who

said they felt able to resolve a situation of acute myocardial infarction with an objective question about the first step indicated in cardiopulmonary resuscitation, where 28% said they felt able, and only 34% knew the maneuver indicated in a cardiopulmonary resuscitation, with these data a correlation was made in order to understand the relationship between both, and a very weak positive correlation was found (0.022), corroborating with Santos and Rumel (2006) seen that there has been a change in the steps to be followed and there is a need for constant updating even after training due to protocol changes.

When asked if they considered themselves capable of resolving an acute asthma attack, the study revealed that only 48% said they felt able to act in resolving an acute asthma attack, and in this study they were not asked about the use of medications or care protocols for patients with these alterations, agreeing with the literature presented by Veiga et al., (2012), where they state that the minority of respondents had the knowledge to correctly and safely conduct the reversal of this condition.

According to the evaluated sample, 14% had already witnessed a medical emergency, and the emergencies reported by dentists in the dental office in this study were: Cardiorespiratory Arrest, Syncope, Hypoglycemic Crisis. And only 12% have already witnessed a dental emergency during dental care, which is not a common occurrence, but can happen due to the variety of systemic changes of patients who are increasingly entering dental services, disagreeing with Fiuza et al., (2013) who stated that even though it is not so common, it is normal for some emergency to happen throughout the professional career, the results of these authors showed that the prevalence of medical emergencies is higher, corroborating the same idea of Caputo et al., (2010).

According to Gaujac et al., (2009), the

dental surgeon works with several drugs, products and substances, ranging from local anesthetics, analgesics to antibiotics, which drastically increases the risk of a patient presenting a picture of hypersensitivity, and in more severe cases, anaphylactic shock. Even aware of the risks, in this study only 36% of dentists stated that they considered themselves capable of resolving such a situation, leaving patients unprotected in cases of occurrence of the same, and as for the most indicated medication in cases of anaphylactic shock, there was a correct answer of 58% dentists who indicated the correct medication. With these data, a correlation was made in order to understand the relationship between both, and a very weak positive correlation (0.13) was found, with the interviewee stating that he feels able to resolve and choose the most suitable medication for anaphylactic reactions. This is a very worrying result when it comes to an emergency with a high capacity to lead the patient to death.

The dental surgeon, in the exercise of his profession, works with various instruments and materials in the oral region, which further increases the risk of possible accidents, such as swallowing or aspiration of drills, files, staples, parts of orthodontic appliances, among others. objects for dental use, and in cases of aspiration, the dentist must have knowledge and know the steps to follow to resolve the situation (MALAMED, 2016). In the present study, it was possible to observe that 48% were unable to identify which maneuver is indicated in cases of aspiration of objects, which is a worrying and life-threatening result for patients. And only 58% of those interviewed said they considered themselves able to resolve such a situation. With these data, a correlation was made in order to understand the relationship between both, and a very weak positive correlation (0.16) was found, with the interviewee saying

that he feels able to resolve and hit the most indicated maneuver. Making evident the need to know the correct maneuver to clear the airways, having knowledge of the steps to be followed for this purpose.

The results obtained in this study showed that 60% of those involved perform the measurement of vital signs in initial assessments, disagreeing with Haese and Cançado (2016), where those involved did not perform the anamnesis exams, measurement of vital signs, and that in fact, this is a fundamental piece for building the patient's treatment plan, as well as getting to know him. Those studied must keep in mind that the repetition of vital signs in each consultation will make the service safer and thus reduce the risks of medical emergencies occurring in the dental chair. Since emergencies can indeed be avoided, however, for this to happen, it is necessary for the dentist to know the general health profile of each patient.

When asked if the office where they worked had a first aid kit, only 26% of respondents answered yes, agreeing with Neves et al., (2007) who show that the vast majority of dentists think about everything in the office, from modern equipment, air-conditioned rooms, televisions, but when the interest in basic emergency issues is evaluated, emphasizing the patient's life, they do not show so much interest in setting up an office. And when they were asked if the oral health team had basic life support training, about 20% answered that their team had basic life support training. It is important that in the clinical environment, the team has some knowledge about the steps that must be followed in an emergency, since the dental surgeon is responsible for the team and it is up to him to demand some knowledge about emergencies or to train his team for this, which may create protocols and share them among your team, so that in case of emergencies, each one can perform their

role quickly and effectively.

According to Melo et al. (2013), Ludwig's angina can be defined as a bacterial infection of the submandibular, sublingual and submental spaces bilaterally with high potential for tissue diffusion, treatment is provided by releasing the airways, facilitating the patient's breathing, surgical drainage providing relief of facial spaces and preventing progression by tissue diffusion, antibiotic therapy with combinations of intravenous penicillin G with metronidazole, analgesics with anti-inflammatory potential are also used to reduce pain and edema in the region and removal of the causative factor that in most cases it is caused by an abscess of endodontic origin. In the present study, around 74% were able to indicate the correct treatment for Ludwig's angina, but only 18% stated that they considered themselves capable of resolving a Ludwig's angina situation. With these data, a correlation was made in order to understand the relationship between both, and a very weak negative correlation (-0.078) was found, of the interviewee stating that he feels able to resolve and set the most indicated conduct, concluding that even surgeons dentists, knowing the correct action to be taken, still feel insecure in resolving this situation, confirming data from the study by Srirompotong and Art Smart (2003).

According to the words of Lúcio and Barreto (2012), the stroke can present itself in two ways, the ischemic form that is caused by the obstruction of a vessel in the brain, and the other form is the hemorrhagic one that is given by the rupture of a vessel in the brain or an aneurysm which is the dilation or malformation of a vessel. Based on the results of this study, 12% feel capable of dealing with this situation, however, we believe that if the presentation of signs and symptoms had been deepened and their correct identification, the success rate would be even lower.

Despite the scope of the study, a more specific detailing of the symptoms and signs is needed, with a greater number of professionals involved, so that it can effectively clarify whether the professional is really prepared, as the present research needed other instruments to assess the degree of confidence of the answers given associated with clinical practice, so in this work it was not possible to assess some situations to effectively know if the professional is able to solve them, emphasizing the importance of new, more comprehensive studies to answer this question.

It must be noted that the study offers data that allow the development of prevention policies so that institutions include in the curriculum a mandatory theoretical-practical subject with internships in hospitals or simulators (puppets) at graduation, in order to increase security and knowledge on the part of dental surgeons.

CONCLUSION

It can be concluded from this study that, according to the information collected in the literature, most dentists interviewed are not prepared to resolve medical and dental emergencies in the dental office. In the individualized assessment of acute myocardial infarction, stroke, acute asthma attack, anaphylactic shock, Ludwig's angina and airway obstruction by foreign bodies, dentists find it difficult to resolve these emergency situations.

CONFLICTS OF INTEREST

The authors declare that there is no conflict of interest.

FINANCING

This research was funded by the State of São Paulo Research Foundation (FAPESP – grants 2019/24903-6 and 2021/11499-2).

AUTHORS CONTRIBUTION

Conceptualization: G.A.d.S.L, F.L.R.R., M.V.d.M.L. and C.G.d.S.C.; methodology, G.A.d.S.L, F.L.R.R., M.V.d.M.L., J.D.M.d.M. and C.G.d.S.C., formal analysis, G.A.d.S.L, F.L.R.R., M.V.d.M.L. and C.G.d.S.C.; Investigation, G.A.d.S.L, F.L.R.R., M.V.d.M.L., C.G.d.S.C. and F.A.L.S.; resources, G.A.d.S.L, and J.D.M.d.M.; data curation, G.A.d.S.L, F.L.R.R., M.V.d.M.L., C.G.d.S.C., P.F.S.R.,

F.M.H., C.A.d.O.A, J.D.M.d.M. and F.A.L.S.; writing — G.A.d.S.L, F.L.R.R., M.V.d.M.L., C.G.d.S.C., P.F.S.R., F.M.H., C.A.d.O.A, J.D.M.d.M. and F.A.L.S.; supervision, G.A.d.S.L, J.D.M.d.M. and F.A.L.S.; project management, G.A.d.S.L, J.D.M.d.M. and F.A.L.S.; financing acquisition, J.D.M.d.M. All authors read and agreed with the published version of the manuscript.

REFERENCES

- CAMINHA, R. D. A. G.; MACIEL, A. P.; MEDEIROS, F. B.; SANTOS, P. S. D. S. Emergências cardiovasculares agudas: prevenção, diagnóstico e manejo odontológico. **Revista da Sociedade de Cardiologia do Estado de São Paulo – Suplemento**. São Paulo. v.28, p. 372-377, jan. /mar. 2018.
- CAPUTO, I. G. C.; BAZZO, G. J.; SILVA, R. H. A.; JÚNIOR, E. D. Vidas em risco: emergências médicas em consultório odontológico. **Revista de Cirurgia Traumatologia Buco-Maxilo-Facial**. Camaragibe. v.10, n.3, p.51-58, set. 2010.
- CONRADO, V. L. S.; ANDRADE, J.; ANGELIS, G. A. M. C.; ANDRADE, A. C. P.; TIMERMAN, L.; ANDRADE, M. M.; MOREIRA, D. R.; SOUSA, A. G. M. R.; SOUSA, J. E. M. R.; PIEGAS, L.S. Efeitos cardiovasculares da anestesia local com vasoconstritor durante exodontia em coronariopatas. **Revista Arquivo Brasileiro de Cardiologia**. São Paulo, v. 88, n.5, p. 507-513, maio 2007.
- FIUZA, M. K.; BALSAN, S. T.; PRETTO, J. L. B.; CENCI, R. A.; CONTO, F. D. Avaliação da prevalência e do grau de conhecimento do cirurgião-dentista em relação às emergências médicas. **Revista Faculdade Odontologia Universidade Passo Fundo**. Passo Fundo-RS. v. 18, n. 3, p. 295-301, set-dez 2013.
- GAUJAC, C.; OLIVEIRA, A. N.; BARRETO, F. A. M.; SALGADO, L. M.; OLIVEIRA, M. S.; GIRÃO, R.S. Reações alérgicas medicamentosas no consultório odontológico. **Revista de Odontologia da Universidade Cidade de São Paulo**. São Paulo - SP. v. 21, n.3, p. 268-276, set-dez. 2009.
- GEHLEN, E. P.; CÉ, L. C. Emergência médicas na prática odontológica. **Journal of Oral Investigations**. Passo Fundo- RS. v. 3, n.1. p.28-32, nov. 2015.
- HAESE, R. D. P.; CANÇADO, R. P. Urgências e emergências médicas em odontologia: avaliação da capacitação e estrutura dos consultórios de cirurgiões-dentistas. **Revista de Cirurgia Traumatologia Buco – maxilo- facial**. Camaragibe, v.16, n.3, p. 31-39, jul. /set. 2016.
- KIFFER, A; ABREU, T. Emergências jurídicas em odontologia. **Revista brasileira de Odontologia do Rio de Janeiro**, Rio Janeiro. v. 68, n. 1. p. 115-117. jan. /jun. 2011.
- LÚCIO, P.S.C; BARRETO, R.D.C. Emergência médica no consultório odontológico e a (in) segurança dos profissionais. **Revista Brasileira de Ciência da Saúde**. v. 16, n.2.p. 267-272. 2012.
- MALAMED, Stanley F. Obstrução das vias aéreas por corpos estranhos. In: MALAMED, Stanley F. **Emergências Médicas em Odontologia**. 7.ed. Rio de Janeiro: Elsevier, 2016. p. 186-207.
- MELO, T. A. F.; RÜCKER, T; CARMO, M. P. D.; IRALA, L. E. D.; SALLES, A. A. Angina de Ludwig: diagnóstico e tratamento. **RSBO Revista Sul-Brasileira de Odontologia**, v. 10, n. 2, p 172-175, abr/jun, 2013.

NEVES, R. S; NEVES, I. L. I; GIORGI, D. M. A; GRUPI, C. J; CÉSAR, L. A. M; HUEB, W; GRINBERG, M. Efeito do uso da adrenalina na anestesia local odontológica em portador de coronariopatia. **Arquivos Brasileiros de Cardiologia**, [s.l.], v. 88, n.5, p. 545-551, 2007.

QUEIROGA, T. B; GOMES, R. C; NOVAES, M. M; MARQUES, J. L. S; SANTOS, K. S. A; GREMPEL, R. G. Situações de emergências médicas em consultório odontológico: avaliação das tomadas de decisões. **Revista de Cirurgia traumatologia Buco-maxilo-facial**. Camaragibe. v.12, n.1. p. 115-122. jan /mar. 2012.

SANTOS, J. C; RUMEL, D. Emergência médica na prática odontológica no Estado de Santa Catarina: ocorrência, equipamentos e drogas, conhecimento e treinamento dos cirurgiões-dentistas. **Revista Ciência e Saúde Coletiva**. v.11, n.1. p. 183-190. 2006.

SRIROMPOTONG, S.; ART-SMART, T. Ludwig's angina: a clinical review. **European archives of oto-rhino-laryngology**. v. 260, n. 7, p. 401-403, 2003.

VEIGA, D.; OLIVEIRA, R.; CARVALHO, J.; MOURÃO, J. Emergências médicas em medicina dentária: prevalência e experiência dos médicos dentistas. **Revista Portuguesa de Estomatologia, Medicina Dentária e Cirurgia Maxilofacial**. v. 53, n.2, p.77-82, 2012.

VICTORELLI, G.; RAMACCIATO, J. C.; ANDRADE, E. D. D.; RANALI, J.; MOTTA, R. H. L. Suporte básico de vida e ressuscitação cardiopulmonar em adultos: conceitos atuais e novas recomendações. **Revista da Associação Paulista Cirurgiões Dentistas**. São Paulo -SP. v. 67, n.2. p. 124-128. 2013.