

Clinical and Epidemiological Indicatives of acute myocardial infrastructure in Patients attended in a Hospital of Emergency and Emergency inside Rondonia 2015-2018

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Abstract— Acute myocardial infarction (AMI) or a so-called heart attack is an ischemic heart disease, which is one of the leading causes of death in men and women over thirty years of age. The objective was to verify the incidence of acute myocardial infarction in the municipality of Cacoal-RO from 2015 to 2018. The methodology was a retrospective, cross-sectional, documentary, descriptive and quantitative study with analysis of medical records in the Cacoal-RO emergency hospital. . The results were 44 cases within the surveyed period, 59.1% male and 40.9% female, age 61.36% > 60 years and 29.54% between 30 and 59 years old, brown 61, 36% and 77,27% belong to the urban area. As risk factors for the disease, males were 13.63% SAH and 22.72% smoking and female 25.0% SAH and 18.18% DM. As symptoms 61.36% precordial pain and 38.63% dyspnea, complementary exams requested ECG 90.1% of patients, CPK 50.0% of patients and CKMB 45.45% of patients, as prophylactic measures adopted 61.36% it was healthy eating, the drugs used in 70.45% of the patients the ASA and followed Clopidogrel 54.54%, in the evolution of the patient obtained cure in 70.45% and 29.54% died. It is concluded that due to the number of medical records analyzed, it can be inferred that the epidemiological profile of acute infarction in Cacoal-RO was low, showing a disease incidence of 0.50 / 1000 inhabitants, mortality 0.13 / 1000 inhabitants and annual average of 11 cases / year. It is noted that a precariousness of information in medical records and divergences in AMI protocols not performed according to SBC.

Keywords— Acute Myocardial Infarction. Epidemiology. Evolution.

Indicativos clínicos e epidemiológicos de infarto agudo do miocárdio em pacientes atendidos em um hospital de urgências e emergências no interior de Rondônia entre 2015 a 2018.

Resumo— O infarto agudo do miocárdio (IAM) ou denominado ataque cardíaco é uma doença isquêmica do coração, que representa uma das principais causas de óbitos em homens e mulheres acima de trinta anos de idade. O objetivo foi verificar a incidência de infarto agudo do miocárdio no município de Cacoal-RO entre

2015 a 2018. A metodologia foi um estudo retrospectivo, transversal, documental, descritivo e quantitativo com análise de prontuários no hospital de urgência e emergência de Cacoal-RO. Teve-se como resultados 44 casos dentro o período pesquisado sendo 59,1% sexo masculino e 40,9% feminino, faixa etária 61,36% > 60 anos e 29,54% entre 30 a 59 anos, na cor parda 61,36% e 77,27% pertencentes a zona urbana. Como fatores de risco para a doença apresentando o sexo masculino 13,63% HAS e 22,72% tabagismo e feminino 25,0% HAS e 18,18% DM. Como sintomatologia 61,36% dor precordial e 38,63% dispneia, exames complementares solicitados ECG 90,1% dos pacientes, CPK 50,0% dos pacientes e CKMB 45,45% dos pacientes, como medidas profiláticas adotadas 61,36% foi alimentação saudável, os medicamentos usados em 70,45% dos pacientes o AAS e seguido Clopidogrel 54,54%, na evolução do paciente obteve-se cura em 70,45% e 29,54% evoluíram para óbito. Conclui-se que devido ao quantitativo de prontuários analisados pode-se inferir que o perfil epidemiológico do infarto agudo no município de Cacoal-RO foi baixo mostrando incidência da doença de 0,50/1000 habitantes, mortalidade 0,13/1000 habitantes e a média anual de 11 casos/ano. Nota-se que uma precariedade de informações nos prontuários e divergências nos protocolos de IAM não realizados conforme SBC.

Palavras Chaves— Infarto Agudo do Miocárdio. Epidemiologia. Evolução.

I. INTRODUCTION

AMI or acute myocardial infarction, also called heart attack is an ischemic heart disease, which is a major cause of death in men and women over thirty years of age. The diagnosis is made based on the clinical picture, electrocardiographic alterations and elevation of biochemical markers of necrosis (LOZOVY *et al.*, 2008).

According to the Ministry of Health (2014), acute myocardial infarction was considered nationally the first cause of death, which accounted for 100,000 deaths during 2014. The infarction presents classic symptoms in its early stages and can pass unnoticed that looks like routine pains of everyday life. Therefore in the chronic or advanced phase can trigger serious complications and being fatal to human life.

According to the World Health Organization (2012), smokers are more likely to develop AMI because, according to proven studies, it increases the risk of developing acute myocardial infarction five times, because nicotine is a constricting vessel that will reduce the thickness and caliber of the arteries hindering the passage of blood where they will cause damage to the wall (PIEGAS, 2012).

The South and Southeast regions are the most predominant and lead the ranking with the highest number of cases of AMI and with the lowest number of cases the north and northeast. (PREVIDELLI, 2013).

The general objective of the research is to verify the clinical incidence and epidemiology of acute myocardial infarction in the emergency hospital of Cacoal-RO between 2015 and 2018.

II. MATERIALS AND METHODS

The study was submitted to the Research Ethics Committee - CEP, Cacoal Education Institution -

FACIMED - Faculty of Biomedical Sciences of Cacoal, following the recommendations cited in Resolution No. 466 of December 12, 2012 and Resolution No. 510, of April 7, 2016 from CNS- National Health Council and after its approval received CAAE 12623819.1.0000.5298 and opinion concurring with the number 3.388,367.

The present study was presented as a retrospective, cross-sectional, descriptive document with a quantitative approach with individual analysis and medical records because the hospital did not have an electronic epidemiological database with the number of patients with the theme.

The research was conducted in the city of Cacoal-RO, and its data collection instrument was a semi-structured questionnaire with 8 multi-choice question topics that were extracted from the information contained in the patient records addressing the inclusion criteria of all patients (male and female). diagnosed with acute myocardial infarction - AMI residing in the municipality of Cacoal-RO from 2015 to 2018 and exclusion criteria notifications that did not have the necessary information for the study or patients not belonging to the municipality of Cacoal-RO.

The following variables were used for data collection: Identifying the socio-demographic profile of AMI victims; Present the epidemiology of AMI, treated at the Cacoal-RO Emergency Hospital; identify risk factors and comorbidities related to the incidence of the pathology; identify patients' lifestyle, medication, symptoms and evolution of AMI victims.

It started in September and ended in October 2019, and obtained a sample of 50 more patients. Due to the exclusion criteria, only 44 medical records were assigned to follow-up. The Informed Consent Form (ICF) was not applied because the data were not extracted

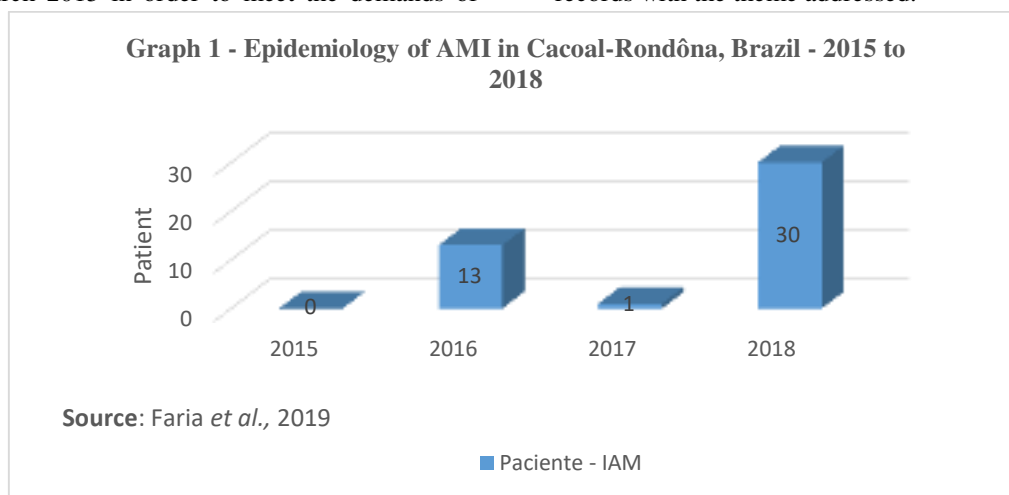
directly with the patient and performed through the analysis of the medical records, thus being asked to dismiss the ethics committee.

III. RESULTS

The Cacoal Emergency Hospital (HEURO) was opened in March 2015 in order to meet the demands of

high complexity care offered by the municipal health network. Due to its recent installation many medical records were not found not favoring a good result. search.

The manual search of the acute myocardial infarction records found 44 patients, which were divided between the years 2016 to 2018, and 2015 did not find any records with the theme addressed.



Source: Cacoal-RO Emergency Hospital - (HEURO)

Graph 1 shows the distribution of cases based on the years 2015 to 2018, it is noted that in 2015 no medical records with the research theme were found, unable to inform if there was no case of AMI or if there was a loss of medical records. as it was the year of implementation in

the hospital in the old hospital São Daniel Comboni, in 2016 were found 13 medical records (29.54%) 2017 only 1 medical record (2.27%) and 2018 30 medical records (68.18%) were found).

Table 1 - Socio-demographic profile of AMI victims - Cacoal-Rondônia- Brazil - 2015 to 2018

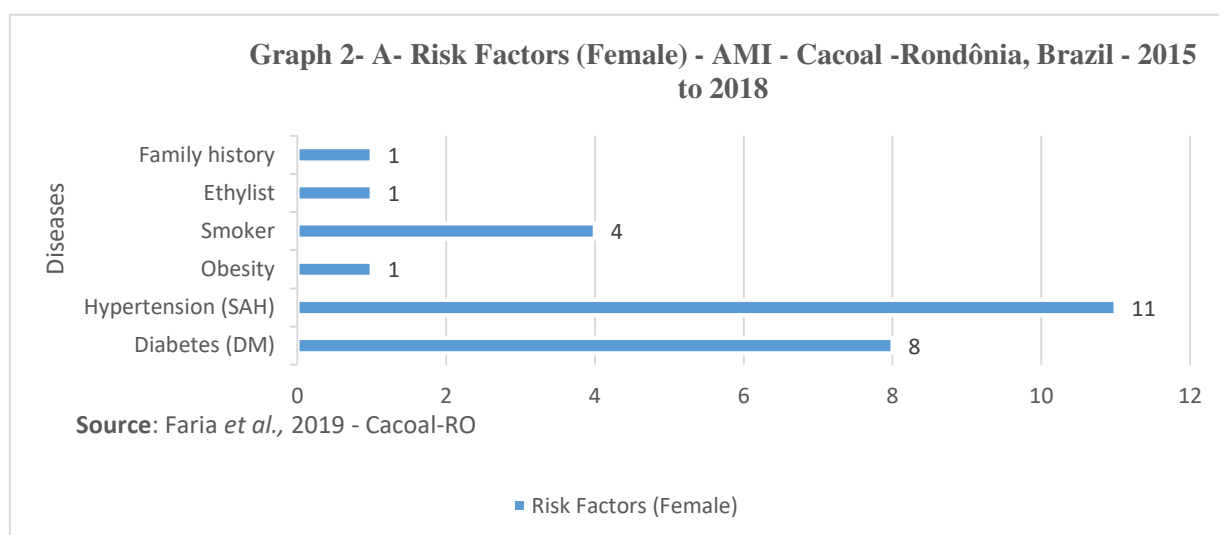
DICE		n	%
Sex	Male	26	59,1
	Feminine	18	40,9
	TOTAL	44	100
Age range	18 a 29	2	4,55
	30 a 59	13	29,54
	> 60 anos	27	61,36
	Ignored	2	4,55
	TOTAL	44	100
Breed	White	9	20,45
	Brown	27	61,36
	black	2	4,55
	Indigenous	3	6,82
	Ignored	3	6,82
	TOTAL	44	100
Place of occurrence	Urban area	34	77,27
	Countryside	10	22,73
	TOTAL	44	100

Source: Cacoal-Rondônia State Emergency Hospital, Brazil - 2015 to 2018

Table 1 shows the sociodemographic profile of patients diagnosed with acute myocardial infarction (AMI), corresponding to 44 cases reported from 2015 to 2018, of which 59.10% are male and 40.90% female. The age group 4.55% between 18 and 29 years old, 30 to 59 years old 29.54% and > (older) 60 years 61.36%. The brown color 61.36% had a higher incidence

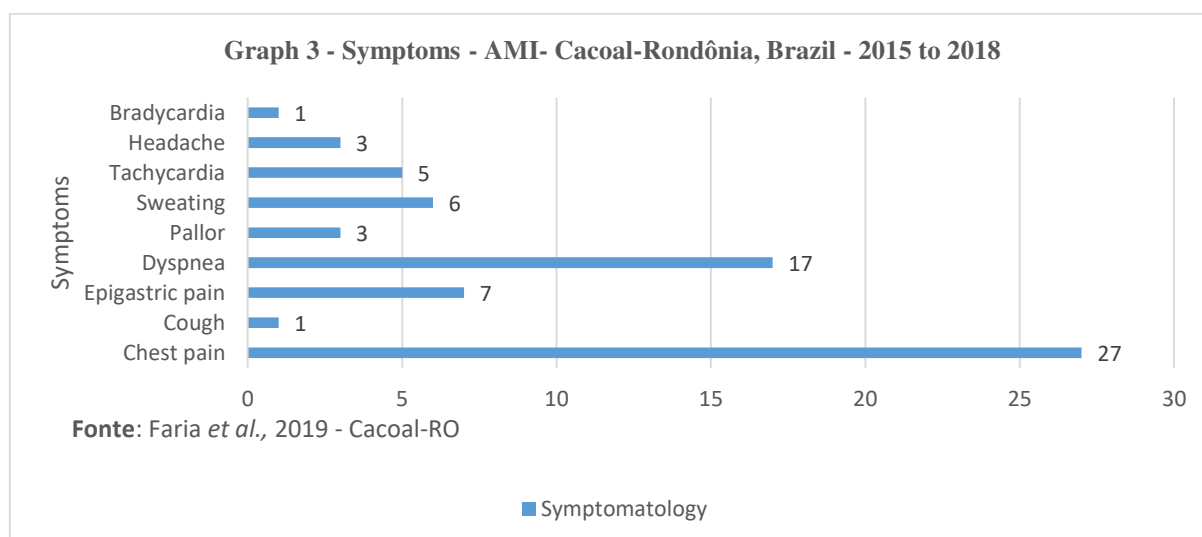
followed by the white color 20.45%, the patients belonged to urban area 77.27% and rural area 22.73%.

Graph 2 - A shows the risk factors that are related to acute myocardial infarction between the surveyed period. About 59.09% of females have some pre-available risk factor for the disease, such as hypertension. in 25.0%, Diabetes Mellitus (DM) in 18.18%, smoking in 9.1% and family history, alcoholism and obesity in 2.27%.



Graph 2 - B - shows the risk factors that are related to acute myocardial infarction between the surveyed period, about 54.52% of males have some pre-available risk factor for the disease such as smoking in

22.72 %, hypertension (13.63%), Diabetes Mellitus (DM) 4.55%, and alcoholic, hypercholesterolemia, congestive heart failure, chronic renal failure, family history and dyslipidemia with 2.27%.



Graph 3- represents the general symptoms presented by the patients diagnosed with acute myocardial infarction between the investigated period, the research revealed in the analysis of the medical records that 61.36% (n = 27) had chest pain, 38.63% had dyspnea (n = 17),

15.9% had epigastric pain (n = 7), 13.63% had sweating (n = 6), 11.36% had tachycardia (n = 5), 6.81% had pallor and headache (n = 3) and 2.27% bradycardia and cough (n = 1).

Table 2 - Examinations / Guidelines / Medication / Evolution - Cacoal-Rondônia, Brazil - 2015 to 2018

DICE		
Additional exams requested		
	n	%
CPK	22	50,0
CK-MB	20	45,45
ECG	40	90,1
RX TORAX	8	18,18
TROPONIN	11	25,0
ECO	1	2,27
TOMOGRAPHY	2	4,55
LDH	7	15,9
TGO / AST	6	13,63
Myoglobin	1	2,27
Prophylactic measures adopted		
Healthy eating	27	61,36
Guidance on drug use	14	31,81
Used Drugs (Thrombolytics)		
ASS	31	70,45
CLOPIDOGREL	24	54,54
TICAGRELOR	1	2,27
TENECTEPLASE	2	4,55
ALTEPLASE	2	4,55
Case Evolution		
Cure	31	70,45
Death	13	29,54

Source: Cacoal-Rondônia State Emergency and Emergency Hospital, Brazil - 2015 to 2018

Based on Table 2, it reports the complementary exams, guidelines, medications and evolution of the cases of patients who were diagnosed with acute myocardial infarction. Complementary tests such as ECG (electrocardiogram) were requested in 90.1% of patients, CPK (creatinophosphokinase) in 50.0% of patients, CKMB (creatin kinase / isoenzyme) in 45.45% of patients, TROPONIN in 25.0% of the patients, chest X-ray (chest X-ray) in 18.18% of the patients, LDH (lactate dehydrogenase) in 15.9%, TGO / AST (glutamic oxalacetic transaminase / alanine aminotransferase) in 13.63 % of patients CT (CT) in 4.55% ECO and MYGLOBINE in 2.27%. Prophylactic measures were adopted by the professionals for patients who had a positive evolution, being healthy eating in 61.36% of the cases and guidelines for the correct use of the drug in 31.81% of the patients. The drug protocol was used, being in 70.45% AAS (acetylsalicylic acid), 54.54% CLOPIDOGREL, 4.55% TENECTEPLASE AND ALTEPALSE and 2.27% TICAGRELOR. The evolution of acute myocardial infarction cases was cured in 70.45% of cases and death in 29.54%.

IV. DISCUSSION

The city of Cacoal-RO in 2018 obtained about 68.18% of cases of acute myocardial infarction (Graph 1). The Ministry of Health shows that the disease is reaching the first position in both sexes and becomes a concern for Brazilian public health (BRASIL, 2019).

In this study, it is confirmed in relation to other studies with the same axis, as the male and more available for acute myocardial infarction disease. In the study conducted in Cacoal-RO, 59.1% of the patients were male (Table 1). According to Hernández *et al.*, (2014) he affirms the findings of this research, because according to him and more common the male gender is indicative to develop the disease taking into account several factors that will be addressed during the study. According to Oliveira & Magnabosco (2018) the male has a lot of difficulty knowing and providing his body needs, ie, reject the possibilities of taking care of the body.

Regarding age, the study found that the highest incidence occurred in patients > 60 years of age (Table 1). According to reports by Oliva *et al.*, (2013); The age group

with the most predisposition to the disease is between 40 and 65 years old, since it is correlated with the higher risk of ischemic heart disease. According to the author Howard & Rossouw, the age group is also correlated to the progressive accumulation of disease such as coronary atherosclerosis associated with risk factors.

According to Souza (2018), women over 40 years old may present some diseases such as cervical and breast cancer, skin, hypothyroidism and cardiovascular diseases due to decreased production of female estrogen hormone.

The Cacoal-RO study showed that brown patients are more likely to develop the disease (Table 1). In the study by Oliveira & Magnabosco (2018), it was shown that the disease is greater in white patients due to contributing to a high mortality rate. According to the Ministry of Health (2017) acute myocardial infarction points to the profile of browns and blacks as the greatest contrast of triggering disease and mortality.

The research presented patient data regarding the area of residence, being larger in the urban area with 77.27% of the cases (Table 1). According to a study by Segatto (2013), stress is a risk factor for the disease, being increased in urban dwellers, due to the day-to-day disorders producing discomfort on all sides.

Regarding risk factors for acute myocardial infarction, females predominate that hypertension 25.0% (systolic arterial hypertension) is the major cause of the disease (Graph 2- A). According to the authors, the research reports that there is a great direct similarity between SAH and heart disease (LÓPEZ *et al.*, 2010; LÓRIGA, PASTRANA &QUINTERO, 2013). A similar research conducted in Venezuela points out according to research that hypertension may be correlated with population behaviors and lifestyle habits, which is a major factor in the development of the disease (GALANO *et al.*, 2012).

Another study states that the main risk factors for the development of ischemic cardiovascular diseases are smoking, physical inactivity, dyslipidemia, obesity, type 2 diabetes mellitus and hypertension with 72.3%. (HERNÁNDEZ *et al.*, 2014; TARRAGÓ *et al.*, 2012; BATISTA *et al.*, 2015).

Risk factors related to males showed that the highest correlation of cases is with smoking 22.72% (Graph 2 - B). Based on other research, similar results are found that smoking (95%) is a vasoconstrictor and is a major cause of cardiovascular disease in males (CÁRDENAS &LLANOS, 2019).

The symptoms presented in the patients by analyzing the medical records were chest pain 61.36% and dyspnea 38.63% (Graph 3). Professionals should be aware

that the symptomatology of the disease can be confused with other diseases, thus, may go unnoticed and worsen (RODRIGUEZ, MARTINEZ &RODRIGUEZ, 2018). It is stated that the first symptoms of the patients suggestive for the described disease is very strong precordial pain radiating to the region of the upper limbs and scapulae.

Symptoms of acute myocardial infarction presented by the patient should be identified in the screening performed by nurses and immediately referred to emergency medical care (SOUZA, SILVA &BARBOSA, 2014).

Upon analysis of the medical records, it was observed who was requested additional tests to the symptoms presented by the patients during the clinical consultation at the emergency hospital of Cacoal-RO. , 0% and CKMB 45.45% (Table 2).

The Brazilian Society of Cardiology (2015) is recommended to perform complementary tests to help and confirm the diagnosis of acute myocardial infarction. Biochemical markers such as Creatine Kinase (CK) or Lactic Dehydrogenase (LDH) enzymes have traditionally been a measure of cardiac syndromes. Troponins are myofibrillar regulating proteins that are not present in the smooth muscle of the heart but in the slow-twitch skeletal (NEWBY *et al.*, 2012).

The CK-MB marker is still widely used in hospital practice, which are early marked which should be used in less than 6 hours. The ECG is low cost and highly available in the evaluation of patients with chest pain suggestive of acute myocardial infarction and should be monitored for 12 to 24 hours (CULLEN *et al.*, 2013).

By analyzing the patients' medical records, it was observed that only in 61.36% prophylactic measures were adopted as guidelines regarding healthy habits (Table 2). According to Carvalho *et al.* (2018), physical activity reduces the risk of heart disease, which today is one of the leading causes of death worldwide. Physical inactivity is a major factor in the development of heart disease; daily physical exercise can rule out the chances of triggering an acute myocardial infarction (TEIXEIRA *et al.*, 2015 &FÉLIX, 2018).

Although there is a protocol to follow, they are not exactly used as determinants by the Brazilian Society of Cardiology. In the research, it was noted that AAS (70.45%) and Clopidogrel (54.54%) were the most used drugs.

According to the medical care protocol of the Brazilian Society of Cardiology (2015), intravenous morphine sulfate pain from 2 to 8 mg, nitroglycerine (0.4 mg SL) or isosorbide monitrate (5 mg) should be used for pain relief. An antinflammatory / anticoagulant platelet

Acetylsalicylic acid from 160mg to 325mg Chewable use, Clopidogrel and Ticagrelor An attack dose of 300mg is recommended, Use of enoxaparin is recommended in a patient <75 years with a diagnosis of STEMI. (intravenous ST segment) 30 mg IV in bolus and 1 mg / kg SC and in a patient > 75 years old administering only 0.75 mg / kg SC every 12 hours, the use of beta-blockers as a preference for metoprolol VO is also recommended. prehospital phase of the disease, antiarrhythmic drugs such as lidocaine help in reducing the mortality rate of the disease (SBC, 2015).

The evolution of cases of acute infarction in the city of Cacoal-RO was cured in 70.45% and death in 29.54%, with a higher incidence in 2018 (n = 9) (Table 2). According to Santos *et al.*, 2018 research similar to this one, where the number of deaths was higher in 2016 (n = 168). According to Paixão *et al.*, 2019 the survey showed that in 2016 it obtained 16.03% of deaths.

V. CONCLUSION

It is concluded that due to the number of medical records analyzed, it can be inferred that the epidemiological profile of acute infarction in the municipality of Cacoal-RO was low, showing a disease incidence of 0.50 / 1000 inhabitants, mortality 0.13 / 1000 inhabitants and annual average of 11 cases / year. It is estimated that there are more patients diagnosed with the disease due to the hospital being invaded in 2015, many of the medical records were lost.

It is noted that a precariousness of information in medical records and divergences in AMI protocols not performed according to SBC. It can be affirmed the little clinical knowledge of the newly graduated doctors, that due to the symptoms being confused with other diseases they can go unnoticed by the clinical look.

Nursing plays an important role in the care of these patients with heart disease, such as procedures to relieve pain and physical examinations and intermediate care performed daily by the team.

It is proposed that medical professionals, nurses and the entire multidisciplinary team when providing care to patients, making detailed notes and correctly following protocols to facilitate studies during the analysis of medical records.

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