

## EVALUATION AND OUTCOME OF PATIENTS TREATED AT THE EMERGENCY DEPARTMENT WITH A COMPLAINT OF THORACIC PAIN

### AVALIAÇÃO E DESFECHO DOS PACIENTES ATENDIDOS NO SERVIÇO DE EMERGÊNCIA COM QUEIXA DE DOR TORÁCICA

### EVALUACIÓN Y EVOLUCIÓN DE LOS PACIENTES ATENDIDOS EN EL SERVICIO DE EMERGENCIAS CON QUEJAS DE DOLOR TORÁCICO

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#### ABSTRACT

**Objective:** To analyze the clinical profile of patients treated with chest pain in the emergency department. **Method:** Descriptive research. Study performed in a secondary hospital in Ceará, Brazil. A total of 110 patient charts were evaluated for patients treated for chest pain between 2014 and 2016. **Results:** Higher prevalence of patients over 65 years 41 (37.27%) cases. 45 (40.91%) men and 65 (59.09%) women. The only invariable symptom presented by patients entering the emergency room was thoracic pain (DT) 110 (100%) cases. All 110 (100%) patients underwent electrocardiogram (ECG); 17 (15.45%) underwent the rapid troponin test, and of that total. **Conclusion:** Of the total, 92 (83.65%) of the cases were discharged without any complications; 17 (15.45%) were transferred to a referral hospital in cardiology in Fortaleza, and 01 (0.90%) died at the first medical visit.

**Descriptors:** Cardiology. Nursing care. Emergency.

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## RESUMO

**OBJETIVO:** Analisar o perfil clínico de pacientes atendidos, com dor torácica, no serviço de emergência. **METODOLOGIA:** Pesquisa descritiva. Estudo realizado em hospital secundário do Ceará, Brasil. Foram avaliadas 110 fichas de atendimentos de pacientes atendidos por dor torácica entre os anos de 2014 e 2016. **RESULTADOS:** Maior prevalência de pacientes acima de 65 anos, 41 (37,27%) casos. 45 (40,91%) homens e 65 (59,09%) mulheres. O único sintoma invariável, apresentado pelos pacientes que deram entrada na emergência, foi a Dor Torácica (DT) 110 (100%) casos. Todos os pacientes 110 (100%) foram submetidos ao Eletrocardiograma (ECG); 17 (15,45%) foram submetidos ao teste rápido de troponina, e desse total, 05 (4,54%) apresentaram resultado positivo durante o atendimento inicial. **CONCLUSÃO:** Do total, 92 (83,65%) dos casos receberam alta hospitalar, sem qualquer intercorrência; 17 (15,45%) foram transferidos para hospital de referência em cardiologia em Fortaleza e 01 (0,90%) veio a óbito no primeiro atendimento médico.

**Descritores:** Cardiologia. Cuidados de enfermagem. Emergência.

## RESUMEN

**OBJETIVO:** Analizar el perfil clínico de pacientes tratados con dolor torácico en el servicio de emergencias. **METODOLOGÍA:** Investigación descriptiva. Estudio realizado en un hospital secundario de Ceará, Brasil. Se evaluaron 110 registros de atención de pacientes tratados por dolor torácico entre los años 2014 y 2016. **RESULTADOS:** La mayor prevalencia fue de pacientes mayores de 65 años, 41 (37,27%) casos, del total 45 (40,91%) eran del sexo masculino y 65 (59,09%) del sexo femenino. El único síntoma invariable presentado por los pacientes que acudieron a la sala de emergencias fue el dolor torácico (DT) 110 (100%) casos. Todos los pacientes 110 (100%) se sometieron a un electrocardiograma (ECG); 17 (15,45%) se sometieron a la prueba rápida de troponina, y de estos, 05 (4,54%) dieron resultado positivo durante la atención inicial. **CONCLUSIÓN:** Del total, 92 (83,65%) casos fueron dados de alta del hospital sin complicaciones; 17 (15,45%) fueron trasladados a un hospital de referencia en cardiología en Fortaleza y 01 (0,90%) murió en la primera atención médica.

**Descriptores:** Cardiología. Cuidados de enfermera. Emergencia.

## INTRODUCTION

The world population is aging. In the last decades, there has been a significant increase in the number of elderly people in the world. Between 2000 and 2030, it is estimated that the percentage of older adults over 65 years of age will increase from 6.9% to 12%.<sup>1</sup> Among the causes of death and disability in Brazil and worldwide, cardiovascular diseases (CVDs) gain space.<sup>2</sup> Among these, acute coronary syndrome is one of the main public health

problems, and the search for interventions that have proven benefit in reducing the incidence of this disease and its complications becomes a priority, especially for the elderly population as a rapidly growing age group in Brazil and worldwide.<sup>3</sup>

In Brazil, the Reception and Risk Classification Service (SACR) is carried out through protocols and must be performed by nurses, through the resolution of the Federal Nursing Council (COFEN)

661/2021, being an activity that demands technical and scientific competence.<sup>4</sup>

One of the symptoms referred to in the emergency room is Chest Pain (CP). This complaint becomes an alarm symptom in the emergency room and is related to sensory, behavioral, cognitive and sociocultural factors, in addition to the underlying disease. Therefore, it is multifactorial.<sup>5</sup>

The Hospital Unit (HU) where the study was carried out is characterized as a Small Hospital (SH), not being a clinical or surgical reference to any medical specialty. Severely treated patients are stabilized and referred to tertiary hospitals in the capital of Ceará. Therefore, it was necessary to draw a profile of this population and, later, to implement a systematic plan aimed at improving the quality of care.

The objective was to analyze the clinical profile and outcome of patients with chest pain in the emergency department.

## METHODOLOGY

Descriptive research with a quantitative, retrospective approach. The study was carried out in a secondary hospital of the SUS network, located in a municipality in the State of Ceará, Brazil. The population was made up of 150 records, of care of those who presented chest pain in the emergency from 2014 to 2016. However, 110 was the total number of cases

evaluated, according to the established criteria.

Data collection was carried out in June and July 2017 after approval of the Research Project by the Ethics Committee. The sample consisted of attendance records and secondary data analyzed: vital signs, tests performed, main complaint, final conduct.

As inclusion criteria, records of patients over 18 years and with complete records of care were analyzed. As exclusion criteria, information contained in records of patients under 18 years, or who had incomplete information regarding care, was not computed. Thus, of the total of 150 consultations, 110 cases were evaluated.

Data analysis was carried out in a descriptive way, using absolute and relative frequencies. Regarding the variables, the following were seen: exams and reports, age, gender, chief complaint, diabetes mellitus, arterial hypertension, obesity, blood pressure, heart rate, respiratory rate, temperature, oxygen saturation, pain characteristics, drug therapy used, final outcome.

The project was approved by the Ethics Committee in Research on Human Beings – COÉTICA/UNIFOR of the University of Fortaleza with Opinion N. 2.011.067. As it is a documentary research, the Term of Faithful Depositary was carried out.

## RESULTS

The data showed that the age above 65 years represented 41 (37.27%) of the cases, and the female gender represented 65

(59.09%). That is, a higher number of female patients presented typical symptoms, however, all 110 (100%) reported CP and were evaluated for ACS.

**Table 1:** Clinical characterization of patients with chest pain treated in the emergency department.

| VARIABLE                       | GROUND                              | N   | %     |
|--------------------------------|-------------------------------------|-----|-------|
| Age Over 65 Years              | Prevalent Population                | 41  | 37.27 |
| Women                          | Prevalent Gender                    | 65  | 59.09 |
| Chest pain                     | Chief Complaint                     | 110 | 100   |
| Performed an electrocardiogram | Submission to the Exam              | 110 | 100   |
| ECG No Changes                 | Conventional ECG                    | 62  | 56.36 |
| Diabetes mellitus              | Previous Diagnosis                  | 09  | 9.9   |
| Pressure Values                | Equal to or less than 120x80 mmHg   | 48  | 43.63 |
| Heart rate                     | 60 - 100 bpm                        | 70  | 63.63 |
| Respiratory frequency          | 12 - 20 rpm                         | 83  | 75.45 |
| Oxygen Saturation              | < 94%                               | 16  | 14.54 |
| Body temperature               | > 37.8°C                            | 09  | 8.18  |
| Features of Chest Pain         | Pain in Squeeze                     | 68  | 61.81 |
| Troponin Test                  | Between the results ( - ) and ( + ) | 17  | 15.45 |
| X-ray performed                | Chest                               | 07  | 6.36  |
| Use of Acetylsalicylic Acid    | AAS                                 | 43  | 39.09 |
| ADP antagonists                | Clopidogrel                         | 12  | 10.90 |
| Nitrates                       | Isosorbide Dinitrate                | 25  | 22.72 |
| Hospital discharge             | After Clinical Improvement          | 92  | 83.65 |
| Transfers                      | Reference Hospital                  | 17  | 15.45 |
| Deaths                         | In the Hospital Unit                | 01  | 0.90  |

Regarding the performance of the Electrocardiogram (ECG), this fact was a constant. All patients 110 (100%) were submitted and since the majority, that is, 62 (56.36%) had this test without changes in the first consultation, according to medical records.

Regarding CVDs and previous metabolic diseases, for example, DM was recorded in 09 (9.9%), SAH was recorded in 61 (67.1%) cases and obesity was recorded in 18 (19.8%) of the cases.

Regarding the pressure values found in the records at the time of the symptomatic complaint, 48 (43.63%) had Blood Pressure (BP) equal to or lower than 120x80 mmHg.

Regarding heart rate (HR), it was seen that 70 (63.63%) showed values between 60 and 100 bpm. Of the total, 03 (2.72%) had a HR below 60 bpm. Another 37 (33.63%) had HR above 100 bpm.

Regarding the Respiratory Rate (RR), 83 (75.45%) presented themselves in the emergency room with a RR greater than 20 incursions per minute. Regarding

Oxygen Saturation (SPO<sub>2</sub>), 16 (14.54%) had SPO<sub>2</sub> <94% during the initial treatment, measured by pulse oximeter. It is worth mentioning that the HU where the research took place did not have a blood gas analysis. Body temperature, also evaluated, showed 09 (8.18%) with measurements > 37.8°C.

DT characteristics were classified according to the complaint. It was recorded that 29 (26.36%) reported burning pain, 68 (61.81%) squeezing pain, 08 (7.27%) reported stabbing pain, 05 (4.54%) oppressive pain. Regarding troponin, it was seen that 17 (15.45%) underwent the rapid test, and of this total, 05 (4.54%) had a positive result during the initial care. Another exam requested by the doctor, in some cases, was the chest X-ray, 07 (6.36%).

Regarding the drug therapy prescribed by the doctor, it was observed that 43 (39.09%) used ASA, 25 (22.72%) benefited from isosorbide dinitrate (isordil), 06 (5.45%) used beta-blockers, especially propranolol, 07 (6.36%) used opioids, especially morphine. Other drugs also had clinical prominence, for example, clopidogrel, which was inserted in 12 (10.90%) of the consultations.

In this study, most of the participating individuals had a satisfactory outcome, that is, 92 (83.65%) of them were discharged from hospital, 17 (15.45%) were

transferred to a cardiology referral hospital and 01 (0.90 %) died.

## DISCUSSION

In the present study, there was a greater number of women seen in the emergency department. Up to 65 years of age, CAD is more prevalent in men, but from the age of 80 onwards, its prevalence is equivalent in both sexes<sup>6</sup>. Regarding symptoms, TD was reported in all cases. ECG was performed on all patients in this study.

It was seen that normal ECG results prevailed in the initial care, according to the medical record. In this regard, the protocols warn that this fact does not exclude the risk of SCA.<sup>7</sup>

In relation to CVDs and metabolic diseases, for example, Systemic Arterial Hypertension (SAH), DM and obesity are aggravating factors addressed in a study carried out in Porto Alegre.<sup>8</sup> Pressure figures highlight BP values equal to or lower than 120x80 mmHg. It is worth remembering that the objective of this study was not to screen patients who could have SAH.

SAH was a variable in which most patients also presented normal values. It should be noted that these clinical signs in the context of ACS may have important implications.<sup>9</sup> Increased RR was more

prevalent in this study, that is, with RR greater than 20 rpm. Patients with tachypnea and clinical symptoms of ACS may just be anxious<sup>10</sup>, or be progressing to complications, for example, ACS, acute pulmonary edema, among others.<sup>9</sup> Another study showed that less than 20% had significant changes in the initial physical examination; the presence of tachypnea, hypotension, and pulmonary rales, among others, should draw attention, as they may indicate severe myocardial involvement, with the potential for acute heart failure.<sup>11</sup>

Regarding the oxygen levels measured through the pulse oximeter, most showed SPO2 figures > 94%. However, it is worth mentioning that the HU, where the research took place, did not have a blood gas analysis. In this sense, it is noteworthy that unnecessarily administered O2 can lead to vasoconstriction, increased systemic vascular resistance and BP, thus being harmful.<sup>12</sup> Regarding body temperature, patients with temperature <37.8°C prevailed.

Regarding the characteristics of CP, the complaint of pain in grip predominated. Another similar study showed that the most prevalent characteristic was burning pain 12 (52.17%), which shows symptomatic heterogeneity.<sup>13</sup> Regarding troponin, it was seen that a small percentage was submitted to the rapid test. Since its elevation increases the risk of death and re(infarction)

in the first 6 months, when compared to troponin-negative patients.<sup>14,15</sup> It is important to emphasize that none of the patients with negative numbers were submitted to the exam again, after the initial treatment. It is known that troponins on admission are within the normal range in up to a fifth of cases that later confirm the diagnosis of ACS.<sup>16</sup> In other words, a specific protocol for this resource was not followed.

Regarding X-rays (thorax), there was a low percentage of this imaging exam, which can be attributed, for example, to the non-availability and/or the closest distance to a HU that had this method.

The drugs related to the approach of SCAs were AAS, nitrates, beta-blockers, especially propranolol, among others. These behaviors can be subject to changes in the most varied contexts. ASA, for example, is important in ACS, its use implies a reduction in mortality.<sup>17</sup> Despite this, studies reveal ischemic phenomena even with continuous use<sup>18</sup>, but it remains the antiplatelet agent of choice in ACS, as shown by the ISIS-2 study (Second International Study of Infarct Survival), reducing mortality by 23%, alone, almost as much as Streptokinase (SK). The drugs morphine and clopidogrel were also mentioned to a lesser extent and have important effects on ACS.<sup>19</sup>

In this study, most individuals had a satisfactory outcome from a clinical point of view, that is, they were discharged from the hospital without any serious complications when an ACS was ruled out. 17 were transferred to a cardiology referral hospital and 01 died at the hospital where the first medical care was provided.

The data reinforce the importance of preparing health professionals for the careful evaluation of patients who seek care in the emergency department. It is worth mentioning that studies on the knowledge of sociodemographic and clinical data can favor the planning and execution of care, implying improvements in the quality of the them.<sup>20</sup> Thus, pain, as one of the vital signs, must always be valued by the nursing team and other professionals.

## CONCLUSION

In view of the above, the objective of evaluating the clinical profile and outcome of patients with chest pain treated in the emergency department of a hospital in the interior of the state of Ceará was achieved with the following conclusions:

The clinical profile of patients treated in the emergency room for chest pain was over 65 years of age, all cases reported pain of chest origin with a prevalence of tightness, the entire sample was submitted to ECG, where the majority

presented an unaltered result. Regarding heart rate, the largest portion revealed values within the normal range. Higher percentages had tachypnea in the first consultation. A significant portion of this sample was submitted to the rapid troponin test; however, its offer was not comprehensive to all patients who were indicated for this test due to the quantitative deficiency of this input. In this context, a high percentage did not undergo chest radiography. The drugs prescribed by the doctor were ASA, clopidogrel, isosorbide dinitrate, among others.

As for the outcome of these individuals, 92 people were discharged from the hospital without any serious complications, 17 were transferred and one patient died at the hospital where the first medical care was provided.

In this way, we obtained a clinical profile and final outcome of these patients who presented with CP in the emergency room. In this sense, it is possible to get to know this clientele better and obtain subsidies for the subsequent construction of a systematic strategy of individualized care for this population. Not least, to create a discussion about the importance of continuing education for health professionals as well as the persuasion of the hospital management nucleus in relation to greater investments in the sector.

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