

Nursing interventions in the care of patients with heart arrhythmia

RESUMO | Objetivo: as arritmias cardíacas acometem mais de 20 milhões de brasileiros, desse modo, o presente estudo objetiva realizar um levantamento sobre as intervenções de enfermagem diante de um quadro de arritmia em ambiente hospitalar. Método: trata-se de revisão integrativa de literatura de caráter descritivo, realizada entre janeiro e fevereiro de 2022. Por meio de buscas na biblioteca virtual de saúde BVS (Lilacs, Medline, BDeinf, IBECs, PAHO) e Scielo BDeinf de artigos publicados nos últimos 5 anos. Resultados: os enfermeiros têm aptidão para identificar anormalidades no ritmo cardíaco. A compreensão das complicações pós-operatórias contribui para a elaboração de um plano de cuidado mais eficaz. As intervenções de enfermagem devem ser pautadas no monitoramento da arritmia, bem como orientação sobre o uso dos antiarrítmicos e esclarecimento de dúvidas sobre a doença. Conclusão: é imprescindível a atuação do enfermeiro na assistência a pacientes com arritmias cardíacas, o qual necessitam monitorar os sinais vitais para determinar o efeito hemodinâmico de tal problema cardíaco, manter uma atitude tranquilizadora e compartilhar informações sobre a patologia e seu tratamento.

Descritores: Arritmia Cardíaca; Cuidados de Enfermagem; Assistência de Enfermagem.

ABSTRACT | Objective: cardiac arrhythmias affect more than 20 million Brazilians, thus, the present study aims to carry out a survey on nursing interventions in the face of arrhythmia in a hospital environment. Method: Method: this is an integrative literature review of a descriptive nature, carried out between January and February 2022. Through searches in the virtual health library VHL (Lilacs, Medline, BDeinf, IBECs, PAHO) and Scielo. Results: nurses are able to identify heart rhythm abnormalities. Understanding postoperative complications contributes to the development of a more effective care plan. Nursing interventions should be guided by the monitoring of arrhythmia, as well as guidance on the use of antiarrhythmics and clarification of doubts about the disease. Conclusion: it is essential for nurses to assist patients with cardiac arrhythmias, who need to monitor vital signs to determine the hemodynamic effect of such a heart problem, maintain a reassuring attitude and share information about the pathology and its treatment.

Keywords: Cardiac Arrhythmia; Nursing care; Nursing Assistance.

RESUMEN | Objetivo: las arritmias cardíacas afectan a más de 20 millones de brasileños, por lo tanto, el presente estudio tiene como objetivo realizar una encuesta sobre las intervenciones de enfermería frente a la arritmia en un ambiente hospitalario. Método: se trata de una revisión integrativa de la literatura de carácter descriptivo, realizada entre enero y febrero de 2022. Mediante búsquedas en la biblioteca virtual en salud BVS (Lilacs, Medline, BDeinf, IBECs, PAHO) y Scielo. Resultados: los enfermeros logran identificar alteraciones del ritmo cardíaco. Comprender las complicaciones posoperatorias contribuye al desarrollo de un plan de atención más eficaz. Las intervenciones de enfermería deben estar guiadas por el seguimiento de la arritmia, así como orientación sobre el uso de antiarrítmicos y aclaración de dudas sobre la enfermedad. Conclusión: es fundamental que los enfermeros ayuden a los pacientes con arritmias cardíacas, que necesitan monitorear los signos vitales para determinar el efecto hemodinámico de tal problema cardíaco, mantener una actitud tranquilizadora y compartir información sobre la patología y su tratamiento.

Palabras claves: Arritmia Cardíaca; Cuidado de enfermería; Asistencia de Enfermería.

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Recebido em: 18/05/2022

Aprovado em: 26/06/2022

INTRODUCTION

Cardiac arrhythmias affect more than 20 million Brazilians and in the most severe cases can lead to sudden death. According to the Brazilian Society of

Cardiac Arrhythmias (SOBRAC - Sociedade Brasileira de Arritmias Cardíacas), this disease ends more than 300 thousand lives of Brazilians per year. ⁽¹⁾ Define-se por arritmia alterações na condução do impulso elétrico do coração, alterando a frequência e/ou ritmo cardíaco. ⁽²⁾

Impulse formation disorders, impulse conduction disorders or the combination of both are the mechanisms that can be highlighted in cardiac arrhythmias. Conduction disorders are characterized by a pause in the conduction of the electrical stimulus at the level of its branches or in the bundles of His, usually linked to some heart disease. Conduc-

tion Disorders and Cardiac Arrhythmias electrical changes in the heart that cause changes in sinus rhythm, causing bradycardias, tachycardias, irregular heart rates in the propagation of impulses, characterizing as irregular heart rhythm, causing electrical instability of the electrical muscle.⁽³⁾

In this sense, such damage can develop in individuals without heart disease or in response to other comorbidities, such as drug intoxication or electrolyte disturbances. It is likely that this form may present asymptotically or with the possible manifestations: mental confusion; palpitations; vertigo; fainting; hypotension; asthenia and chest pain, progressing to congestive heart failure or even sudden death in rare cases.⁽³⁾

From this perspective, in 84% of the interpretations of arrhythmias, the electrocardiogram (ECG) is read, making its application in clinical practice broad and functional. Because it is a non-invasive diagnosis of cardiac arrhythmias, the ECG stands out as the gold standard also used to detect metabolic and structural changes in the myocardium.⁽⁴⁾ However, heart rhythm disorders encompass several forms of cardiac arrhythmia, the most common occurring in 3% of the general population, atrial fibrillation (AF), with a predominance in the elderly, which can lead to vague symptoms to more disabling symptoms, significantly impacting the quality of life of the individual.⁽⁵⁾

Bearing in mind that the nursing professional is one of the members of the care team, as they spend more time with the patient, it is of fundamental importance that they are able to recognize pathological and normal electrocardiographic tracings. Such competence is responsible for attributing subsidies for the interpretation of electrocardiographic and clinical changes that an individual starts to present in their care, enabling effective and immediate intervention measures.⁽⁴⁾ Thus, coronary care units emerged with the aim of providing rapid resuscitation for individuals with unstable arrhythmias, faced with an acute myocardial infarction (AMI) scenario. The role of trained and qualified nurses and doctors is relevant, because by recognizing and treating arrhythmias and post-infarction pro-

blems, they can increase patient survival.⁽⁶⁾

Based on the above, this study raises the following research question: "which interventions are described in the literature on nursing care for patients with cardiac arrhythmia?". The present study aims to raise content about the main nursing interventions, in the face of cardiac arrhythmia, in a hospital environ-



There are few studies that demonstrate the ability of nursing professionals to evaluate electrocardiographic tracings in patients who present severe alterations.



ment.

METHOD

This article is a descriptive research, which was developed through an integrative literature review, which presents the grouping of data on which the investigation was based. In

this sense, articles produced in the last 5 years (2017 to 2022) were defined as inclusion criteria for publications, full texts available in Portuguese and English, in the electronic databases found in the Virtual Health Library (VHL), including Lilacs, BDeInf, IBECs, PAHO and Medline plus the Scientific Electronic Library Online (SciELO). As an exclusion criterion, articles with incomplete content were extracted, which did not meet the research object of this study, in addition to abstracts of theses and dissertations.

As a search strategy, initially the descriptors ("Arrhythmias (Arritmias)" and "Nursing Care (Cuidados de Enfermagem)") were used in the VHL electronic library, where 631 publications appeared, filtering by the search period (2017 to 2022), full text and Portuguese language, 33 articles remained. The descriptors ("Cardiac Arrhythmias (Arritmias Cardíacas) And Nursing (Enfermagem)") were also used, in which 738 publications appeared, filtering by the period of in the last 5 years (2017 to 2022), full text, 41 articles remained. In the Lilacs virtual library, the descriptors ("Arrhythmias And "Nursing Care") were used, which resulted in 8 articles after filtering for the last 5 years, only 1 publication remained. In BDeInf and Medline, using the same descriptors and filtering by the inclusion criteria, no results were obtained and in the SciELO electronic library it resulted in 4 articles.

The search for descriptors in virtual libraries resulted in 1,374 publications. Of these, 1,295 were excluded because they did not meet the inclusion criteria. After reading the titles and abstracts of 24 journals, 8 articles were chosen to be read in full, 7 of which contributed to the elucidation of the research question and the development of the present study. Furthermore, for the basis of pathophysiological information, the books "Treatise of Medical-Surgical Nursing (Tratado de Enfermagem Médico-Cirúrgica)" and "Nursing in ICU: caring for the critical patient (Enfermagem em UTI: cuidando do paciente crítico)" were used, since the works found in the literature do not indicate nursing interventions. The captured articles were classified according to the Oxford evidence level scale.⁽⁷⁾

RESULTS

From the analysis of the selected works, it was found that, in general, the articles do not point out nursing interventions in the care of patients with cardiac arrhythmias, however, they show that nursing professionals have the ability to interpret ECG abnormalities, than the knowledge of postoperative complications, in addition to bringing the main diagnoses present in NANDA related to such comorbidity. Table 1 shows the main results, conclusions and the classification of the strength of scientific evidence. ⁽⁷⁾

The main goals for self-management and control include: elimination or reduction of the arrhythmia incident (by reducing contributing factors) to preserve cardiac output; decreased anxiety; verbalization of understanding about the arrhythmia, the tests applied to diagnose the problem and its treatment. ⁽⁸⁾ Table 2 lists the diagnoses, interventions and expected nursing outcomes related to cardiac arrhythmia.

In this sense, if a patient is using antiarrhythmic medication, it is necessary to constantly assess adherence to treatment, adverse reactions, side effects and contraindications. For example, there are some drugs that can cause arrhythmias (eg, digoxin) laboratory results need to be evaluated and reviewed for drug levels, as well as factors that could possibly contribute to the arrhythmia (eg, anemia). A direct and thorough psychosocial assessment is performed to characterize the possible effects of the arrhythmia, the patient's perception of needs, understanding regarding the arrhythmia and its treatment, and whether the anxiety generated is a significant contributory aspect. ⁽⁸⁾ Table 3 shows the main arrhythmics and their actions, possible side effects and nursing interventions.

Arrhythmias are disturbances in the heart rhythm that are characterized by slow, fast or irregular beats. These changes can happen due to abnormalities in the origin and/or conduction of the electrical impulse, and can arise from external factors such as alcoholic beverages, caffeine,

TABLE 1. Works captured in the VHL electronic database in January published in the last 5 years, Rio de Janeiro, 2022.

Authors, Title, Year and Country	Method and Periodic Base	Main Results	Conclusion	Oxford Level of Scientific Evidence
Eduesley Santana-Santos; Emile Clara Pires; Juliana Teixeira Silva; Vanessa Santos Sallai; Diego Gutierrez Bezerra; Renata Eloah de Lucena Ferretti-Rebustini. Nurses' ability to interpret the 12-lead electrocardiogram. (Habilidade dos enfermeiros na interpretação do eletrocardiograma de 12 derivações.) 2017. Brazil. ⁽⁴⁾	Cross-sectional study. VHL	Nursing professionals are skilled enough to identify heart rhythm abnormalities. The results showed that nurses from critical units assess the ECG more frequently than those from non-critical units.	This article does not point to care, but evidences the competence that nurses have to interpret the ECG.	2B
Alessandra Yuri Takehana de Andrade, Patricia Sayuri de Lima Tanaka, Vanessa de Brito Poveda, Ruth Natalia Teresa Turrini. Immediate postoperative complications of myocardial revascularization. (Complicações do pós-operatório imediato de revascularização do miocárdio.) 2019. Brazil. ⁽¹²⁾	Descriptive-exploratory and retrospective study. VHL	Understanding the postoperative complications associated with patient profiles contributes to the creation of more efficient care plans. The most frequent nursing diagnosis was the risk of infection.	This publication does not contain care, however it points out that the understanding of postoperative complications contributes to the development of a more effective care plan.	2B
Liliane Ferreira Moura; Angela Conceição Sena Maltez; Catia Suely Palmeira; Maria de Lourdes de Freitas Gomes. Hospitalizations and deaths due to conduction disorders and cardiac arrhythmias in the state of Bahia – Brazil. (Internações e óbitos por transtornos de condução e arritmias cardíacas no estado da Bahia – Brasil) 2017. Brazil. ⁽³⁾	Descriptive study. VHL	Conduction Disorders and Cardiac Arrhythmias are important causes of hospitalizations and deaths due to their high frequency, requiring reflection on the quality of care and the registration of this problem to the health system.	This study does not present nursing care, but shows rates of hospitalization and deaths from cardiac arrhythmia.	3B
Priscila Moreno Sperling Cannavan, Fernando Piza de Souza Cannavan, Maria Helena Baena de Moraes Lopes. Analysis of questionnaires for the evaluation of patients with cardiac arrhythmias. (Análise de questionários para a avaliação de pacientes com arritmias cardíacas.) 2021. Brazil. ⁽⁵⁾	Descriptive study/ Integrative literature review study. VHL	It was found that there are several questionnaires available for the assessment of patients with tachyarrhythmias, only one includes the assessment of symptoms and HRQoL, both in patients with supraventricular and ventricular tachyarrhythmias.	This article does not address nursing interventions, however it provides an understanding of the questionnaires available to assess patients with tachyarrhythmias.	3A

stress, energy, drugs and cigarettes. Thus, electrocardiography is essential in the diagnosis of this disorder.⁽⁹⁾ In figure 1, it is possible to verify the trace of the physiological rhythm, in figure 2, it is possible to observe the tracing of a cardiological alteration that characterizes an arrhythmia.

It is characterized by a progressive prolongation of the PR interval (Wenckebach's phenomenon until there comes a time when the P wave is blocked, resulting in an arrhythmia).

DISCUSSION

The clinical scientific understanding related to the health problems portrayed by the patient with arrhythmia, the nurse needs to have a critical eye, which is important for the nursing actions to be performed. To establish the conduct and planned care, the nursing professional uses the nursing process (NP) as a methodological instrument that guides nursing procedures, qualifies care and conducts the documentation of professional practice. The importance of the nurse's role as an educator is highlighted, providing health information and assistance for the promotion of self-care; and yet, the care plan must be individually necessary for the individual with heart disease.⁽¹¹⁾

There are few studies that demonstrate the ability of nursing professionals to evaluate electrocardiographic tracings in patients who present severe alterations. The nurse who works in supervision and/or care needs to be observant and quick in identifying and interpreting changes evidenced on the ECG, so that potentially fatal events can be avoided.⁽⁴⁾ In this sense, the application of nursing diagnoses is essential, as it allows the effective targeting of care for the individual needs of each patient, through a choice for the ideal intervention, allowing its constant evaluation.⁽¹²⁾

There are frequent cases of cardiac arrhythmia during hospitalizations in the intensive care unit (ICU), therefore, clinical recognition of the different arrhyth-

Ryan A Watson, Erin A Bohula, Thomas C Gilliland, Pablo A Sanchez, David D Berg and David A Morrow. Editor's Choice-Prospective registry of cardiac critical illness in a modern tertiary care Cardiac Intensive Care Unit. 2019. USA.⁽⁶⁾

Observational study/ Descriptive study. VHL

In a tertiary and advanced CICU, most patients are elderly with cardiovascular and non-cardiovascular comorbidities.

This study does not point out nursing care, but demonstrates the profile of patients in a tertiary and advanced CICU.

3B

Adriana Souza Szpalher, Marianne Cardoso Batalha. Cardiac arrhythmias: Nursing diagnoses based on the NANDA-I Taxonomy (Arritmias cardíacas: Diagnósticos de Enfermagem baseados na Taxonomia da NANDA-I) (2018-2020)2019.Brazil.⁽¹¹⁾

Integrative literature review study. VHL

The Nursing Diagnoses found were acute pain, sedentary lifestyle and insomnia.

This publication does not bring the interventions, but the nursing diagnoses present in NANDA related to cardiac arrhythmia.

3A

Lívia da Silva Firmiro dos Santos, Roberto Lima Costa, Paula Rodrigues dos Santos, Silvana Pereira Espindola, Camila Rafaela da Silva Souza Bertholy, Sara Gabriele de Carvalho Severiano, Sara Emanuele dos Santos Freitas. Electrocardiogram in the nurse's practice in urgency and emergency. (Eletrocardiograma na prática do enfermeiro em urgência e emergência.) 2019. Brazil.

Systematic review study. VHL

The most common clinical condition was acute myocardial infarction. The request for the exam at the right time, the agile execution and the interpretation of the ECG by the nurse are essential for quality care in urgent and emergency situations.

This article does not present nursing care, however it points out the nurses' ability to face the ECG in practice in urgency and emergency units.

2A

Fonte: Os autores (2022)

CHART 2. Main diagnoses, interventions and expected nursing outcomes related to cardiac arrhythmia, based on the literature, 2022.

Diagnosis	Interventions	Expected Results
Decreased cardiac output related to inadequate ventricular filling or change in heart rate.	Monitoring and management of arrhythmia to maintain cardiac output.	Demonstrate heart rate, respiratory rate, blood pressure and level of consciousness in normal ranges; demonstrate absence or decrease in arrhythmia episodes.
Anxiety related to fear of unknown outcome of altered health status.	Stay by the patient's side to ensure their safety, maintaining a calm and reassuring attitude; promote a relationship of trust with the patient.	Express a positive attitude about life with arrhythmia; express confidence in the ability to take appropriate action in an emergency and urgency.
Deficient knowledge about arrhythmia and its treatment.	Guide the patient by clarifying erroneous information, sharing the necessary information, so that it is understandable and that it is not threatening or frightening.	Explain arrhythmia and its effects; describe the drug regimen and its justification; explain the need to maintain the therapeutic serum level of the drug; describe a plan to eliminate or limit factors that contribute to arrhythmia; declare the measures to be adopted in case of emergency and urgency.

SOURCE: Hinkle et al (2020). (8)

mias is fundamental for establishing the best therapeutic approach, for which the knowledge of their electrocardiographic characteristics and their pathophysiological mechanisms becomes an important factor. According to an estimate from North American studies, there is a prevalence rate of 1 in 18 individuals or approximately 5.3%, corresponding to about 14.4 million people affected with cardiac arrhythmia. Although the prevalence is high, most arrhythmias do not present a high risk of sudden death, however, it should not be mistakenly considered as a benign situation, since severe clinical forms can affect the individual, leading to a deterioration of a critical clinical situation.⁽¹³⁾

It is worth mentioning that the request for the ECG by the nurse has been supported by the Regional Councils of Nursing (COREN - Conselhos Regionais de Enfermagem) in Brazil. During the study period, in the states of São Paulo, Goiás and Santa Catarina, the ECG request can be performed by nursing professionals as long as there is a Technical Norm, Institutional Protocol or Standard Operating Procedure (SOP) supporting it. Such a request made by the nurse would reduce the time to start the treatment of certain pathologies, which would result in a better prognosis for the patient.⁽¹⁴⁾

The content raised indicates that nurses have full competence to perform the ECG request and identify abnormalities in heart rhythm, such as cardiac arrhythmias and cardiorespiratory arrests. Understanding possible complications after surgery contributes to a more efficient care plan. In addition, nursing interventions should be guided by monitoring the arrhythmia and its signs and symptoms, ensuring patient safety, staying by their side throughout the process, providing guidance on the use of antiarrhythmics, and clarifying possible doubts about the arrhythmia and its treatment.

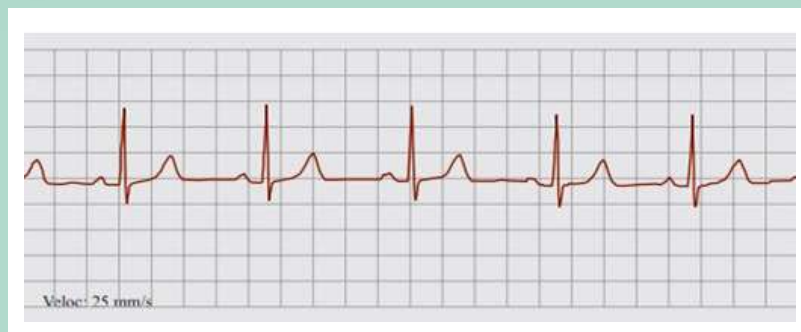
CONCLUSION

TABLE 3. Summary of the main arrhythmics used, based on the literature, 2022.

Action	Drug Names	Side effects	Nursing Interventions
Moderate depression of depolarization; prolongs repolarization. Treats and prevents atrial and ventricular arrhythmias.	Quinidine, Procainamide	Decreased cardiac contractility; QRS prolongation, QT; proarrhythmic, Hypotension with intravenous administration; Diarrhea with quinidine, constipation with disopyramide; With cinchonism with quinidine; Lupus-like syndrome with procainamide; Anticholinergic effects: dry mouth, urinary hesitancy with disopyramide.	Observe for heart failure; monitor Blood Pressure (BP) with intravenous administration; monitor QRS duration for >50% increase from baseline; monitor for prolonged QT; monitor laboratory values of N-acetylprocainamide (NAPA) during procainamide therapy; if administered for AF, ensure the patient has been pre-treated with a drug to control AV conduction.
Minimal depression of depolarization; abbreviated repolarization, Treats ventricular arrhythmias.	Lidocaine	CNS changes (eg, confusion, lethargy), Bradycardia, GI discomfort, Tremors.	Monitor for CNS changes and tremors; discuss with the physician decreasing the dose of lidocaine in elderly patients and patients with cardiac/hepatic dysfunction.
Prolongs repolarization, Treats and prevents ventricular and atrial arrhythmias, especially in patients with ventricular dysfunction.	Atenolol, Metoprolol, Propranolol	Bradycardia, AVB, Decreased contractility, Bronchospasm, Nausea, Asymptomatic and symptomatic hypotension, Masks hypoglycemia and thyrotoxicosis, CNS disorders (eg, confusion, dizziness, fatigue, depression).	Monitor heart rate, PR interval, signs and symptoms of heart failure, especially in those receiving calcium channel blockers; monitor the serum glucose level in patients with type 2 diabetes; warn the patient about abrupt discontinuation to avoid tachycardia, hypertension, and myocardial ischemia.
Prolongs repolarization, Treats and prevents ventricular and atrial arrhythmias, especially in patients with ventricular dysfunction.	Amiodarone	Pulmonary toxic effects, Corneal microdeposits, photosensitivity, bradycardia, Hypotension, especially with intravenous administration, nausea and vomiting, It potentiates digoxin.	Ensure that the patient is referred for baseline lung function tests; carefully monitor the patient; assess for contraindications before administration;

SOURCE: Hinkle et al (2020). (8)

FIGURE 1. Normal rhythm tracing in lead DII.

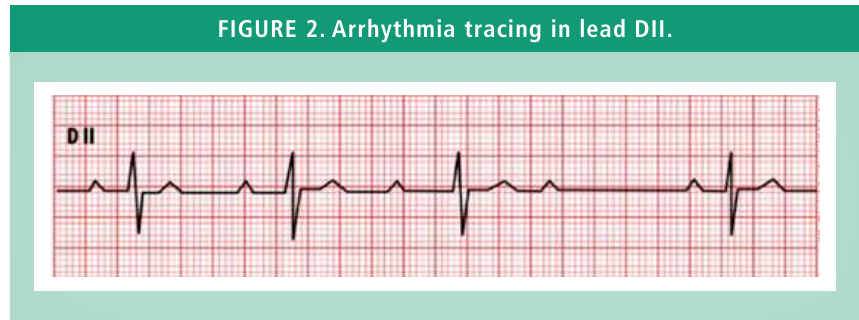


SOURCE: Semap files (2013). (9)

This study was able to demonstrate that the nurse has a fundamental role in the recognition of cardiac arrhythmias, which can increase the chances of patient survival. It is important for nursing professionals to be agile in identifying possible changes in the electrocardiogram in order to avoid fatalities, such as sudden illness.

In this sense, it is essential to apply nursing diagnoses that will help interventions, resulting in quality care for comprehensive care according to the specific needs of each patient, in order to generate expected results that contribute to a better quality of life for the patient.

Throughout the study, the role of nurses in the care of patients with cardiac arrhythmias proved to be essential, since, by being with the patient continuously, he/she needs to monitor his/her vital signs to determine the hemodynamic effect of the



SOURCE: Sanarmed (2020). (10)

arrhythmia, evaluate the adverse effects of each drug prescribed by the doctor, maintain a reassuring attitude in order to reassure the patient by sharing information with them about the arrhythmia and its treatment. It is also worth remembering that the nursing professional guides the client and their families about the signs and symptoms of arrhythmia, as well as

the performance of self-care.

It is worth mentioning that more studies focused on nursing work are needed, with patients with cardiac arrhythmias, since few articles were found that addressed the theme directed to care, and stimulation of quality of life. 🐦

Referências

1. Hospital Alemão Oswaldo Cruz. Doença silenciosa, a arritmia cardíaca mata 300 mil brasileiros por ano. 2018 Nov 12 [cited 2022 Jan 16]. In: Hospital Alemão Oswaldo Cruz. São Paulo: Hospital Oswaldo Cruz. 2018. Available from: <https://www.hospitaloswaldocruz.org.br/imprensa/releases/doenca-silenciosa-arritmia-cardiaca-mata-300-mil-brasileiros-por-ano/>
2. Governo do Estado de Goiás. Secretaria de Estado de Saúde de Goiás. Arritmias Cardíacas. [Internet]. Goiás: Secretaria de Estado de Saúde de Goiás; 2019 [cited 2022 Jan 16]. Available from: <https://www.saude.go.gov.br/biblioteca/7552-arritmias-cardicas#:~:text=Arritmia%20s%C3%A3o%20dist%C3%BArrios%20e%C3%A9tricos%20no,pr%C3%B3prio%20sistema%20e%C3%A9trico%20do%20cora%C3%A7%C3%A3o>
3. Moura LF, Maltez ACS, Palmeira CS, Gomes MLF. Internações e óbitos por transtornos de condução e arritmias cardíacas no estado da Bahia – Brasil. Rev. baiana enferm. [Internet]. 2017 [cited 2022 Jan 17];31(4):e21069. Available from: http://www.revenf.bvs.br/scielo.php?script=sci_arttext&pid=S2178-86502017000400307&lng=pt. doi: http://dx.doi.org/10.18471/rbe.v31i4.21069
4. Santana-Santos E, Pires EC, Silva JT, Sallai VS, Bezerra DG, Ferretti-Rebustini RE de L. Habilidade dos enfermeiros na interpretação do eletrocardiograma de 12 derivações. Rev. Baiana enferm. [Internet]. 2017 [cited 2022 Jan 17];31(1):e16581. Available from: http://www.revenf.bvs.br/scielo.php?script=sci_arttext&pid=S2178-86502017000100305. doi: http://dx.doi.org/10.18471/rbe.v31i1.16581
5. Cannavan PMS, Cannavan FPS, Lopes MHBM. Análise de questionários para a avaliação de pacientes com arritmias. Rev enferm UFPE on line. [Internet]. 2021 [cited 2022 Jan 17];15:e246610. <https://doi.org/10.5205/1981-8963.2021.246610>
6. Ryan AW, Erin AB, Thomas CG, Pablo AS, David DB, David AM. Editor's Choice-Prospective Registry of Cardiac Critical Disease in a Modern Tertiary Care Cardiac Intensive Care Unit. European Heart Journal. Cuidados Cardiovasculares Agudos. [Internet]. 2019 [cited 2022 Jan 24];8(1):755-761. <https://doi.org/10.1177/2048872618789053>
7. Oxford Centre for Evidence-Based Medicine. Níveis de evidencia científica segundo a Classificação de Oxford Centre for Evidence-Based Medicine [Internet]. 2001 [cited 2020 Nov 12]. Available from: <https://portal.arquivos2.saude.gov.br/images/pdf/2014/janeiro/28/tabela-nivel-evidencia.pdf>
8. Hinkle, Janice L., Cheever, Kerry H. Brunner e Suddarth: tratado de enfermagem médico-cirúrgica. 14. ed. Rio de Janeiro: Guanabara Koogan, 2020. 735p.
9. Pachón K. Arritmias Cardíacas. In: Reis HJL, Guimarães HP, Zazula AD, Vasque RG, Lopes RD. ECG: manual prático de eletrocardiograma. São Paulo: Editora Atheneu; 2013. [cited 2022 Jan 24]. p. 73. Available from: <http://ole.uff.br/wp-content/uploads/sites/419/2019/04/ECG-Manual-Pr%C3%A1tico-de-Eletrocardiograma-HCor.pdf>
10. Nakada, PH. Ritmos importantes no eletrocardiograma | Colunistas. 2020 Nov 9 [cited 2022 Jan 24]. Sanarmed [Internet]. São Paulo: Sanarmed. 2020. Available from: <https://www.sanarmed.com/ritmos-importantes-no-eletrocardiograma-colunistas>
11. Szpalher AS, Batalha MC. Arritmias cardíacas: Diagnósticos de Enfermagem baseados na Taxonomia da NANDA-I (2018-2020). Revista Eletrônica Acervo Saúde. [Internet] 2019 [cited 2022 Jan 24]; 11(17):e1447. Available from: <https://acervomais.com.br/index.php/saude/article/view/1447. https://doi.org/10.25248/reas.e1447.2019>
12. Andrade A, Tanaka P, Poveda V, Turrini R. Complicações no pós-operatório imediato de revascularização do miocárdio. Revista SOBECC [Internet]. 2019 [cited 2022 Jan 24]; 24(4): 224-230. Available from: <https://revista.sobecc.org.br/sobecc/article/view/482. https://doi.org/10.5327/Z1414-4425201900040008>
13. Vattimo AC, Vattimo MF. Arritmias no paciente grave. In: Padilha KG, Vattimo MFF, Silva SC, Kimura M, Watanabe M. Enfermagem em UTI: cuidando do paciente crítico. 2. ed. São Paulo: Editora Manole; 2016. p. 195-222.
14. Santos LS, Costa RL, Santos PR, Espindola SP, Bertholy CR, Severiano SG, Freitas SE. Eletrocardiograma na prática do enfermeiro em urgência e emergência. Eletrocardiograma na prática do enfermeiro em urgência e emergência [Internet]. 2019 [cited 2022 Mar 14];22(253) DOI <https://doi.org/10.36489/nursing.2019v22i253p2979-2989>. Available from: <http://revistas.mpmcomunicacao.com.br/index.php/revistanursing/article/view/342>