ESJ Natural/Life/Medical Sciences

Dental Approach to the Hypertensive Patient: Literature Review

Cristhiane Olivia Ferreira Do Amaral, DDS, Ms, PhD
Professor of Patients with Special Needs and Pediatric Dentistry, College of Dentistry, University of Western Sao Paulo-Unoeste, Presidente Prudente, Sao Paulo Brazil
Angela Maria Nascimento Neves, DDS
Thais De Almeida Santos, DDS
Dentistry participant in the Special Program for Scientific Initiation (SPSI). University of Western Sao Paulo-Unoeste, Presidente Prudente, Sao Paulo, Brazil
Mariana Olivia Ferreira Do Amaral
Undergraduate student, College of Medicine, University of Western Sao Paulo- Unoeste, Presidente Prudente, Sao Paulo, Brazil
Fabiana Gouveia Straioto, DDS, Ms, PhD
Department of Prosthodontics and Geriatic Dentistry, College of Dentistry, University of Western Sao Paulo-Unoeste, f Presidente Prudente, Sao Paulo, Brazil

Doi:10.19044/esj.2022.v18n24p33

Submitted: 06 July 2022
Accepted: 27 July 2022
Published: 31 July 2022

Cite As:
Ferreira Do Amaral C.O., Nascimento Neves A.M., Almeida Santos T.D., Ferreira Do Amaral M.O. & Straioto F.G. (2022). *Dental Approach to the Hypertensive Patient: Literature Review.* European Scientific Journal, ESJ, 18 (24), 33.
https://doi.org/10.19044/esj.2022.v18n24p33

Abstract

Hypertensive patients deserve special attention, due to possible complications which may occur during invasive dental care. This manuscript aimed at reviewing the literature as follows: a safe dental approach to hypertensive patients, local anesthetics indication, surgical risks, hypertensive crisis, drug interactions, and oral manifestations of antihypertensive drug use. The present study was developed by research in the following databases: Virtual Health Library (VHL) – Bireme, MEDLINE, PubMed, SciELO, and the Capes database Journals. For a safe approach to the hypertensive patient,

 ISSN: 1857-7881 (Print) e - ISSN 1857-7431

some precautions must be taken and respected such as adequate anamnesis is essential to evaluate other associated systemic alterations (cardiovascular, diabetes, renal failure), measure blood pressure at the beginning of the procedure, and, in case of longer procedures, monitor blood pressure during the intervention, minimize chair time for the sake of the patient anxiety. Medication regarding stress reduction control can be used to prevent high blood pressure from emotional conditions as well as choosing the appropriate anesthetic. Solutions with vasoconstrictor lower concentration, respecting the dose, and following the principles of the anesthetic technique must be observed. Non-steroidal anti-inflammatory drug use should be avoided. These precautions will avoid serious iatrogenic events in addition to promoting and guaranteeing the patient safe and quality care.

Keywords: Oral Health, Dentistry, Hypertension, Care

Introduction

Systemic arterial hypertension (SAH) is a multifactorial clinical condition characterized by a continuous increase in blood pressure levels ≥ 140 and/or 90 mmHg. It has often been associated with metabolic disorders, functional and/or structural changes in target organs and aggravated by other risk factors, such as dyslipidemia, abdominal obesity, and diabetes mellitus (Brazilian Society of Cardiology, 2016).

SAH can be primary or idiopathic or even secondary to another disease. Approximately 90% of hypertensive patients are considered to present primary hypertension, which means that the causes are unknown (Rosario et al., 2009); in only 10% of cases, the hypertension is secondary. A great number of risk factors involving age, gender and ethnicity, overweight and obesity, alcohol and salt intake, smoking, stress, physical inactivity, use of oral contraceptives, environmental factors, and socioeconomic and genetic factors should be considered (Braga et al.,2018; Brazilian Ministry of Health, 2015).

As a result of the different dental care protocols and the various ways of dealing with the hypertensive patient, this study aimed at reviewing the literature concerning the hypertensive patient safe dental approach such as an indication of local anesthetics, surgical risks, hypertensive crisis, drug interactions, and oral manifestations of the antihypertensive drugs use.

Methodology

The literature review was carried out to discuss a safe dental protocol approach for hypertensive patients, use of local anesthetics, surgical risks for the hypertensive patient, crisis during care, drug interactions, and oral manifestations of the antihypertensive drugs used.

 ISSN: 1857-7881 (Print) e - ISSN 1857-7431

The review proposal was initially, identified, followed by the variables selection and the search for articles of interest. The data found were evaluated and analyzed. The articles were selected based on the health descriptors (DECS.BVS/MESH): (AND) Hypertension (AND) Dentistry (AND) Oral Health (AND) Patient Care Administration, in Portuguese and English languages. The databases consulted were: Medline/PubMed (US National Library of Medicine at the National Institutes of Health); Bireme and SciELO (Scientific Electronic Library Online) and the Capes database Journals, based on the period from 2004 to 2022. Inclusion and exclusion criteria were used to select the articles: full articles indexed in peer-reviewed journals; relevance to the topic, and emphasis on medical complications during the treatment of hypertensive patients. Quantitative and qualitative studies and evidence-based practices were included. Previous studies from 2004 and articles with repeated subjects were excluded.

The selection of articles and data collection were performed by four reviewers, engaged in the research development. The inclusion and exclusion of all resources were based on mutual consent between the authors.

Background

The blood pressure is considered normal when measurements are less than or equal to 120/80 in the office or at home. Prehypertension is characterized by the presence of systolic blood pressure between 121 and 139 and/or diastolic blood pressure between 81 and 89 mmHg (Table 1). And these are more likely to become hypertensive, requiring periodic monitoring (Brazilian Society of Cardiology, 2016).

Table 1: Blood pressure classification according to the casual or in-office measurement from 18 years old

Classification	SBP (mm Hg)	DBP (mm Hg)
Normal	≤ 120	≤ 80
Prehypertension	121 - 139	81 - 89
stage 1 hypertension	140 - 159	90 - 99
stage 2 hypertension	160 - 179	100 - 109
stage 3 hypertension	≥ 180	≥ 110

When Systolic Blood Pressure (SBP) and Diastolic Blood Pressure (DBP) fall into different categories, the higher one should be used for BP classification. Isolated systolic hypertension is considered if SBP ≥ 140 mmHg and DBP < 90 mmHg, and it should be classified in stages 1, 2 and 3. (Source: 7th Brazilian Guideline on arterial hypertension, 2016).

The increasing demand for dental treatments, dental surgeon's insecurity while dealing with emergency situations becomes visible, which may be a

 ISSN: 1857-7881 (Print) e - ISSN 1857-7431

consequence of inadequate preparation during graduation and lack of training in the profession (Araujo et al., 2013; Lucio & Barreto, 2012).

Local Anesthetics

Local anesthetics such as lidocaine, prilocaine, mepivacaine, bupivacaine, and articaine are the injectable drugs most used by dentists (Carvalho et al., 2013), which makes the treatment of hypertensive patients difficult. This problem is due to the fear that local anesthetics containing vasoconstrictors cause changes in blood pressure, inducing an increase in its levels (Almeida, 2014).

Vasoconstrictors are important components of anesthetic solutions and bring advantages that allow the use of smaller solution amounts as it promotes a slow absorption of the anesthetic salt, reducing toxicity as well as increasing the anesthesia effect and duration (Bronzo et al.,2012). Several disadvantages have been attributed to vasoconstrictors, however, they are functions of incorrect use, such as intravascular injections, high concentrations, rapid applications, and large volumes. The most common vasoconstrictor substances are adrenaline /epinephrine, noradrenaline/norepinephrine, phenylephrine, and octapressin/felypressin.

The noradrenaline increases systolic and diastolic pressures, with greater vasoconstriction and consequently greater tissue damage (Paiva & Cavalcanti, 2005). The felypressin, a synthetic analogue of vasopressin, which in small amounts, as in local anesthesia, acts on the venous circulation and presents no cardiovascular effects, nor causes cardiac arrhythmias (Oliveira et al., 2010).

Therefore, anesthetics with vasoconstrictors can be used in patients with controlled blood pressure or under medical treatment and monitoring. These patients can receive a maximum dosage of two tubes per session, applying the principles of local anesthetic technique with previous aspiration and slow injection (Bronzo et al., 2012).

However, there is great contraindication in the use of vasoconstrictors, anesthetic solutions based on 3% mepivacaine without a vasoconstrictor are chosen. In hypertensive patients where systolic BP > 160 mmHg or diastolic > 100 mmHg) the use of use of adrenaline/epinephrine is not indicated. The anesthetic solution with adrenaline/epinephrine vasoconstrictor is better at concentrations of 1:200.000 or 1:100.000; the literature states that the preference is for solutions with lower concentrations of vasoconstrictor (Soares et al., 2006; Nascimento et al., 2011).

It should be remembered that once the pain is a stressful feature for the body, the endogenous secretion of catecholamines (adrenaline/epinephrine and noradrenaline/norepinephrine) by the adrenals increases up to 40 times compared to baseline levels with the individual at rest and reaches much

 ISSN: 1857-7881 (Print) e - ISSN 1857-7431

higher blood levels compared to those obtained after a tube of anesthetic solution containing adrenaline is used. The objective in the dental care of patients with AH is to reduce the endogenous release of catecholamines which raises blood pressure quickly or suddenly (Costa et al.,2013).

Surgery

The preoperative preparation is essential for any sucessful surgical procedure therefore the hypertensive patient must be thoroughly evaluated in the preoperative period, through a careful and detailed anamnesis in the first consultation (Esteves et al., 2011). The antihypertensive medication should be evaluated, bearing in mind that most hypertensive patients receive treatment with medication and that its combination is currently the most common. At least two measurements taken during the consultation should be performed with an interval of 5 minutes between them (Gealh & Franco, 2006). It is essential to update the information every six months, or whenever the patient stops going to the office for a certain period. When starting a dental treatment, the dentist must determine whether the patient is fit for a safe planned dental procedure (Almeida, 2014).

Dental management is differentiated for each stage of hypertension, and patients with stage 3 hypertension should be referred to the doctor immediately and no dental treatment should be performed. Stage 1 and 2 patients can receive non-surgical dental treatments. The patient risk classification for surgery is classified as high, intermediate and low. Surgical procedures such as minor oral surgery, non-surgical dental procedures and periodontal surgery are classified as low risk (Ferraz et al., 2017).

In the case of dental surgery under local anesthesia, it is not always possible to control blood loss, however, care must be taken when planning an invasive surgery for a hypertensive patient, especially if he is using anticoagulants or antiplatelet agents, such as aspirin or warfarin (Rodrigues et al., 2015). In these cases, local hemostatic methods should be used to control hemorrhage, using a minimally invasive surgical technique, local compression with gauze, mass suture, fibrin sponge, cellulose, and antiphrinolytics (Carvalho et al., 2013).

After the surgical procedures are completed, the patient must remain under observation by the professional for the first 30 minutes, or until his complete physical and emotional recovery, always monitoring his vital signs. Analgesics for pain control and antibiotics should be prescribed if necessary, according to the procedure. It is important to advise the patient about the need for the correct use of the prescribed drugs, all the surgical wound care, and the need for rest and physical efforts (Esteves et al.,2011).

Elevated blood pressure during surgery leads to increased intraoperative bleeding, although it may not be important for restorative

 ISSN: 1857-7881 (Print) e - ISSN 1857-7431

procedures such as oral surgery, or tooth extractions. In fact, oral and maxillofacial surgeons ask anesthesiologists to reduce BP in procedures that usually cause major bleeding, such as osteotomy (Carvalho et al., 2013).

Hypertensive Crisis

A hypertensive crisis results from a sudden and intense increase in blood pressure, in which very high blood pressure levels are observed (≥ 180 x 120 mmHg). Accompanied by signs and symptoms such as feeling unwell, dizziness, breath shortness, visual changes, severe headache, coughing, chest pain, and vasospasm (Levasseur et al., 2013; Pegoraro & Oliveira, 2015)

The hypertensive crisis may represent an emergency or clinical urgency. In a hypertensive emergency event, signs indicating damage to target organs, such as stroke, acute pulmonary edema, and myocardial infarction can be observed. In these cases, there is an imminent risk to life (Southerland et al.,2016). Another fact that frequently occurs during consultations is the so-called hypertensive pseudocyesis where the blood pressure increase is single and exclusively a response to physical or psychological stress (Feitosa-Filho et al., 2008).

In their clinical routine, the dental surgeon can find this event once dental care is constantly related to fear, generating stress and anxiety, releasing endogenous catecholamines (epinephrine and norepinephrine) which are responsible for the significant increase in blood pressure (Martin et al., 2004; Santos & Rumel, 2006).

Therefore, the dental surgeon should be able to minimize the chances of a crisis, performing anamnesis properly, measuring blood pressure routinely, having in mind that some patients are not aware of their condition, and carrying out consultations with short sessions preferably in the morning (Nascimento et al., 2011), controlling pain, performing verbal stress control, talking to the patient, and if necessary, using anxiolytics.

When the patient presents any signs that characterize a hypertensive urgency, the care must be interrupted, and he must be placed in a comfortable position, monitored, and reassured and the patient must be referred for urgent medical assistance, as soon as possible (Pegoraro &Oliveira, 2015).

Drug Interactions

The drug interaction is defined as a change in the expected pharmacological effect, due to the presence of another drug, food, drink or chemical agent. A survey has shown that only 3% of professionals are aware of drug interaction, even though drug prescription is important in the hypertensive patients' approach. Knowledge of possible drug interactions and complications is essential, as well as proposing therapeutic alternatives (Cruz et al., 2017). It is the responsibility and obligation of the dental surgeon, as a

 ISSN: 1857-7881 (Print) e - ISSN 1857-7431

prescriber, to be knowledgeable of pharmacology, dosage, mechanism of action, indication, and side effects that may occur because of drug use in dental practice (Cruz et al., 2017).

The analgesics aim to control low-intensity acute pain. Paracetamol and dipyrone are the most used in Dentistry. The ASA uses present restrictions, although its good analgesic activity, for patients using antihypertensive drugs from the ACE inhibitor group (angiotensin-converting enzyme, example: Captopril), due to its anti-aggregating action platelet (Nascimento et al., 2011; Cruz et al., 2017).

Non-steroidal anti-inflammatory drugs (NSAIDs) are used to prevent hyperalgesia and control edema resulting from dental interventions. The most used in Dentistry are Ibuprofen and Nimesulide. However, they are contraindicated, as they cause a decrease in the synthesis of prostaglandins, essential in the metabolism of hypertensive agents, causing sodium retention and an increase in the intravascular fluid volume, resulting in blood pressure increase (Popescu et al 2013; Carvalho et al.,2010). They can also reduce the antihypertensive action of beta-blockers (propanol) and angiotensin-converting enzyme inhibitors (captopril) and diuretics (furosemide) (Costa et al.,2013).

The diuretic antihypertensive agents (furosemide, spironolactone, hydrochlorothiazide), beta-blockers (atenolol, propranolol), alpha-blockers (prazosin, terazosin , alfuzosin, doxazosin) and Angiotensin Converting Enzyme – ACE inhibitors (captopril, enalapril, lisinopril) are the most affected by the action of NSAIDs. When moderate to severe pain is expected, analgesics such as paracetamol or dipyrone can be prescribed. In any case, it is necessary to discuss it with the patient's cardiologist (Costa et al., 2013).

Antibiotics are commonly used in dentistry to treat acute or chronic ontogenic and non-ontogenic infections. Amoxicillin and Azithromycin, causes an increase in the concentration of carbamazepine. Cyclosporine, phenytoin, digoxin and triazolam, and metronidazole are the most commonly used in Dentistry. The antibiotics generally do not present drug interactions with antihypertensives (Cruz et al., 2017).

Oral Manifestations

Many of the oral manifestations in hypertensive patients are side effects caused by the antihypertensive drugs themselves such as lichenoid reactions, gingival hyperplasia which can lead to oral hygiene impairment, difficulty in chewing, tooth eruption alteration, speech interference, aesthetic impairment, increased risk of gingival bleeding and oral infections. Gingival hyperplasia can be caused by most calcium channel blockers, with an incidence of 1.7% to 3.8%, mainly nifedipine (Fróis, 2014). Periodontal surgical intervention is indicated as treatment, however not definitive, since

 ISSN: 1857-7881 (Print) e - ISSN 1857-7431

the patient will continue to use the medication. The most effective way would be for the drug reduced or to be replaced by another of a different class, as long as it is feasible (Almeida, 2014).

The xerostomia is another common adverse effect of all antihypertensive drugs and the patients who take more than one drug are the most affected. Changing medication rarely helps, most can produce dry mouth (Fróis, 2014), and xerostomia can result in several side effects such as increased incidence of caries poor, denture fitting, taste alteration, burning sensation/burning mouth, difficulty in chewing, swallowing, talking and candidoses (Popescu et al 2013). As a way of mitigating the effects, the use of artificial saliva can be prescribed, according to the patient's needs. It is also possible to prescribe pilocarpine, 5 to 10 mg, 15 to 30 minutes before meals (Costa et al.,2013). It is also very important to advise the patient to drink water more frequently, or to use sugar-free gum to stimulate saliva production, as well as avoid the use of mouthwashes with alcohol, as these increase the sensation of dry mouth and burning mouth (Costa et al.,2013).

Lichenoid drug reaction is clinically indistinguishable from lichen planus; it occurs with some antihypertensive drugs. Changing medication may help, however a lesion biopsy should be performed if there is regression. Treatment of the lichenoid lesion is only necessary if the patient is symptomatic (Popescu et al 2013; Carvalho et al.,2010).

Discussion

There is no consensus among the authors on which blood pressure level and the intervention limit, however, what is agreed upon among authors is that blood pressure should be controlled in the limits of up to 150/90 mmHg, measured on the day of the consultation. The hypertensive patients may undergo elective or urgent dental procedures, nonetheless, the existence of other associated systemic alterations such as cardiovascular disease, diabetes, renal failure should be assessed (Nascimento et al., 2011).

The studies by Costa et al., (2013), Oliveira et al., (2010) and Carvalho et al., (2013) are in favor of the use of vasoconstrictors, without compromising or harming the patient, as long as the maximum dosage of 2 tubes according to Costa et al.,(2013) and Carvalho et al.,(2013), and up to 3 tubes according to Oliveira et al.(2010). These authors have explained that the amount of epinephrine released as a result of stress is much greater than the content of an anesthetic tube. The articles reporting the dental surgeon's behavior in surgeries in hypertensive patients were evaluated. From the relevant literature review, it was highlighted that every dental surgeon, before starting any dental treatment, must determine whether the patient will undergo the procedure with complete safety, through a very detailed anamnesis followed by updated information from the same.

 ISSN: 1857-7881 (Print) e - ISSN 1857-7431

This shows the importance for the dentist to analyze the blood pressure levels of their patients and to be aware of their clinical condition, thus being able to control the patient's risk classification.

According to Nascimento et al., (2011), high blood pressure during surgery leads to increased intraoperative bleeding. If surgery is performed in the office under local anesthesia, the dentist should be careful with the hypertensive patient, especially if he is taking anticoagulants or antiplatelet agents. The ideal approach for these patients, especially if BP is elevated, is to check anticoagulation before proceeding with the surgical procedure.

For patients who present BP above 140/90mm/Hg, intervention should not be performed, once hypertension is detected, interaction with other professionals such as the cardiologist is recommended, avoiding possible intercurrences. In patients who are apprehensive during the procedure, it is important to control anxiety with pharmacological and non-pharmacological methods, whether or not related to muscle relaxation techniques or psychological methods (Cruz et al., 2017).

Regarding hypertensive crises, Feitosa-Filho et al., (2008) state that 3% of visits to emergency rooms result from a significant increase in arterial hypertension, while Guedes et al. (2005) show even lower rates, of only 1% for hypertensive crises, and in these, visits to patients with hypertension are referred more frequently, and even leading people who are followed up in arterial hypertension treatment programs, to seek clinical care due to hypertensive crises. Southerland et al., (2016) corroborate that hypertensive crisis occurs in 1% of patients diagnosed with hypertension and that although rare, they occur in an average of 500,000 cases. That is why Pegoraro et al. (2015) state that it is not just for one type of professional to know how to recognize the signs and how to act, but for all professionals who may be faced with these clinical situations.

Pegoraro et al. (2015) and Lucius & Barreto (2012) say that mainly the dental surgeon must know how to proceed once fear is involved promoting anxiety and leading to stress. And if the patient presents any signs and symptoms of a hypertensive crisis, the dental treatment should be immediately stopped. The patient must be placed in a comfortable position and their vital signs must be monitored. The professional should administer captopril, at a dose of 25 mg to 50 mg, sublingually, and when the crisis is controlled, the patient should be referred for medical evaluation.

However, Guedes et al., (2005), say that, in cases of hypertensive crises, the patient should be hospitalized and undergo treatment with intravenous vasodilators. Feitosa-Filho et al., (2008) emphasize that if the patient is previously hypertensive, it is essential to know about his/her previous blood pressure control, antihypertensive medication in use, doses, adherence, and time when the last pill was administered.

 ISSN: 1857-7881 (Print) e - ISSN 1857-7431

The studies agree that drug prescription is an important aspect in the management of hypertensive patients due to the possibility of drug interactions. They are called effect interactions, when drugs or associated substances, through different mechanisms, interfere with each other's effect, potentiating or causing the opposite/rebound effect (Cruz et al., 2017).

There has been a contraindication to the use of non-steroidal anti-inflammatory drugs since these drugs can interfere with the action mechanism of antihypertensive drugs. According to Costa et al., (2013) and Southerland et al., (2016) the use of COX-2-selective anti-inflammatory drugs is an example of this, since it can decrease the natriuretic effect of the furosemide class. The use of non-steroidal anti-inflammatory drugs (NSAIDs) can also decrease the antihypertensive action of beta-blockers (propranolol) and angiotensin-converting enzyme inhibitors (captopril) and diuretics (furosemide). Nascimento et al., (2011) report that the reason for the contraindication of the use of non-steroidal anti-inflammatory drugs (NSAIDs) is due to the synthesis of prostaglandins decrease, essential for the metabolism of hypertensive agents. Thus, the prescription of NSAIDs to hypertensive patients causes sodium retention, with a consequent increase in the volume of intravascular fluid and an increase in blood pressure.

Studies reported that many of the patient oral manifestations are caused by antihypertensive drugs. Gingival hyperplasia is frequent in patients who use calcium channel blocking drugs. Xerostomia, altered taste, and increased sensitivity to the vasoconstrictor of anesthetics are common because of antihypertensive drugs such as diuretics, centrally acting adrenergic inhibitors, and angiotensin-converting enzyme inhibitors (Costa et al., 2013; Ferrazzo et al., 2014).

The study limitation relied on several protocols that change the dental care approach for hypertensive patients, conflicting with which blood pressure level brings anesthetic and surgical risk. It is crucial that patients with arterial hypertension undergo periodic evaluations with the dental surgeon so that their oral risk stratification is carried out and they are referred for appropriate treatment, and the frequency of subsequent evaluations is determined by the dental surgeon.

Conclusion

Considering a safe approach to the hypertensive patient some precautions must be taken and respected. Initially highlight the importance of an adequate anamnesis, evaluating the existence of other associated systemic alterations such as: cardiovascular, diabetes, renal failure. Measure blood pressure at the beginning and in longer procedures and monitor during the intervention. Conduct short consultations and care in order to control the patient's anxiety. Drug stress reduction control can be used to avoid high blood

 ISSN: 1857-7881 (Print) e - ISSN 1857-7431

pressure due to emotional conditions. Choosing the appropriate anesthetic, solutions with a lower concentration of vasoconstrictor, respecting the dose, and following the principles of the anesthetic technique must be observed. Avoid the use of non-steroidal anti-inflammatory drugs. These precautions will avoid the practice of serious iatrogenic events in addition to guaranteeing the patient safety and quality care.

References:

1. Almeida, T.T.(2014). Pacientes Hipertensos no Consultório Odontológico: Uma Revisão de Literatura. 2014. 39 f. Trabalho de Conclusão de Curso -Universidade Federal de Santa Catarina Curso de Graduação em Odontologia, Florianópolis. https://repositorio.ufsc.br
2. Araújo, A.C.(2013) Proposta de Protocolo para o Atendimento Odontologico do Paciente Hipertenso e Diabetico na Atenção Basica. Trabalho de Conclusão de Curso - Universidade Federal de Minas Gerais Curso de Especialização em Atenção Basica em Saude da Familia, Teófoli Antoni. https://pesquisa.bvsalud.org/portal/resource/pt/una-5142
3. Braga, F., Toledo, J., Zaranza L. (2018). Prevalência de hipertensão arterial em população adulta de uma região do centro-oeste brasileiro. Convención Internacional de Salud, CubaSalud. http://www.convencionsalud2018.sld.cu › paper
4. Brasil. Ministério da Saúde. (2015).Secretaria de Vigilância em Saúde. Departamento de Vigilância de Doenças e Agravos nãoTransmissíveis e Promoção da Saúde. VIGITEL Brasil vigilância de fatores de risco e proteção para doenças crônicas por inquérito telefônico.Brasília: Ministério da Saúde. https://bvsms.saude.gov.br/bvs/publicacoes/vigitel_brasil_2015.pdf
5. Bronzo, A.L.A., Cardoso Jr, C.G., Ortega, K.C, Mion Jr, D. (2012). Felipressina Aumenta Pressão Arterial Durante Procediemento Odontologico em Pacientes Hipertensos. Arq Bras Cardiol; 99(2),724-731. https://doi.org/10.1590/S0066-782X2012005000062.
6. Carvalho, B,, Fritzen, E.L., Parodes, A.G., Santos, R.B., Gedoz, L. (2013).O Emprego dos Anestesicos Locais em Odontologia: Revisão de Literatura. Revista Brasileira de Odontologia; 70(2):178-81. DOI: http://dx.doi.org/10.18363/rbo.v70n2.p.178
7. Carvalho, M.V.H., Marchi, E., Pantoroto,M., Rossini, M., Silva, D.M.S., Teodoro, L.F.F., Pantaroto, A. (2013).Agentes Hemostaticos Locais e Adesivos Teciduais. Rev. Col. Bras. Cir.,40(1),066-071. https://doi.org/10.1590/S0100-69912013000100012
8. Carvalho, V.A.P., Borgatto, A.F., Lopes, L.C. (2010).Nivel de Conhecimento dos Cirurgioes Dentistas de São José dos Campos

 ISSN: 1857-7881 (Print) e - ISSN 1857-7431

Sobre o Uso de Anti-inflamatorios Não Esteróides. Ciência & Saúde Coletiva,15(1),1773-1782. https://doi.org/10.1590/S1413-81232010000700089

9. Costa, A., Vasconcelos, R., Vasconcelos, M., Queiroz, L., Barboza, C.(2013) Conduta odontológica em paciente hipertensos. R brasci Saúde,17(3),287-92. https://pesquisa.bvsalud.org/portal/resource/pt/lil-786272
10. Cruz, E.P., Carpiné, J.A.A., Araujo, I.L.P., Ribeiro, P.G.B.M. (2017) Interações Medicamentosas e a Odontologia. Rev Uningá, 51(2),39-44. https://revista.uninga.br/uninga/article/view/1349
11. Esteves, J.C., Simão, F.B., Ricier,i C.B., Fattah, C.M.R.S., Santos ,P.S.S., Aranega ,A.M. (2011). Assistencia Cirurgico- Odontologica a Pacientes com Historia de Infarto do Miocardio. RGO, 59(2), 285-291. http://revodonto.bvsalud.org/scielo.php?script=sci_arttext&pid=S1981-86372011000200017
12. Feitosa-Filho, G.S., Lopes, R.D., Poppi, N.T., Guimaraes, H.P. (2008). Emergências Hipertensivas. Rev Bras Ter Intensiva, 20(3),305-312. https://doi.org/10.1590/S0103-507X2008000300014
13. Ferraz, E.G., Carvalh, C.M., Jesuíno, AA, .Provedel, L., Sarmento, V.A.(2017).Avaliação da Variação da Pressão Arterial Durante o Procedimento Cirurgico Odontologico. Revista de Odontologia da Unesp, 36(3), 223-229. https://www.revodontolunesp.com.br/article/5880180b7f8c9d0a098b4a40
14. Ferrazzo, K.L., Meinke, G.S., Madri e Silva, U.R.M., Antoniazzi, R.P. (2014). Pré-hipertensão, hipertensão arterial e fatores associados em pacientes odontológicos: estudo transversal na cidade de Santa Maria-RS, Brasil. Rev. odontol. UNESP,43(5),305-13. https://doi.org/10.1590/rou.2014.049
15. Fróis, P.J. O Cuidado Odontológico na Hipertensão Arterial: Uma Proposta de Intervenção Interdisciplinar.(2014). Trabalho de Conclusão de Curso - Universidade Federal de Minas Gerais Curso de Especialização em Estratégia Saude da Familia, Diamantina. https://www.nescon.medicina.ufmg.br/biblioteca/imagem/O_cuidado_odontologico_na_hipertensao.pdf
16. Gealh, W.C., Franco, W.P.G. (2006). Atendimento Odontologico ao Paciente Hipertenso Protocolo Baseado no VII JNC. Jornal Brasileiro de Clínica Odontológica Integrada e Saúde Bucal Coletiva, 01-09. links/00b7d51c9f941a938b000000/REVISAO-DE-LITERATURA.pdf

 ISSN: 1857-7881 (Print) e - ISSN 1857-7431

17. Levasseur, M.P., Oliveira, R.G., Egidio, J.F., D'angelo, K.A.B., Martins, L.R., Souza, L. (2013) Avaliação dos Niveis Pressoricos em Pacientes Submetidos a Tratamento Cirurgico Ambulatorial. Revista Brasileira de Odontologia, 70(2),165-70. http://revodonto.bvsalud.org/scielo.php?script=sci_arttext&pid=S0034-72722013000200014
18. Lúcio, P.S.C., Barreto, R.C. (2012). Emergencias Medicas no Consultorio Odontologico e a (In)Segurança dos Profissionais. Revista Brasileira de Ciências da Saúde, 16(2),267-272. https://periodicos.ufpb.br/ojs/index.php/rbcs/article/view/11943
19. Martin, J.F.V., Higashiama, E., Garcia, E., Luizon, M.R., Cipullo, J.P. (2004).Perfil de Crise Hipertensiva. Prevalência e apresentação clinica. Arquivos Brasileiros de Cardiologia, 83(2),125-130. https://doi.org/10.1590/S0066-782X2004001400004
20. Nascimento, E.M., Santos, M.F., Martins, V.M., Cavalcanti, A.L., Menezes, V.A., Garcia, A.F.G. (2011) Abordagem Odontologica de Pacientes com Hipertensão- Um Estudo de Intervenção. RFO, 16(1),30-35. http://revodonto.bvsalud.org/scielo.php?pid=S1413-40122011000100008&script=sci_arttext
21. Oliveira, A.E.M., Simone, J.L., Ribeiro, R.A. (2010). Pacientes Hipertensos e a Anestesia na Odontologia: Devemos Utilizar Anestesicos Locais Associados ou Não com Vasoconstritores? HU Revista, 36(1),69-75. https://periodicos.ufjf.br/index.php/hurevista/article/view/879
22. Paiva, L.C.A., Cavalcanti, A.L. (2005). Anestesicos Locais em Odontologia: Uma Revisão de Literatura. Publ. UEPG Ci. Biol. Saúde,11(2), 35-42. https://www.foa.unesp.br/Home/ensino/departamentos/cienciasbasicas/s2_al-odontologia.pdf
23. Pegoraro, J.D.L., Oliveira, C.A. (2015). Crise Hipertensiva na Odontologia. RFO, 20(3),380-383. http://revodonto.bvsalud.org/scielo.php?script=sci_arttext&pid=S1413-40122015000300018
24. Popescu, S.M., Scrieciu, M., Mercut, V., Tuculina, M., Dascalu, I. (2013) Hypertensive Patients and Their Management in Dentistry. Hindawi Publishing Corporation - ISRN Hypertension,8 pages. https://doi.org/10.5402/2013/410740
25. Rodrigues, K.P., Pinheiro, H.H.C., Araujo, M.V.A. (2015) Percepção de Academicos de Odontologia Sobre Seus Conhecimento Para o Atendimento Odontologico de Hipertesnos e Diabeticos. Revista da ABENO, 15(4),19-28.

 ISSN: 1857-7881 (Print) e - ISSN 1857-7431

DOI: https://doi.org/10.30979/rev.abeno.v15i4.198

26. Rosário, T., Scala, L., França, G., Pereira, M., Jardim, P. (2009). Prevalência, Controle e Tratamento da Hipertensão Arterial Sistêmica em Nobres - MT. ArqBrasCardiol, 93(6): 672-8. https://doi.org/10.1590/S0066-782X2009001200018
27. Santos, J.C., Rumel, D. (2006). Emergencia Medica na Pratica Odontologica no Estado de Santa Catrina: Ocorrencia, Equipamentos e Drogas, Conhecimento e Treinamento dos Cirurgioes Dentistas. Ciência & Saúde Coletiva,11(1),183-190. https://doi.org/10.1590/S1413-81232006000100027
28. Soares, R.G., Salles, A.A., Irala, L.E.D., Limongi, O. Como Escolher um Adequado Anestesico Local Para as Diferentes Situaçoes na Clinica Odontologica Diaria? RSBO 2006; 3(1):35-40. https://pesquisa.bvsalud.org/portal/resource/pt/biblio-873521?src=similardocs
29. Sociedade Brasileira de Cardiologia. (2016) 7ª Diretriz Brasileira de Hipertensão Arterial. Arq. Brasileiros de Cardiologia,107 (Supl. 3):1-82. Disponível em: http://publicacoes.cardiol.br/2014/diretrizes/2016/05_HIPERTENSAO_ARTERIAL.pdf
30. Southerland, J.H., Gill, D.G., Gangula, P.R., Halpern, L.R., Cardona, C.Y., Mounton, C.P. (2016) Dental Management in Patients with Hypertension: Challenges and Solutions. Clinical, Cosmetic and Investigational Dentistry,8, 111-120. doi: 10.2147/CCIDE.S99446