Chest Pain Protocol: Perceptions of Emergency Care Nurses

Protocolo da Dor Torácica: Percepções dos Enfermeiros do Pronto Atendimento

Protocolo de dolor torácico: percepciones de las enfermeras de atención de emergência

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RESUMO

Objetivo: descrever o conhecimento dos profissionais de enfermagem que atuam em serviços médicos de urgência em relação ao protocolo de dor torácica. **Metodologia:** Pesquisa de caráter transversal, exploratória, descritiva com abordagem quantitativa. As entrevistas foram via e-mail em formato de bola de neve. **Resultados:** a pesquisa foi realizada com 70 enfermeiros, com idade entre 22 e 59 anos, grande parte dos profissionais atua na rede pública, 52,8% (n=38) e o restante na rede privada, 47,2%. **Conclusão:** os achados deste estudo reforçam a importância do reconhecimento preciso dos sintomas do infarto e os fatores desencadeantes. A identificação correta e o tratamento oportuno desempenham um papel crucial na melhoria dos pacientes com dor torácica e na redução da mortalidade associada.

Descritores: Enfermagem; Serviços médico de emergência; Infarto do Miocárdio; Dor Torácica.

ABSTRACT

Objective: to describe the knowledge of nursing professionals who work in emergency medical services in relation to the chest pain protocol. **Methodology:** Cross-sectional, exploratory, descriptive research with a quantitative approach. The interviews were via email in a snowball format. **Results:** the research was carried out with 70 nurses, aged between 22 and 59 years old, most of the professionals work in the public network, 52.8% (n=38) and the rest in the private network, 47.2%. **Conclusion:** the findings of this study reinforce the importance of accurately recognizing heart attack symptoms and triggering factors. Correct identification and timely treatment play a crucial role in improving patients with chest pain and reducing associated mortality.

Descriptors: Nursing; Emergency medical services; Myocardial Infarction; Chest pain

RESUMEN

Objetivo: describir el conocimiento de los profesionales de enfermería que actúan en los servicios de emergencia médica en relación al protocolo de dolor torácico. **Metodología:** Investigación transversal, exploratoria, descriptiva con enfoque cuantitativo. Las entrevistas se realizaron por correo electrónico en formato de bola de nieve. **Resultados:** la investigación fue realizada con 70 enfermeros, con edades entre 22 y 59 años, la mayoría de los profesionales laboran en la red pública, 52,8% (n=38) y el resto en la red privada, 47,2%. **Conclusión:** los hallazgos de este estudio refuerzan la importancia de reconocer con precisión los síntomas del infarto y los factores desencadenantes. La identificación correcta y el tratamiento oportuno juegan un papel crucial en la mejora de los pacientes con dolor torácico y la reducción de la mortalidad asociada.

Descriptores: Enfermería; Servicios médicos de emergencia; Infarto de miocardio; Dolor en el pecho.

ORIGINAL

Introduction

According to the World Health Organization (WHO), heart disease has been the leading cause of death in the world for the past 20 consecutive years. There was a significant increase from 2 million deaths in 2000 to 9 million in 2019. Chest pain is given as the main complaint of patients seeking emergency services. According to the Brazilian Society of Cardiology, it is estimated that approximately 4 million people are treated per year for chest pain in Brazil, of which about 5 to 15% are diagnosed with Acute Myocardial Infarction (AMI)[1].

AMI is defined as an insufficiency of oxygenated blood circulating in the heart, resulting from a coronary artery obstruction, leading to ischemia. This obstruction can be caused by a blood clot or by the deposit of atheromatous plaques[2,3]. There are about 300,000 to 400,000 cases of heart attack per year in Brazil, with one death for every 5 to 7 cases, which is equivalent to 30% of deaths [2].

Receiving patients with chest pain in emergency departments is common, so quickly identifying the cause is crucial for effective and agile treatment[3,4]. Nursing professionals may be responsible for improving the prognosis of infarction patients, reducing waiting times and initiating appropriate treatment in a timely manner through the triage system based on the Manchester risk classification[5,6].

Thus, nurses should be attentive to the signs and symptoms presented by patients, especially when indicative of acute myocardial infarction, ensuring timely intervention, which is one of the most important factors for a favorable outcome for the patient[7].

In view of this context, the chest pain protocol was established with the objective of supporting, guiding and assisting nursing practices during classification as well as decision-making during care[4]. The protocol is a tool developed in order to standardize, standardize and describe in detail the line of care in a given situation, directing and guiding professionals during the provision of care[8].

Nursing, as a science, must be up-to-date in relation to the guidelines and conducts faced with the most diverse clinical conditions of patients with chest pain, from the creation of protocols to validation and implementation, through training and qualification, developing and improving technical skills through continuing education[8-9].

With this in mind, this study aimed to describe the knowledge of nursing professionals working in emergency medical services in relation to the chest pain protocol.

Methodology

This is a cross-sectional, exploratory, descriptive research with a quantitative approach. The interviews were conducted with nurses working in emergency care, from June to August, via e-mail with the application of a questionnaire created in Google Forms, in the shape of a snowball. The study was approved by the Human Research Ethics Committee, under the opinion: 6,077,546.

In cross-sectional studies, information is collected at a single moment of reality; exploratory, for studying a theme that has been little worked on;

descriptive, as it seeks to describe how a certain phenomenon manifests itself. As for the quantitative nature of the research, it is based on the fact that instruments were used to measure the variables[10].

The choice for the quantitative approach was due to the fact that this type of approach identifies the deep nature of realities, their system of relations and their dynamic structure. Quantitative research is one in which quantitative data on variables are collected and analyzed, and can determine the strength of association or correlation between variables, the generalization and objectification of the results through a sample that makes inferences to a population. In addition to the study of association or correlation, quantitative research can also, in time, make causal inferences that explain why things do or do not happen in a certain way[10].

The inclusion criteria established were health professionals who are nurses and work directly in emergency care units and emergency medical services, in the public and/or private network. To exclude the criteria, we used the following criteria: professionals who do not work directly in emergency care or emergency medical services, and health professionals from other specialties who do not have a degree in nursing.

Data analysis was performed using statistical tests (percentages and frequency) and presented in the form of graphs and tables.

Results

The present study included the participation of 70 nursing professionals, aged between 22 and 59 years, with a mean of 38.2; as for ethnicity, 72.9% (n=51) declared themselves white, 15.7% (n=11) brown, 8.6% (n=6) black, 1.4% (n=1) yellow and 1.4% (n= 1) indigenous; the predominant region of the country was Paraná, with 86% (n=60) of the respondents; Most of the professionals work in the public network, 52.8% (n=38) and the others in the private network, 47.2% (n=32); in relation to the institution where the professionals work, there are 41.4% (n=29) in general hospitals, 40% (n= 28) in Emergency Care Units and 18.6% (n=13) in specialized emergency medical services; In terms of time in the nursing profession, the minimum was 6 months of work and the maximum was 38 years, with a mean of 13.3 years; The length of time working in emergency medical services ranged from 2 months to 24 years.

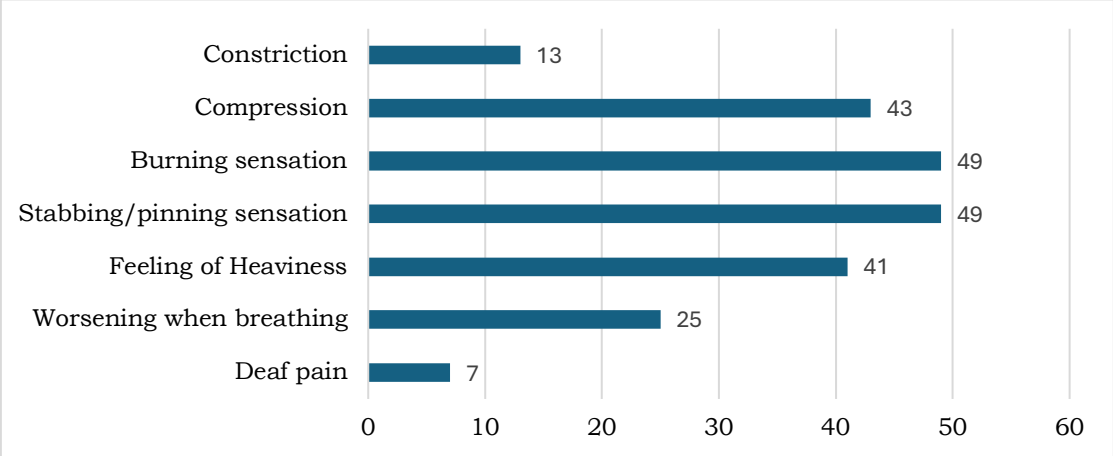
For question: "Have you received any training in Chest Pain Protocol?" 77.1% (n=54) of the professionals answered yes, and 22.9% (n=16) answered no. Of those who received training in the Chest Pain Protocol, 45.7% (n=32) had been less than 1 year before, 25.7% (n=18) for more than 2 years, and 7.1% (n=5) for more than 5 years, and the others had not received training; Regarding the ease of access to the chest pain protocol for consultation, 70% (n=49) of the respondents stated that it was easy to access and 30% (n=21) did not.

Table 1 - Distribution of the number and percentage of professionals in relation to training in Chest Pain Protocol. Curitiba/PR, 2023.

Question	Answer	N	%
Has already received training in chest pain protocol	Yes	54	77,10%
	No	16	22,90%
When was the last chest pain protocol training received	Less than 1 year ago	32	45,70%
	More than 2 years ago	18	25,70%
	More than 5 years ago	4	7,1%
	I didn't receive any training	16	22,90%
Easy access to the protocol for consultation	Yes	49	70%
	No	21	30%

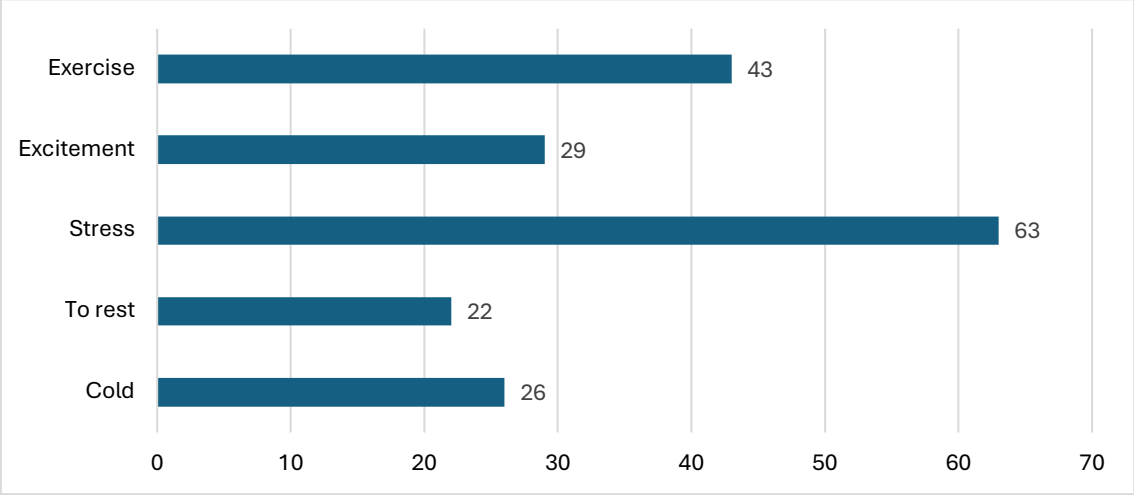
Regarding the signs and symptoms presented, 18.6% (n=13) of the respondents indicated as the character of the pain, constriction, 61.4% (n=43) compression, 70% (n=49) burning, 70% (n=49) sensation of "stabbing/pincing/twinges", 58.6% (n=41) sensation of "heaviness", 35.7% (n=25) acute worsening when breathing and 10% (n=7) dull pain.

Figure 1- Pain status for suspected AMI. Curitiba/PR, 2023.



Regarding the location of pain, 65.7% (n=46) indicated the left shoulder, 82.9% (n=58) retrosternal, 15.7% (n=11) the right shoulder, 14.3% (n=10) the right hemithorax, 48.6% (n=34) the neck, 24.3% (n=17) the face/teeth, 31.4% (n=22) the interscapular region, 81.4% (n=57) the epigastric region; Among the triggering factors, 61.4% (n=43) claimed to be exercise, 41.4% (n=29) excitement, 90% (n=63) stress, 31.4% (n=22) rest, and 37.1% (n=26) when exposed to cold.

Figure 2- Triggering factors for AMI. Curitiba/PR, 2023.



Regarding risk factors, 42.9% (n=30) indicated age >50 years to <75 years, 51.4% (n=36) age >60 years, 88.6% (n=62) SAH (Systemic Arterial Hypertension), 67.1% (n=47) DM (Diabetes Mellitus), 0% (n=0) 3 or + pregnancies, 67.1% (n=47) dyslipidemia, 85.7% (n=60) smoking, 4.3% (n=3) epilepsy, 87.1% (n=61) obesity, 1.4% (n=1) lithiasis, 80% (n=56) had a family history, 4.3% (n=3) had human immunodeficiency virus, 80% (n=56) had revascularization by angioplasty or previous cardiovascular surgeries, and 11.4% (n=8) had depression.

Regarding the risk classification based on the criteria established in the Manchester protocol, 57.1% (n=41) of the sample classified the following as red risk: palpitation, hypotension (systolic BP < 80 mmHg), fever, syncope, sweating, feeling of tightness in the chest, tremors, pain radiating to MSE; 42.9% (n=29) were at risk orange: feeling of tightness in the chest, pressure and burning, pain radiating to MSE, dyspnea, and 0% (n=0) classified as risk yellow: hemorrhage, hypotension (systolic BP <100 mmHg); After the classification, 100% (n=70) of the nurses indicated that the test to be performed should be the ECG (Electrocardiogram); Regarding the determining factors for the classification of higher risk (red), we have: 78.6% (n=55) decreased level of consciousness, 5.7% (n=4) headache, 58.6% (n=41) bradycardia (HR <50bpm), 57.1% (n=40) hypotension (systolic BP <80mmHg), 7.1% (n=5) aphasia, 8.6% (n=6) nausea, 45.7% (n=32) tachypnea (RR 25 IRPM, SAT < 92%), 2.9% (n=2) generalized muscle pain, 5.7% (n=4) plegia in the lower limbs, 65.7% (n=46) tachycardia (HR > 120bpm), 42.9% (n=30) sweated excessively.

Discussion

According to the Resolution of the Collegiate Board (RDC) No. 36 of the National Health Surveillance Agency (ANVISA), dated July 25, 2013, it is the responsibility of the Patient Safety Center to implement Patient Safety protocols and monitor its indicators. Thus, the applicability of the protocols in care practices is the responsibility of the institutions and the professionals involved, specifically the nurses who work in the risk classification[11].

In a study developed by Flavio DA (2018)12, the importance of systematizing the protocol for the care of patients with chest pain in the emergency room was proven, allowing the design of algorithms that provide

agility, assertiveness, and quality in the care provided. In addition to optimizing the evaluation and treatment of patients, it is possible to reduce the mortality rate, as it results in a faster and more appropriate response, minimizing the time elapsed between the first symptoms and medical intervention, which is essential for the patient's survival.

The correct and effective use of the protocol emerges as a technology tool in the health area, with the main objective of providing the scientific basis of the practices and assistance of professionals, taking into account that the standardization of interventions based on scientific evidence avoids errors and ensures a more assertive identification regarding the diagnosis of the disease. reducing adverse events and ensuring patient safety[13].

In addition, the protocol assists in the accurate identification of typical and atypical symptoms of Acute Myocardial Infarction, as cited in the research. This correct identification is crucial to avoid misdiagnosis and to ensure that patients with true AMI symptoms receive the appropriate treatment. The protocol also provides clear guidelines for the management of cardiac emergencies, ensuring the correct administration of medications, procedures, and medical instructions. This, in turn, contributes to the stabilization of patients and the reduction of associated complications [7,11].

Regarding the nature of pain, it was found in this study that 10% (n=7) of the respondents characterized deaf pain and 18.6% (n=13) constrictive pain as typical of AMI. This finding is unsatisfactory in terms of the identification of this symptomatology, since studies affirm that dull and constrictive pain are an intrinsic characteristic of AMI[7].

Regarding the sensation of "stabbing/stabbing/stabbing", 70% (n=49) of the professionals stated that it is a typical symptom, when in fact, the sensation of stab and/or pins and needles are rare and unusual symptoms. Studies show this symptomatology as uncommon, so the sensation of "stabbing/pinning/stabbing" is almost never compatible with acute myocardial infarction, demonstrating erroneous identification on the part of the respondents [14].

The identification of compressive pain and "heaviness" sensation was reported by 61.4% (n=43) and 58.6% (n=41) of the professionals involved in this study, respectively. Research developed by Nettina (2011)15 confirms compressive pain and the sensation of "heaviness" as a common pattern, demonstrating assertiveness in identification.

Regarding the location of pain, it was observed that 15.7% (n=11) and 14.3% (n=10) of the professionals understood pain in the shoulder and right hemithorax as typical locations. It is evident that a percentage of responses is similar to the proportion of people who stated that they had not received specific training on the chest pain protocol. This finding underlines the need to train professionals, since mistakes of this type can be decisive in patients' lives. However, more than 80% (n=58) of the professionals identified retrosternal pain and pain in the epigastric region as typical, and 65.7% (n=46) identified left shoulder pain as assertiveness in recognizing the location of AMI pain.

Regarding exposure to cold as a triggering factor for pain/AMI, only 37.1% (n=26) of the participants perceived the relationship. Publications report that at lower temperatures there is an increase in the number of infarction cases, associating this condition with elevated blood pressure, heart rate and peripheral vasoconstriction[16].

Analyzing the answers, 41.4% (n=29) of the professionals also listed arousal as a predisposing factor for chest pain. Thus, the low assertiveness of the interviewees is perceived, evidencing the disagreement between the answers obtained and the published studies. In addition, a high degree of agreement was observed among participants regarding stress as a triggering factor for infarction (90% - n=63), which is in line with the findings of Silva et al., (2019)[17].

Regarding risk factors, a study published in 1998 already listed arterial hypertension, diabetes mellitus and family history as predominant. These descriptions are still the case today, in addition to other factors such as elderly people over 60 years of age, smoking, alcoholism, dyslipidemia, obesity, and revascularization by angioplasty or previous cardiovascular surgeries[18,19]. Thus, the nurses demonstrate reasonable knowledge regarding the risk factors, since SAH, smoking, obesity, family history, and revascularization by angioplasty or previous cardiovascular surgeries were reported by more than 80% (n=56) of the respondents. On the other hand, elderly people aged >60 years had 51.4% (n=36) of the answers, diabetes mellitus and dyslipidemia had 67.1% (n=47) of the answers.

The Manchester classification is used to determine the degree of urgency in which the patient is based on the signs and symptoms presented and thus prioritize care in a manner consistent with the risk[(4)]. According to the questionnaire applied and the answers obtained, 57.1% (n=41) classified the following symptoms: palpitation; hypotension (systolic BP < 80 mmHg); fever; syncope; Sweating, feeling of tightness in the chest, tremors, pain radiating to MSE, in the highest risk classification, red, however, Jones, Marsden, and Windle (2018)[20] of the Brazilian Risk Classification Group bring the classification in red when signs of airway obstruction, inadequate breathing, and shock. Thus, the correct classification according to the authors and the proposed alternatives is orange, which describes the signs of chest tightness, pressure and burning; pain radiating to MSE and dyspnoea. Only 42.9% (n=29) of the respondents opted for this classification, showing average knowledge about the Manchester risk classification.

It should be noted that the determining factors for classification of higher risk, red, based on the protocol, consist of signs of airway obstruction, inadequate breathing, and shock. In the present study, when asked about the classification in the face of signs of alteration in the breathing pattern, such as decreased level of consciousness or tachypnea (RR 25 IRPM, SAT < 92%), 78.6% (n=55) and 45.7% (n=32), respectively, marked the classification red. This finding shows concern for the recognition of this sign as a determinant for immediate care, it is essential that the nurse responsible for the classification masters signs of imminent risk to life [20].

The electrocardiogram is a test that records myocardial activity, introduced in the early twentieth century by Willem Einthoven, and is still one of the most direct, immediate, low-cost, non-invasive and reliable methods for evaluating heart rhythm, and is considered the gold standard test in the suspicion of arrhythmias, disorders and ischemia [21]. In this study, 100% (n=70) of the professionals indicated that the ECG was the test to be performed in accordance with the chest pain protocol, demonstrating satisfactory knowledge about the patient's referral.

Conclusion

The aim of this study was to analyze the knowledge of nursing professionals working in emergency medical services regarding the chest pain protocol. With this, it was evidenced that the average knowledge of the nursing team of the emergency care about the chest pain protocol was evidenced, and it was possible to identify that the number of people who did not receive training in the chest pain protocol is close to the percentage of error in the recognition of several factors, signs and symptoms typical of AMI, demonstrating the importance of conducting periodic training with the nursing team working in the emergency room. in order to provide safe and quality care, ensuring the patient's survival after the event.

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