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CHEST PAIN IN THE EMERGENCY ROOM: FIRST CARE PROTOCOL

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Abstract: Chest pain is one of the most frequent symptoms in Health Units, and it is up to professionals to take care of it, given that it can be an alert for some disease with imminent risk of death. The objective of the study is to determine the chest pain protocol to be followed in the first consultation in emergency units. This study was carried out based on an analysis of the First Aid Protocol for Chest Pain in Health Units, made available by the Secretary of State for Health of Espírito Santo - SESA. According to the SESA protocol, the first actions that must be taken are the collection of vital signs data, identification of the history and later the evaluation of typical or not typical chest pain (if present, perform the electrocardiogram - ECG). The typical pain characterizes angina or myocardial infarction, resembling a tightness or oppression in the chest and for this reason the ECG must be performed, in order to rule out the possibility of some disease that the patient may progress to death. After that, the Chest Pain Protocol must be completed, determining the clinical signs, risk factors and main complaint. This way, the patient will be forwarded correctly according to the result of the classification soon after communicating the doctor responsible for the shift. The protocol, when followed efficiently, reduces superfluous hospitalizations in 68% of cases, which leads to a reduction in costs, in addition to improving the well-being of patients. The protocol is relevant as it helps in the evaluation of patients who need immediate treatment, according to their risk potential, health problems or degree of suffering.
Keywords: Thoracic pain. Protocol. Typical Pain.

INTRODUCTION

Chest pain is a common complaint in patients seeking emergency medical care. It can be caused by a variety of conditions, which makes diagnosing it a challenge for physicians working in emergency departments. The most common cause of chest pain is acute coronary disease, accounting for about 25% to 30% of chest pain cases in emergency services (Lamond et al., 2018), noting that around 5% of 10% of these patients have acute myocardial infarction (AMI) as the underlying cause (Amsterdam et al., 2013). Other causes of chest pain include pulmonary embolism, aortic dissection, pneumothorax, and gastroesophageal reflux, among others. Faced with the possibility of a critical diagnosis, it is crucial that health professionals are prepared to perform a quick and accurate assessment of patients with chest pain in the emergency room.

One of the main challenges in diagnosing chest pain is differentiating between benign and serious causes. Some studies indicate that around 60% of patients presenting with chest pain in emergency departments have non-cardiac causes (Nabi et al., 2017). However, it's important to remember that chest pain can be a symptom of serious and potentially life-threatening conditions. Another challenge in the diagnosis of chest pain is the presence of comorbidities, such as diabetes and chronic renal failure, which can alter the clinical presentation and results of diagnostic tests (Cairns et al., 2018). Furthermore, chest pain may have atypical presentations in older patients, women and patients with diabetes (Möckel et al., 2019).

In this context, the first care protocol plays a fundamental role in the management of these patients, providing a systematic framework for the initial assessment, differential diagnosis and initial therapeutic measures. This protocol aims to quickly identify potentially fatal conditions, ensuring prompt and appropriate treatment.

OBJECTIVE

The objective of the study is to determine

the first care protocol for patients presenting to the emergency room with chest pain, discussing the initial evaluation steps, available diagnostic methods, treatment options, a detailed clinical history, thorough physical examination and risk assessment.

METHODOLOGY

To support the proposed recommendations, references from relevant clinical studies and guidelines from recognized medical societies were used. The literature review allowed a critical analysis of the available documents, providing a solid basis for the first care protocol for chest pain in the emergency room. Furthermore, there was an analysis of the First Aid Protocol for Thoracic Pain in Health Units, made available by the Secretary of State for Health of Espírito Santo - SESA.

RESULTS AND DISCUSSIONS

According to the SESA protocol, the first actions that must be taken are the collection of vital signs data, identification of the history and later the evaluation of typical or not typical chest pain (if present, perform the electrocardiogram - ECG). The initial evaluation of the patient with chest pain is a challenge for the emergency physician, since there are several possible causes for this symptom, some of which are potentially fatal. The typical pain characterizes angina or myocardial infarction, resembling a tightness or oppression in the chest and for this reason the ECG must be performed, in order to rule out the possibility of some disease in which the patient may progress to death. After that, the Chest Pain Protocol must be completed, determining the clinical signs, risk factors and main complaint. This way, the patient will be forwarded correctly according to the result of the classification soon after communicating the doctor responsible for the shift.

The first care protocol for patients with chest pain in the emergency room is based on the initial assessment, which includes anamnesis, physical examination, and obtaining an electrocardiogram (ECG) and cardiac biomarkers.

The initial evaluation of a patient with chest pain must focus on determining the patient's hemodynamic stability and assessing any signs of cardiovascular instability.

The anamnesis must include information about the patient's clinical history, including risk factors for coronary artery disease (CAD), such as age, gender, family history, smoking, hypertension, diabetes, dyslipidemia and obesity, in addition to symptoms associated with chest pain, such as dyspnoea, sweating, nausea and vomiting. Time of onset, intensity, and location of chest pain, as well as other symptoms such as shortness of breath, sweating, and nausea, must also be evaluated.

A physical exam is essential to determine the cause of chest pain. Therefore, cardiac and pulmonary auscultation must be included in order to verify the presence of abnormal cardiac or pulmonary murmurs. The presence of pain on palpation of the chest wall, abdominal palpation, sensitivity to pain on touch in the midline of the chest or in the xiphoid process, evaluation of signs of congestive heart failure, in addition to the presence of crackles on the chest wall, must also be evaluated. In addition, it is necessary to include verification of blood pressure, heart rate, respiratory rate, oxygen saturation and temperature, and it is also necessary to verify the presence of edema in the lower limbs.

After an initial assessment, patients must be classified into groups: patients with chest pain suspected to be caused by AMI, patients with low-risk chest pain, and patients with chest pain that require further evaluation. This initial classification is essential for properly triaging patients and determining the need for immediate intervention.

The use of risk stratification scales, such as the Grace scale, can help identify patients at high risk for acute cardiovascular events. The Diagnostic Chest Pain Score (CDS) is another tool used in the evaluation of patients with chest pain in the emergency room, using clinical information to determine the likelihood of AMI. Additionally, CDS can be used to evaluate patients with acute chest pain who do not have ECG changes or elevated troponin levels.

Thus, the ECG must be obtained within 10 minutes after the patient's arrival in the emergency room, and must be evaluated in search of signs of acute myocardial ischemia, such as ST-segment waves, ST-segment depression, inverted T waves, left bundle branch or ventricular tachycardia. Furthermore, if the pain takes into consideration, one (01) of these characteristics: tightness/pressure/burning, radiating to the left upper limb and dyspnea, and lasting more than 5 minutes, it is considered anginal and must be referred, regardless of the factors at risk, to the doctor on duty.

In addition, the performance of complementary tests, such as echocardiography, chest X-ray, chest computed tomography and coronary angiography, may be indicated in some cases. In this sense, it must be noted that echocardiography is an imaging test that can not only be used to assess cardiac function and identify related abnormalities, but is also capable of assessing the presence of cardiac dysfunction, cardiac thrombi, aneurysms and other cardiac disorders. Also, a chest X-ray can help identify the presence of lung lesions or other chest abnormalities that can cause chest pain. On the other hand, chest tomography is a more sensitive test than chest X-ray for detecting abnormalities in the chest, including the presence of pulmonary embolism, pneumothorax, and pulmonary hemorrhage. Finally, coronary angiography is an invasive test used to visualize the coronary arteries.

Other complementary exams may be requested, depending on the diagnostic suspicion. For example, laboratory tests for cardiac biomarkers, such as troponin and creatine kinase-MB (CK-MB), are laboratory tests used to identify the presence of myocardial damage. Troponin unloading is the most sensitive and specific test for the diagnosis of AMI, and must be measured on at least two occasions, with an interval of 6 to 12 hours between measurements. CK-MB can also be used as a marker of myocardial injury, but it is less specific for AMI than troponin. However, it is not necessary to administer troponin until it normalizes, as this marker may have an altered value for up to two weeks after the event. Therefore, it is worth mentioning that if troponin is not available for any reason, CK-MB must be administered.

Therefore, the treatment of chest pain in the emergency room depends on the underlying cause. In the presence of AMI or ACS, initial treatment must include reperfusion therapy as soon as possible, which may include administration of thrombolytics. Patients with chest pain of non-cardiac origin may be given non-steroidal anti-inflammatory drugs (NSAIDs) or other medications. Early identification of the etiology is fundamental for the immediate institution of adequate therapeutic measures, such as the administration of supplemental oxygen, aspirin, heparin and nitroglycerin, in addition to performing coronary angioplasty or myocardial revascularization surgery in cases of acute coronary syndrome (Amsterdam et al, 2013).

CONCLUSION

It is important to highlight that the initial care of patients with chest pain in the emergency room, early assessment and

management are essential to ensure a positive patient outcome, including proper diagnosis and treatments. The first aid protocol for chest pain in the emergency room is essential for the rapid and accurate identification of the pain etiology. Furthermore, the use of triage tools can help medical staff make quick and accurate decisions regarding patient care.

In addition, it is worth highlighting the importance of a multidisciplinary approach in the care of patients with chest pain in the emergency room. It is important to emphasize that the protocol must be implemented with care and by trained professionals, who must be familiar with the most recent national and international guidelines regarding the management of chest pain in the emergency room. On the other hand, effective communication between health professionals and the patient is essential. Clear and accurate information on the diagnosis, prognosis and treatment plan must be provided so that the patient can make decisions about their care.

Although there are some restrictions in the application of the protocol, such as the variation in the clinical presentation of chest pain, the need to consider the possibility of differential diagnoses and the lack of access to some resources in some geographic areas, its implementation can significantly improve the results for the patients with chest pain in the emergency room. In this bias, the protocol is essential, as it helps in the assessment of patients according to their risk potential, health problems or degree of suffering. Thus, when followed efficiently, it reduces superfluous hospitalizations in 68% of cases, which leads to a reduction in costs, in addition to improving the well-being of patients.

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