

SÍNDROME CORONARIANA AGUDA: COMPARAÇÃO ENTRE FATORES PREDISPONENTES E APRESENTAÇÃO CLÍNICA EM DIFERENTES PERFIS POPULACIONAIS

ACUTE CORONARY SYNDROME: COMPARISON OF PREDISPOSING FACTORS AND CLINICAL PRESENTATION IN DIFFERENT POPULATION PROFILES

1. João Pedro Cardoso Faccio, 2. Jhennifer Luise Daniel Giovanoni

¹ Acadêmica do curso de Medicina da Faculdade de Medicina da **Afya Centro Universitário de Pato Branco**, Pato Branco – PR, Brasil. E-mail: jhennifergiovanoni2@gmail.com

² Professor do curso de Medicina da **Afya Centro Universitário de Pato Branco**, Pato Branco – PR, Brasil.

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RESUMO

Introdução: A síndrome coronariana aguda constitui uma importante manifestação das doenças cardiovasculares e apresenta elevada relevância clínica e epidemiológica, estando associada a diferentes fatores de risco e manifestações clínicas. **Objetivo:** Comparar os principais fatores predisponentes, características clínicas e aspectos relacionados ao tratamento da síndrome coronariana aguda identificados em uma coorte brasileira e em um relato de caso de infarto agudo do miocárdio em paciente jovem. **Método:** Foi realizada uma revisão narrativa de caráter comparativo, baseada em dois artigos científicos publicados em 2025 e previamente selecionados pelos autores. O primeiro correspondeu a uma coorte prospectiva brasileira envolvendo 5.580 pacientes com síndrome coronariana aguda, enquanto o segundo descreveu um caso de infarto agudo do miocárdio com supradesnívelamento do segmento ST em um paciente de 19 anos com diabetes mellitus tipo 2 de difícil controle. **Resultados:** No estudo brasileiro, os principais fatores associados à síndrome coronariana aguda foram hipertensão arterial, sobrepeso ou obesidade, diabetes mellitus e doença arterial coronariana prévia. A idade mediana foi de 62 anos, com predominância de angina instável. No relato de caso, a ocorrência de infarto em idade jovem esteve relacionada principalmente ao diabetes mellitus mal controlado, à predisposição familiar para doença arterial coronariana e à dislipidemia, com identificação de oclusão completa da artéria coronária direita. **Conclusão:** Os estudos demonstram que a síndrome coronariana aguda pode ocorrer em diferentes perfis populacionais. Enquanto os fatores de risco cardiovasculares tradicionais apresentaram elevada frequência na população geral, o controle inadequado de condições metabólicas e a predisposição familiar mostraram-se relevantes para a ocorrência precoce do evento coronariano.

Palavras-chave: Síndrome Coronariana Aguda. Infarto do Miocárdio. Fatores de Risco. Diabetes Mellitus. Doenças Cardiovasculares.

ABSTRACT

Introduction: Acute coronary syndrome is an important manifestation of cardiovascular diseases and has high clinical and epidemiological relevance, being associated with different risk factors and clinical manifestations. **Objective:** To compare the main predisposing factors, clinical characteristics, and treatment-related aspects of acute coronary syndrome identified in a Brazilian cohort and in a case report of acute myocardial infarction in a young patient. **Method:** A narrative review with a comparative approach was conducted based on two scientific articles published in 2025 and previously selected by the authors. The first was a Brazilian prospective cohort involving 5,580 patients with acute coronary syndrome, whereas the second described a case of ST-segment elevation acute myocardial infarction in a 19-year-old patient with poorly controlled type 2 diabetes mellitus. **Results:** In the Brazilian study, the main factors associated with acute coronary syndrome were hypertension, overweight or obesity, diabetes mellitus, and previous coronary artery disease. The median age was 62 years, with unstable angina predominating.

In the case report, the occurrence of myocardial infarction at a young age was mainly associated with poorly controlled diabetes mellitus, a family predisposition to coronary artery disease, and dyslipidemia, with complete occlusion of the right coronary artery identified. **Conclusion:** The studies demonstrate that acute coronary syndrome can occur in different population profiles. While traditional cardiovascular risk factors were highly prevalent in the general population, inadequate control of metabolic conditions and familial predisposition were relevant to the early occurrence of coronary events.

Keywords: Acute Coronary Syndrome. Myocardial Infarction. Risk Factors. Diabetes Mellitus. Cardiovascular Diseases.

INTRODUCTION

Acute coronary syndrome (ACS) encompasses unstable angina, non-ST-segment elevation myocardial infarction (NSTEMI), and ST-segment elevation myocardial infarction (STEMI), primarily resulting from coronary artery disease, atherosclerotic plaque destabilization, thrombus formation, and consequent reduction or interruption of coronary blood flow.¹

ACS is associated with significant morbidity and mortality, with arterial hypertension, diabetes mellitus, dyslipidemia, excess weight, smoking, and previous coronary artery disease among its main risk factors. In a Brazilian study, arterial hypertension was present in 80.38% of patients, followed by overweight or obesity (72.47%) and diabetes mellitus (56.55%).¹

Although ACS is more common among older individuals, it may also occur in young patients. Rehman, Haque, and Siddiqi² reported a 19-year-old patient with ST-segment elevation myocardial infarction associated with poorly controlled type 2 diabetes mellitus, dyslipidemia, and a strong family history of coronary artery disease.²

These contrasting profiles highlight the importance of recognizing cardiovascular risk factors and ACS regardless of age. Thus, this review aimed to compare the predisposing factors, clinical characteristics, and treatment-related aspects of ACS described in a Brazilian cohort and in a case report involving a young patient.

METHOD

A comparative narrative literature review was conducted based on two scientific articles on acute coronary syndrome (ACS), both published in 2025. The first was a prospective cohort conducted at a public cardiology institute in São Paulo, involving 5,580 patients hospitalized with suspected or confirmed ACS between August 2018 and October 2022.¹ The second was a case report published in *JACC: Case Reports*,

describing a 19-year-old patient with ST-segment elevation myocardial infarction associated with poorly controlled type 2 diabetes mellitus.²

The studies were selected for their direct relevance to the review objective and analyzed according to epidemiological profile, cardiovascular risk factors, clinical presentation, diagnosis, treatment, and outcomes. Their findings were subsequently compared based on similarities and differences. Studies unrelated to the proposed objective were excluded. As the review used exclusively previously published scientific literature and involved no direct data collection from human subjects, submission to a Research Ethics Committee was not required.

RESULTS

The two studies presented distinct profiles of acute coronary syndrome. Nascimento et al.¹ evaluated 5,580 patients in a Brazilian cardiology institute, whereas Rehman, Haque, and Siddiqi² reported an acute myocardial infarction in a 19-year-old patient.

Epidemiological Profile and Predisposing Factors:

In the study by Nascimento et al.¹, the median age was 62 years, with a predominance of males. Unstable angina was the most frequent presentation (55.99%), followed by non-ST-segment elevation myocardial infarction (34.84%) and ST-segment elevation myocardial infarction (9.18%). The main associated factors were arterial hypertension (80.38%), overweight or obesity (72.47%), diabetes mellitus (56.55%), and previous coronary artery disease (59.11%).¹

In contrast, the case reported by Rehman, Haque, and Siddiqi² involved a 19-year-old patient with ST-segment elevation myocardial infarction, poorly controlled insulin-dependent type 2 diabetes mellitus, dyslipidemia, and a strong family history of coronary artery disease.²

The main findings of the two studies are summarized in Table 1.

Table 1 – Comparison of key findings from the analyzed studies:

Characteristic	Nascimento et al. ¹	Rehman, Haque and Siddiqi ²
Type of study	Prospective cohort	Case report
Number of patients	5,580	1
Age	Median of 62 years	19 years

Main presentation	Unstable angina	ST-segment elevation myocardial infarction
Diabetes mellitus	56.55%	Present, poorly controlled
Arterial hypertension	80.38%	Not the main factor highlighted
Overweight/obesity	72.47%	Not the main factor highlighted
Dyslipidemia	Present	Present
Coronary artery disease	59.11%	Strong family predisposition
Affected artery	Different presentations	Complete occlusion of the right coronary artery
Treatment	According to clinical presentation	Percutaneous coronary intervention

Source: Prepared by the authors based on the studies of Nascimento et al.¹ and Rehman, Haque and Siddiqi.²

The comparison demonstrates that ACS may occur in different contexts, ranging from older patients with multiple cardiovascular risk factors to very young individuals with significant metabolic and familial predisposition.^{1,2}

Clinical Presentation and Diagnosis:

The Brazilian cohort included different ACS presentations, while the case report described a 19-year-old patient with intermittent central chest pain, dyspnea, palpitations, nausea, and vomiting. Electrocardiography showed ST-segment elevation, and myocardial necrosis markers supported the diagnosis. Coronary angiography revealed complete occlusion of the right coronary artery.²

These findings emphasize the importance of considering ACS regardless of age, particularly when cardiovascular risk factors such as poorly controlled diabetes mellitus and family history of coronary artery disease are present.²

Treatment and Outcomes:

In the Brazilian cohort, cardiac catheterization was performed in 84.93% of cases, while clinical treatment was used in 46.47%. During 30-day follow-up, major bleeding occurred in 3.10% of patients, infarction or reinfarction in 7.86%, stroke in 5.55%, and death in 2.53%.¹

In the case report, complete occlusion of the distal right coronary artery led to percutaneous coronary intervention, combined with treatment for hyperglycemia and anticoagulant therapy.² The different approaches reflect the clinical diversity of ACS and reinforce the importance of early diagnosis and appropriate management.^{1,2}

Comparison of Key Findings

The two studies demonstrate that traditional cardiovascular risk factors remain important in ACS, while poorly controlled metabolic conditions and familial predisposition may contribute to its occurrence at a young age.^{1,2} The Brazilian cohort provides a broader epidemiological perspective, whereas the case report highlights a rare but clinically relevant presentation in a young patient.

CONCLUSION

Comparing the two studies demonstrates that acute coronary syndrome presents with varying occurrence profiles. In the Brazilian cohort, there was a predominance of adult and elderly patients and a high prevalence of cardiovascular risk factors—specifically arterial hypertension, overweight or obesity, diabetes mellitus, and prior coronary artery disease. In the case report, the occurrence of a heart attack in a 19-year-old patient was associated with difficult-to-control diabetes mellitus, dyslipidemia, and a strong family predisposition to coronary artery disease.^{1,2}

These findings reinforce the importance of preventing and controlling cardiovascular risk factors, as well as rapidly identifying acute coronary syndrome, even in young patients. This comparison broadens the understanding of the disease's diverse presentations and highlights the need for cardiovascular prevention and metabolic control strategies starting early in life. Further studies involving young populations and diverse geographic regions could help improve our understanding of the early onset of coronary events.

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