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Analysis of protocols in the care of patients in cardiorespiratory arrest with suspicion or diagnosis of COVID-19

Análisis de protocolos enlaatención de pacientes en parada cardiorrespiratoriaconsospecha o diagnóstico de COVID-19

Análise de protocolos no atendimento ao paciente em parada cardiorrespiratória com suspeita ou diagnóstico de COVID-19

ABSTRACT
To analyze the protocols for patient care in cardiorespiratory arrest with suspicion or diagnosis of covid-19. Method: A qualitative, exploratory and documentary integrative review was carried out, using the PubMed, SciELO, American Heart Association (AHA), European Society of Cardiology (ESC) and Ebersh institutional protocols databases. Three protocols and seven articles were selected that directly addressed the theme. Results: The objectives of the protocols are similar, although some do not allow the attribution of each professional in the management of Cardiopulmonary Arrest (CRP) to be systematically established. All articles emphasized the need for complete and correct attire before providing assistance to a suspected or confirmed patient for covid-19. Conclusion: The protocols corroborate the following requirements: use of adequate vestment; the number of professionals involved in the PCR scene; the drugs used and the use of the intubation and breathing technique that generates less aerosols.
DESCRIPTORS: Cardiovascular diseases; Coronavirus infections; Cardiac Arrest; Critical Care.

RESUMEN
Objetivo: Analizar los protocolos de atención al paciente en parada cardiorrespiratoria con sospecha o diagnóstico de covid-19. Método: Se realizó una revisión integrativa cualitativa, exploratoria y documental, utilizando las bases de datos de protocolos institucionales PubMed, SciELO, American Heart Association (AHA), European Society of Cardiology (ESC) y Ebersh. Se seleccionaron tres protocolos y siete artículos que abordaron directamente el tema. Resultados: Los objetivos de los protocolos son similares, aunque algunos no establecen de forma sistemática la atribución de cada profesional en el manejo de la Parada Cardiorrespiratoria (PCR). Todos los artículos enfatizaron la necesidad de una vestimenta completa y correcta antes de brindar asistencia a un paciente sospechoso o confirmado de covid-19. Conclusión: Los protocolos corroboran los siguientes requisitos: uso de vestimenta adecuada; el número de profesionales involucrados en la escena de PCR; los fármacos utilizados y el uso de la técnica de intubación y respiración que genera menos aerosoles.
DESCRIPTORES: Enfermedades Cardiovasculares; Infecciones por Coronavirus; Paro Cardiaco; Cuidado Crítico.

RESUMO
Objetivo: Analisar os protocolos de atendimento ao paciente em parada cardiorrespiratória com suspeita ou diagnóstico de covid-19. Método: Realizou-se de uma revisão integrativa qualitativa, exploratória e de abordagem documental, utilizando as bases de dados PubMed, SciELO, diretrizes da American Heart Association (AHA), Sociedade Europeia de Cardiologia (ESC) e protocolos institucionais do Ebersh. Foram selecionados 03 protocolos e 07 artigos que abordaram de forma direta a temática. Resultados: Os objetivos dos protocolos são similares, embora alguns não deixem instituídos de forma sistematizada a atribuição de cada profissional no manejo da Parada Cardiorrespiratória (PCR). Todos os artigos enfatizaram a necessidade da paramentação completa e correta antes prestar assistência ao paciente com suspeita ou confirmado para covid-19. Conclusão: Os protocolos corroboram nos seguintes quesitos: utilização da paramentação adequada; o quantitativo de profissionais envolvidos na cena da PCR; às drogas utilizadas e a utilização da técnica de intubação e respiração que gere menos aerossóis.
DESCRITORES: Doenças Cardiovasculares; Infecções por Coronavírus; Parada Cardíaca; Cuidados Críticos.

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INTRODUCTION

Cardiopulmonary arrest (CPA) is defined as the abrupt cessation of cardiac, respiratory and brain functions, and is proven by the triad: absence of central pulse (carotid/femoral), ventilatory movements (apnea), or agonized breathing, in addition to the state of unconsciousness. [1]

The main cause of out-of-hospital CPA in adults is acute coronary syndrome; this being considered an emergency due to its severity and high morbidity and mortality. [2] In this context, two important factors are considered for the return of spontaneous circulation: cardiopulmonary resuscitation (CPR) and defibrillation in shockable rhythms. [2;3]

CRP is something that is likely to happen in critically ill patients affected by the 2019 coronavirus disease (covid-19) which is caused by the SARS-CoV-2 virus, a newly emerging, highly pathogenic virus, with transmissibility through the airways and contact , which until January 2021 was responsible for 198.974 deaths in Brazil and 1.884.266 deaths worldwide. [4]

Affected people can progress to severe forms of the disease, with systemic repercussions, with rapid and sudden clinical worsening, which can lead to CPA, both for shockable and non-shockable rhythms. [5,6] The insertion of institutional and political protocols in the hospital and pre-hospital environment is essential to guide the determination of the adequacy of the beginning and end of CPR for patients with Covid-19, since the more risk factors the patient has, the greater the probability of an unfavorable outcome. Stratification and

risk policies must be communicated to patients during the objectives of the care discussions. [20]

In view of the scenario of uncertainties regarding the impact of the pandemic on people's health, it is necessary to use well-defined protocols. [15] The risk of contagion of the team increases due to limited resources in some Brazilian states, especially in regions that face a large number of cases of the disease. Although the results of Covid-19-related cardiorespiratory arrest are still unknown, the mortality of patients with the disease in critical condition is high and the more associated comorbidities related to cardiovascular diseases, the chance of progressing to CPA increases. [9]

As we observe a better integration of the team with the protocols; a better definition of roles, which facilitates the optimization of care, favoring decision-making in a safe, fast and cohesive manner, since covid-19 is a highly contagious disease and CPA is an acute lethal event. In this perspective, confronting and analyzing the available protocols on the management of CPA in patients with suspected or confirmed covid is essential to guide the assistant team in the safety conducts to be taken, to avoid/minimize aerosolization and the professionals during the procedure.

Given the above, this study aims to analyze the protocols for patient care in cardiopulmonary arrest with suspected or diagnosed COVID 19.

METHOD

It is a qualitative, exploratory, integrative review, with a documentary approach, carried out from November 2020 to January 2021. This review fulfilled all stages of construction of the guiding question: What brings the service protocols as recommendations to the patient in cardiorespiratory arrest with suspicion or diagnosis of COVID 19?

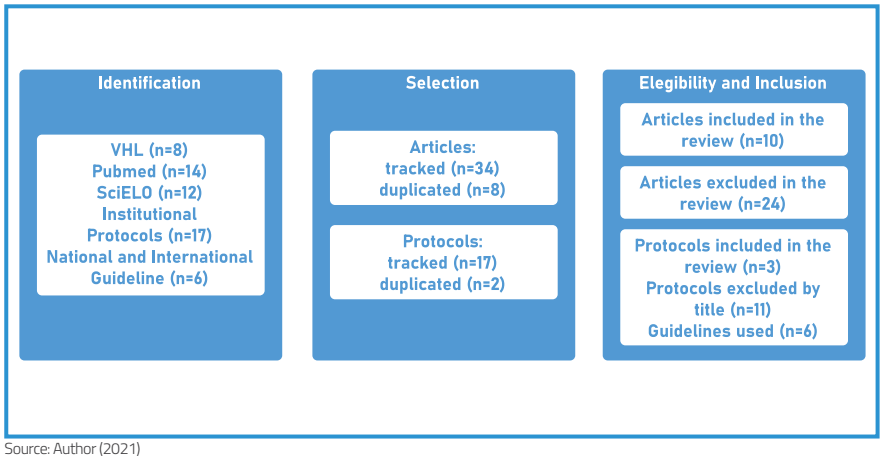
Data were collected using the time frame of the protocols and articles published from March 2020 to January 2021. The searches were performed in the Virtual Health Library (VHL), Pubmed, SciELO, Ebersh institutional protocols and American guidelines databases Heart Association (AHA), ABRAMEDE, AMIB, AMB and Brazilian and European Society of Cardiology. The following descriptors were used using the descriptors: Doenças Cardiovasculares; Infecções por Coronavírus; Parada Cardíaca; Cuidados Críticos; accompanied by the Boolean operators "AND" and "OR".

The inclusion criteria were for scientific articles, Guidelines and Institutional Protocols in full published from 2020 to 2021, national and international, that evaluated clinical variables and management of cardiorespiratory arrest in patients with suspected or confirmed COVID-19. The exclusion criteria were for articles and protocols in gray literature or those that did not meet the theme in a specific way or were not available in full and stopping protocols that were not specific for patients with COVID-19.

After selecting the articles, the Preferred Reporting Items for Systematic Review and Meta-Analyzes (PRISMA) strategy was used to organize the data to promote the report of this review.[18] The PRISMA recommendation consists of following four steps: article identification; selection; eligibility and inclusion in order to help authors improve the presentation of review data. [19] The flowchart presented in Figure 1 describes the use of this method in an adapted way for this study.

The data extracted from the protocols were analyzed, interpreted and presented descriptively in a summary table. Subsequently, there was a discussion of what the articles and guidelines of the American Heart Association (AHA), ABRAMEDE, AMIB, AMB and the Brazilian and European Society of Cardiology bring in comparison with the selected institutional protocols.

According to resolution 466/2012, it was not necessary to appraise the research ethics committee because it is a systematic review. The pre-selection of the articles through the analysis of the theme and the title of the works, afterwards, the full reading of the recovered abstracts was carried out. After that, the selected articles underwent critical reading, in order to explain the dynamics of cardiorespiratory arrest in patients with suspected or diagnosed COVID-19.

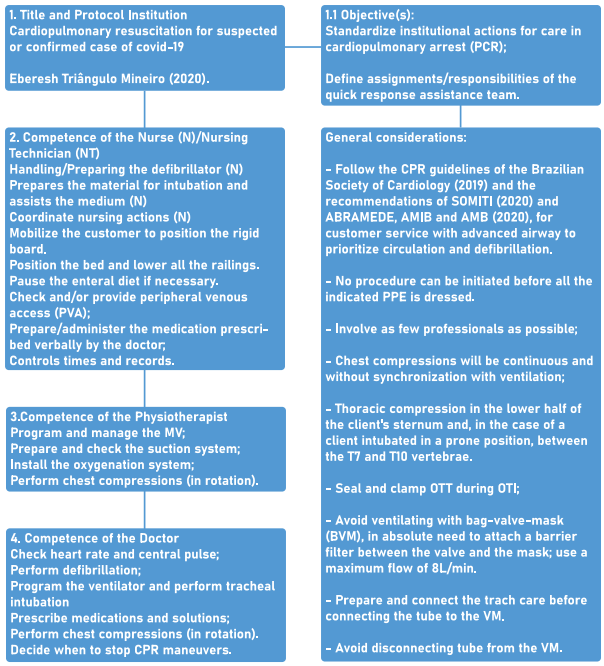


Source: Author (2021)

RESULTS

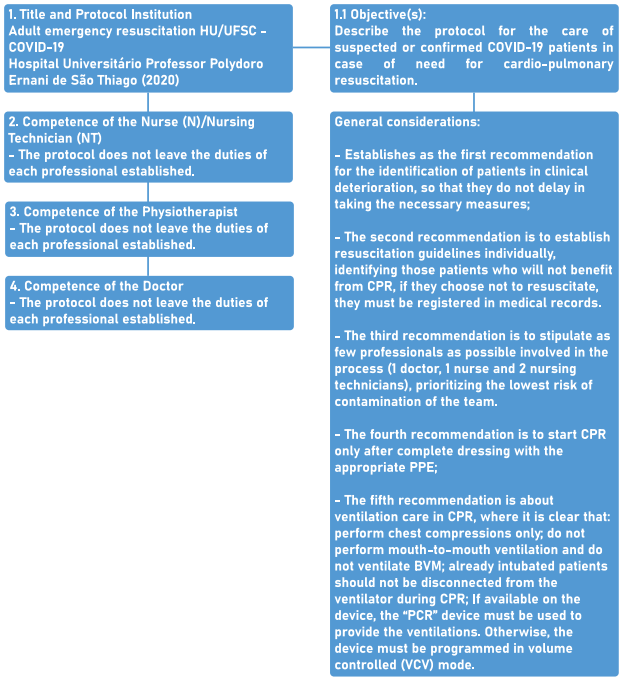
The search resulted in the visualization of a total of 34 publications in the form of an article; [17] protocols and 6 guidelines. Among these, 11 studies were eligible for analysis according to the previously established criteria. Thus, for analysis, institutional protocols distributed according to the institutions and time frame of publication were selected.

Figure 1 – Flowchart based on institutional protocols of patient care dynamics with suspected or diagnosed COVID-19. Salvador, BA, Brazil, 2021.



Source: Author (2021)

Figure 2 – Flowchart based on institutional protocols of patient care dynamics with suspected or diagnosed covid-19. Salvador, BA, Brazil, 2021.



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With regard to the dynamics in CPA of patients with suspected or diagnosed covid-19, the selected protocols present some considerations that agree with each other as shown in the Flowchart, represented by Figures 1 to 3.

The authors corroborate with regard to the objectives, although one of the protocols did not leave the attribution of each professional in the management of CPA separately established, all had a collaborative significance. Thus, in order to meet the objective of the study, the results were discussed, as discussed in the following topic.

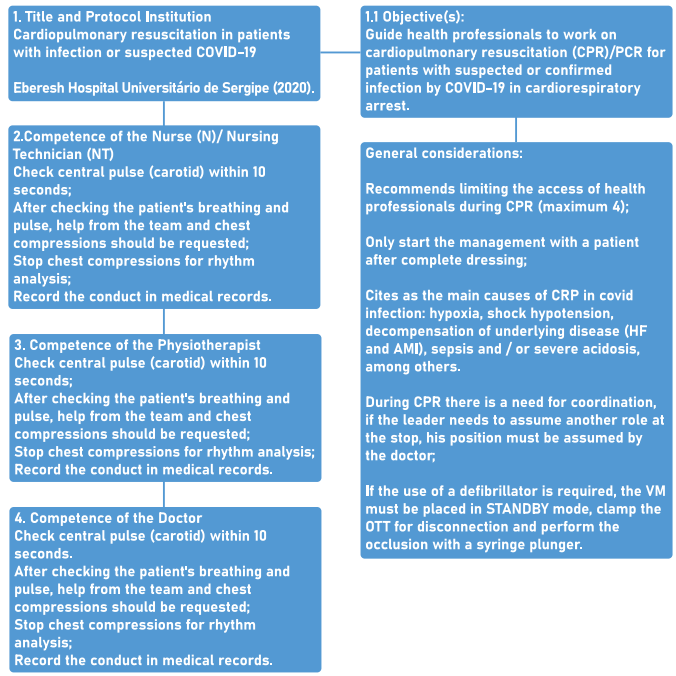
DISCUSSION

Some studies developed in the development of the pandemic by Sars-CoV2 have demonstrated some specific effects of COVID-19 on the cardiovascular system.[8,9]. There is evidence of arrhythmias, tachycardia, acute myocardial infarction, among others, which may appear concomitantly in infected patients. The most severe cases that evolve to cardiorespiratory arrest events are associated with those individuals with more comorbidities and risk factors that require more intensive care.[6,7]

The high incidence of COVID-19 associated with cardiovascular symptoms is due to the systemic inflammatory response and disorders of the immune system during the progression of the disease, thus having a worse prognosis. [8] In clinical conditions where patients with suspected or COVID-19 progress to cardiorespiratory arrest, it is necessary to follow the institutional protocols established for the situation. The results of using the protocols show positive and effective results with its use, as it is a modern tool that directly influences care. [14]

Few protocols were available that fully addressed the theme, of the three available, two of them brought the role of each member of the multidisciplinary team (nurse, physiotherapist and doctor) well defined. The three protocols corrobora-

Figure 3 – Flowchart based on institutional protocols of patient care dynamics with suspected or diagnosed covid-19. Salvador, BA, Brazil, 2021.



Source: Author (2021)

ted that the team must be composed of a maximum of 4 people. [11,12,13]; that CPR maneuvers should only be started after proper attire. Regarding the use of personal protective equipment (PPE), the authors corroborate this need that comes with the protocols, as it avoids contamination among professionals and cross-contamination.[15]

The protocol [11,12,13] emphasizes the importance of quickly detecting signs of deterioration or aggravation of the when. The Hospital Universitário do Triângulo Mineiro in particular brings as a protocol the use of the Modified Early Warning Score, which is a tool that has been used for the early recognition of patients' deterioration, the sum of the scores achieved in the evaluation of the following sensory parameters is calculated: systolic blood pressure, temperature, respiratory rate, heart rate, peripheral oxygen saturation and O2 supplementation.[17]

It should be noted that all protocols show that the best treatment remains prevention, and simple measures, such as washing hands with soap, using gel alcohol and disinfecting surfaces such as cell phones...

The protocols [11,13] corroborate with regard to the need for priority immediate defibrillation if the patient with suspicion or diagnosis of covid-19 is at a shocking pace, not needing to wait to obtain via the area and also not to prioritize other procedures. The American Heart Association (2015) recommends this conduct, emphasizing that defibrillation should occur as soon as possible, being a priority over other interventions. [16]

Proceed with cardiac massage according to the American Heart Association (2015), recommending 100 to 120 compressions per minute, corroborating with the analyzed protocols. If shockable, deliver shock immediately (200J biphasic and 360 monophasic). [11,13] The drugs of choice are only addressed in the protocol 11 and brings Adrenaline 1mg with the drug of choice for all stopping rhythms; from the third cycle of CPR, consider Amiodarone 300mg as the loading dose and 150mg as the maintenance dose, always considering the reversible causes; the other protocols do not mention the drugs of choice at the time of stopping.

The protocol 11 stresses the importance of identifying those patients who will not benefit from CPR and if opted not to resuscitate, it must be registered in the medical record by the multidisciplinary team. It should be noted that all protocols show that the best treatment remains prevention, and simple measures, such as washing hands with soap, using gel alcohol and disinfecting surfaces such as cell phones, play an essential role in reducing the spread of the virus.

CONCLUSION

The management of patients infected with COVID-19 is still a courtyard for various discussions and implementation of protocol improvements, since this disease has been undergoing mutations and techniques that minimize contagion are always under analysis and study.

One of the major obstacles to conducting the study was the low availability of protocols available on the internet for analysis and it is noted that the protocols available are in general of the teaching hospitals of Ebserh.

One of the analyzed protocols does not determine the functions of each professional (doctor, nurse and physiotherapist) during CPA in patients with suspected or diagnosed covid-19, which is necessary in all institutional protocols. It is noteworthy that one of the protocols brings a differential, which is the use of the early warning score and the guidelines for post-stop management.

It is a suggestion to implement these topics (the score and post-stop guidelines) in other institutional protocols, as the score helps in making decisions early and post-stop evaluation prevents events, including a new CPA. It is also noted that both corroborate the importance of the professional is properly attired before providing any assistance to patients with suspected or diagnosed COVID. ■

REFERENCES

1. Bernoche C, Timerman S, Polastri TF, Giannetti NS, Siqueira AWS, Piscopo A et all. Atualização da Diretriz de Ressuscitação Cardiopulmonar e Cuidados de Emergência da Sociedade Brasileira de Cardiologia – 2019. ArqBrasCardiol. 2019; 113(3):449-663.doi: http://dx.doi.org/10.5935/abc.20190203

2. Xavier AR., Silva JS., Almeida JPCL., Conceição JFF., Lacerda GS., Kanaan S. COVID-19: manifestações clínicas e laboratoriais na infecção pelo novo coronavírus. J. Bras. Patol. Med. Lab. 2020; 56.doi: http://dx.doi.org/10.5935/1676-2444.20200049

3. Nascimento JCP, Rocha RRA, Dantas JKS, Oliveira ES, Dantas DV, Dantas RAN. Manejo de pacientes diagnosticados ou com suspeita de covid-19 em parada cardiorrespiratória: scopingreview. Texto contexto - enferm. 2020; 29; 1-17.doi: http://dx.doi.org/10.1590/1980-265x-tce-2020-0262.

4. Ministério da Saúde, Secretaria de Vigilância em Saúde. BOLETIM EPIDEMIOLÓGICO. Doença pelo CoronavírusCOVID-19. 2021Jan.

5. Pereira RSM, Pinheiro MBGN, Bezerra AMF, Bezerra KKS, Bezerra WKT, Abreu RA et all. Parada cardiorrespiratória e reanimação cardiopulmonar: conhecimento de enfermeiros de um hospital público no Alto Sertão Paraibano. Rev INTESA. 2015;9(2); 01-10. ISSN 2317-305X.

6. Di Pasquale G. Coronavirus COVID-19: Qualiimplicazioni per laCardiologia? G ItalCardiol. 2020;21(4):243–5.doi: http://dx.doi.org/10.1714/3328.32981

7. Nunes, L.T.D.; Felipe, L.E.C.; Gonçalves, I.M.; Alves, O.N.;Principais Manifestações Neurológicas decorrentes do COVID-19: uma revisão integrativa. Revista Saúde Coletiva. 2020; 10(59); 4242-4254. doi: https://doi.org/10.36489/saudecoletiva.2020v10i59p4248-4254.

8. Strabelli TMV, Uip DE. COVID-19 e o coração. ArqBrasCardiol. 2020;144(4); 598-600.doi: http://dx.doi.org/10.36660/abc.20200209

9. Ruan Q, Yang K, Wang W, Jiang L, Song J. Clinical predictors of mortality due to COVID-19 based on an analysis of data of 150 patients from Wuhan, China. Intensive Care Med. 2020;46(5); 846-8.doi: 10.1007 / s00134-020-05991-x.

10. Ferrari Filipe. COVID-19: Dados Atualizados e sua Relação Com o Sistema Cardiovascular. Arq. Bras. Cardiol. 2020; 114 (5): 823-826. doi: http://dx.doi.org/10.36660/abc.20200215.

11. Hospital de Clínicas do Triângulo Mineiro. Hospitais Universitários Federais EBSERH. Protocolo de Ressuscitação cardiopulmonar para caso suspeito ou confirmado de covid-19. 2020;1-18; Versão 1.

12. Hospital Universitário Professor Polydoro Ernani de São Thiago. Hospitais Universitários Federais EBSERH.Protocolo de Reanimação emergência adulto HU/UFSC– covid-19. 2020;1-4; Versão 001.

13. Hospital Universitário de Sergipe. Hospitais Universitários Federais EBSERH. Protocolo de Reanimação cardiopulmonar em pacientes com infecção suspeita ou confirmada pelo covid-19. 2020;1-14; Versão 1.

14. Sales CB, Bernardes A, Silvia GC, Brito MFP, Moura AA, Zanetti ACB. Protocolos Operacionais Padrão na prática profissional da enfermagem: utilização, fragilidades e potencialidades. Rev. Bras. Enferm. 2018; 71(1); 126-134. doi: https://doi.org/10.1590/0034-7167-2016-0621.

15. Arnold RH, Tideman PA, Devlin GP, Carroll GE, Elder A, Lowe H, et al. Rural and Remote Cardiology During the COVID-19 Pandemic: Cardiac Society of Australia and New Zealand (CSANZ) Consensus Statement. Hear Lung Circ. 2020;1–6. doi: https://doi.org/10.1016/j.hlc.2020.05.001.

16. American Heart Association. Destaques da American Heart Association 2015: atualização das diretrizes de RCP e ACE. AHA. 2015.

17. Montenegro SMSL, Miranda CH. Avaliação do desempenho do escore de alerta precoce modificado em hospital público brasileiro. Rev. Bras. Enferm. 2019; 72(6): 1428-1434. doi: https://doi.org/10.1590/0034-7167-2017-0537.

18. Galvão TF, Pansani TSA, Harrad D. Principais itens para relatar Revisões sistemáticas e Meta-análises: A recomendação PRISMA. Epidemiol e Serviços Saúde. 2015; 24(2):335–342. doi: 10.5123/S1679-49742015000200017

19. Pike A, Brandon, S. Evaluation of ASTM Standard Test Method E 2177, 6 Retroreflectivity of Pavement Markings in a Condition of 7 Wetness. Syst Rev. 2012;1:1–9. doi: https://org/10.3141/2272-10.

20. D'cruz M, Banerjee D. 'An invisible human rights crisis': The marginalization of older adults during the COVID-19 pandemic – An advocacy review. Psychiatry Res. 2020;292:113369. doi:https://org/10.1016/j.psychres.2020.113369.