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CURRENT APPROACH TO ACUTE PERICARDITIS: TREATMENT STRATEGIES

Mauro De Deus Passos
Bachelor›s Degree – Medicine at the University of Brasília (UnB)

Ryan Rafael Barros De Macedo
Student – Medicine at the Apparecido dos Santos Central Plateau University Center (UNICEPLAC)

Júlia Stanczyk De Andrade
Student – Nursing at the City University of São Paulo (UNICID)

Livia Mayumi Takahashi
Student – Medicine at the Ingá University Center (UNINGÁ)

Alicia Superti Brasil Camejo
Student – Medicine at the University of Caxias do Sul (UCS)

Gabriel Evangelista Dos Santos
Student – Bachelor's Degree – Physical Therapy at Unesp – Faculty of Science and Technology (FCT-UNESP)

Nicoli Carminati Vettorazzi Martin
Student – Medicine at the University of Vila Velha (UVV)

Anna Glaucia Rodrigues Romão
Bachelor's Degree – Medicine at the University Center of Minas Gerais – Trindade Campus (Unifimes)

Chiara Julie Natividade De Maria
Bachelor's Degree – Medicine at the University of the State of Amazonas (UEA)

Camila Maria Rosolen Iunes
Student – Medicine at Anhanguera Uniderp University

Izadora Fernandes Marques
Student – Medicine at the Pontifical Catholic University of Goiás

Isabela Gimenes Pancini
Student – Medicine at Anhembi Morumbi University (UAM)

Abstract: Acute pericarditis is the most common condition affecting the pericardium, predominantly idiopathic or viral in etiology, whose diagnosis is established clinically by the presence of at least two of four classic criteria. Although most cases have a benign course, the main complication is the high recurrence rate, which significantly impacts patients' quality of life. This narrative review addresses current management strategies, highlighting first-line therapy based on the combination of nonsteroidal anti-inflammatory drugs (NSAIDs) and colchicine, which is essential for reducing the risk of recurrence. The role of corticosteroids as second-line therapy is discussed, whose use is limited by the increased risk of recurrence. For refractory and recurrent cases, understanding the autoinflammatory pathophysiology mediated by interleukin-1 has paved the way for targeted biological therapies, such as IL-1 receptor antagonists (anakinra, rilonacept), which have proven to be highly effective. Risk stratification, identifying the "inflammatory phenotype" (elevated CRP and pericardial effusion), is crucial for individualizing treatment and predicting outcomes. In extreme cases that progress to constrictive pericarditis, surgical pericardiectomy remains the only curative option.

Keywords: Acute Pericarditis; Treatment; Recurrent Pericarditis.

INTRODUCTION

Acute pericarditis, defined as inflammation of the pericardial layers, is the most common pericardial condition and one of the main inflammatory heart disorders (Lazarou et al., 2022; Shahid et al., 2023). Its incidence in the general popu-

lation of the Western world is estimated at approximately 27.7 cases per 100,000 inhabitants per year (Lazarou et al., 2022). The etiology is predominantly idiopathic or viral in developed countries, while tuberculosis remains a frequent cause in developing regions (Marques et al., 2021; Shahid et al., 2023). Other causes include autoimmune diseases, post-cardiac injury syndromes, and neoplasms (Imazio et al., 2025; Lorenzo-Esteller et al., 2024).

The diagnosis is eminently clinical, established by the presence of at least two of four criteria: pleuritic chest pain, pericardial friction on auscultation, typical electrocardiographic changes, and new or progressive pericardial effusion (Imazio et al., 2025; Lazarou et al., 2022). Although most cases have a benign and self-limiting course, the most challenging complication is recurrence, which can affect 15% to 35% of patients after a first episode, significantly impacting quality of life (Lazarou et al., 2022; Shahid et al., 2023). Other potential complications, although less common, include cardiac tamponade and constrictive pericarditis (Lazarou et al., 2022; Al-Saiegh et al., 2021).

METHODOLOGY

This study consists of a narrative review of the literature, designed to compile and examine the most current scientific evidence on the approach and treatment strategies for acute pericarditis. For the bibliographic survey, the PubMed database was used, employing the following descriptors: 'Pericarditis, Acute Disease', 'Treatment', and 'Diagnosis', which were linked with the Boolean operators AND and OR, in accordance with the terminology of Medical Subject Headings (MeSH). The inclusion criteria covered publications released in the most recent five-year period, with full text accessible in Portuguese or English, which directly addressed the central theme. Studies not directly related to the scope of the research, duplicate articles, narrative reviews with low methodological rigor, and publications not indexed in the database consulted were discarded. The article selection process was carried out in two phases: initially, a screening of titles and abstracts, followed by a complete analysis of the texts to verify their relevance. The data collected were synthesized and presented in a descriptive manner.

RESULTS AND DISCUSSION

Acute pericarditis can be broadly divided into infectious and non-infectious etiologies, although in a large proportion of cases, the cause may remain unidentified. In developed countries, idiopathic or viral pericarditis accounts for the majority of cases (Marques et al., 2021; Lazarou et al., 2022). Viral pericarditis is the most common among infectious forms (approximately 80–85%), often caused by enteroviruses such as Coxsackievirus and echovirus, but also by others such as influenza virus, herpesvirus, and, more recently, SARS--CoV-2. (Lazarou et al., 2022). Furthermore, in the pediatric population, the etiology differs from that of adults, and pericardial involvement in the context of COVID-19, including Pediatric Multisystem Inflammatory Syndrome (PIMS), requires special attention (Shahid et al., 2023). In contrast, in developing countries, tuberculosis (TB) is the most prevalent etiology, accounting for 70% to 80% of cases, and may be even more significant, reaching up to 90% in HIV-positive patients. Among the non--infectious etiologies (15–20%), there are

numerous causes, including systemic diseases such as autoimmune diseases (systemic lupus erythematosus, rheumatoid arthritis) and autoinflammatory diseases (familial Mediterranean fever) that deserve mention. Other important non-infectious causes include neoplastic diseases (mainly lung and breast cancer, lymphoma), metabolic diseases (uremia, myxedema), and post-cardiac injury syndromes (post-infarction, post-pericardiotomy, radiotherapy, and chemotherapy toxicity). Features such as fever > 38°C, subacute progression, significant pericardial effusion, and failure of NSAID treatment are predictors of a non-idiopathic/non-viral etiology. (Al-Saiegh et al., 2021; Marques et al., 2021; Lazarou et al., 2022)

The diagnosis of acute pericarditis is generally clinical, with the presence of at least two of the four clinical criteria, such as chest pain, pericardial friction rub, electrocardiogram (ECG) changes, and new or worsening pericardial effusion. The investigation involves a detailed medical history and physical examination, supplemented by chest X-ray, ECG, and blood tests that should include inflammatory markers such as C-reactive protein (CRP) and erythrocyte sedimentation rate (ESR), in addition to troponin. Transthoracic echocardiography (TTE) is the gold standard and first-line imaging modality, essential for identifying pericardial effusion (which can be small, moderate, or large), assessing signs of tamponade , and ventricular dysfunction. Patients who meet high-risk criteria or are suspected of having a secondary etiology, such as in the context of systemic diseases or neoplasia, require more extensive investigation (second level). This investigation may include serological markers of autoimmune diseases (such as antinuclear antibodies and anti-double-stranded DNA antibodies). (Lazarou et al., 2022). Risk stratification tools, such as the Torino Pericarditis Score, have also been developed to aid in the early identification of patients with a higher probability of developing complicated pericarditis (Lazarou et al., 2022). In addition, cardiac magnetic resonance imaging (CMRI) and cardiac computed tomography (CCT) are used as second-level tools, as they confirm pericardial inflammation (CMRI with late gadolinium enhancement and T2 edema), in addition to assessing the presence of associated myocarditis and investigating underlying diseases such as tuberculosis or neoplasms. CMR and CCT are also valuable for the evaluation of constrictive pericarditis, allowing the measurement of pericardial thickening (>4-6 mm) and the identification of calcifications (Marques et al., 2021). In complex cases, such as tamponade or suspected infection/malignancy, pericardiocentesis with cytological and cultural analysis of pericardial fluid may be necessary for better diagnostic clarification (Marques et al., 2021; Shahid et al., 2023).

The management of acute pericarditis is based on controlling inflammation and preventing recurrence (Lazarou et al., 2022). First-line therapy consists of a combination of full doses of nonsteroidal anti-inflammatory drugs (NSAIDs), such as ibuprofen or aspirin, combined with colchicine (Marques et al., 2021; Shahid et al., 2023). Colchicine has been shown to halve the recurrence rate and its use is recommended for three months in the first episode and for at least six months in cases of recurrence (Lazarou et al., 2022; Shahid et al., 2023). The NSAID dose should be maintained until symptoms resolve and C-reactive protein (CRP) normalizes, followed by a gradual reduction to

prevent new attacks (Marques et al., 2021; Lazarou et al., 2022). Proper adherence to the colchicine regimen and gradual weaning off NSAIDs are crucial not only for symptom resolution but also for preventing recurrence, significantly reducing the relapse rate (Lazarou et al., 2022; Marques et al., 2021).

Clinical follow-up after discharge is essential to ensure complete resolution of inflammation and reduce the risk of recurrence. It is recommended to periodically monitor inflammatory markers, such as C-reactive protein (CRP) and erythrocyte sedimentation rate (ESR), in addition to electrocardiogram and echocardiogram, adjusting the weaning of anti-inflammatory drugs according to clinical and laboratory response (Lazarou et al., 2022; Imazio et al., 2025). A gradual return to physical activity should only occur after the normalization of inflammatory parameters and complete resolution of symptoms, according to the clinical follow-up described in recent guidelines for the management of acute pericarditis (Lazarou et al., 2022; Imazio et al., 2025).

Corticosteroids are considered a second-line therapy, reserved for patients with contraindications to NSAIDs, therapeutic failure, or in specific contexts, such as autoimmune diseases (Shahid et al., 2023; Lorenzo-Esteller et al., 2024). Although they provide rapid symptomatic relief, their use is associated with an increased risk of recurrence, dependence, and significant adverse effects (Lazarou et al., 2022; Shahid et al., 2023). For this reason, the current recommendation is to use low to moderate doses (prednisone 0.2-0.5 mg/kg/day) and to wean off the medication extremely slowly, only after ruling out infectious causes (Lazarou et al., 2022).

For refractory cases, defined as corticosteroid-dependent recurrent pericarditis resistant to colchicine, understanding of the pathophysiology has evolved. The prevailing hypothesis is that these conditions behave like an autoinflammatory disease, primarily mediated by interleukin-1 (IL-1) (Marques et al., 2021; Lazarou et al., 2022). In addition to promoting remission in refractory cases, blocking the interleukin-1 pathway has been shown to be effective in reducing the frequency and severity of recurrences, constituting an emerging preventive strategy (Lazarou et al., 2022; Shahid et al., 2023). This understanding has paved the way for targeted biological therapies, such as IL-1 receptor antagonists (anakinra and rilonacept), which have been shown to be highly effective in inducing and maintaining remission in these complex patients (Shahid et al., 2023; Lazarou et al., 2022). For refractory cases, especially advanced constrictive pericarditis, surgical pericardiectomy remains the only curative option, although it is a procedure associated with high mortality (Marques et al., 2021; Shahid et al., 2023).

Risk stratification has become a crucial component of management. A recent study identified the "inflammatory phenotype," characterized by the simultaneous presence of elevated CRP and pericardial effusion at presentation, as an independent predictor of higher risk of recurrence (OR 2.005) and lower event-free survival (Imazio et al., 2025). Recognition of this phenotype allows the identification of patients who may benefit from closer monitoring and more individualized and potent therapy, such as the early use of anti-IL-1 agents (Imazio et al.,

2025). Treatment should be tailored to the underlying etiology, such as in cases associated with Graves' disease, where control of hyperthyroidism is essential, or in cancer patients, in whom NSAIDs should be used with caution (Estrela Santos et al., 2025; Lorenzo-Esteller et al., 2024). It is important to note that pericarditis associated with Graves' disease is a rare complication, but its management requires treatment of thyrotoxicosis, as underlying hyperthyroidism is closely linked to pericardial inflammation (Estrela Santos et al., 2025).

Other complex syndromes include effusive-constrictive pericarditis (ECP), a rare condition characterized by pericardial effusion and concomitant pericardial constriction (LORENZO-ESTELLER, 2024). ECP can be caused by infection, autoimmune disease, or radiation. The distinguishing feature of ECP, compared to pure tamponade, is persistently elevated right atrial pressure (>10 mmHg or a drop of less than 50% after pericardiocentesis).Echocardiography, although not the isolated gold standard for PCE, is essential for differential diagnosis, showing signs of restriction, such as abnormalities in interventricular septal kinetics and a restrictive transmitral flow profile (Al-Saiegh et al., 2021; Marques et al., 2021). The diagnosis of PCE can be aided by cardiac magnetic resonance (CMR), which detects inflammation and fibrosis (AL-SAIEGH, Yousif et al., 2021). Pericardial effusion, when symptomatic or associated with tamponade, requires intervention such as pericardiocentesis, prolonged drainage, or, in refractory cases, pericardial window. Colchicine may also be considered after pericardiocentesis for malignant effusions to reduce mortality and recurrences (LORENZO-ESTELLER, Laia et al., 2024).

The approach to malignant effusion, the most common pericardial syndrome in cancer, should be multidisciplinary, and the combination of pericardiocentesis with intrapericardial sclerotherapy (such as the use of bleomycin or thiotepa) can be employed to prevent recurrence, as suggested in some case series (Lorenzo-Esteller et al., 2024).

Clinical evolution, prognosis, and prevention of recurrence

Most patients with acute pericarditis have a benign course, with complete resolution of symptoms within a few weeks. However, recurrences are the most frequent complication, occurring in up to 30% of cases, especially when initial treatment is interrupted early or when there are underlying autoimmune etiologies (Lazarou et al., 2022; Imazio et al., 2025).

Persistent high levels of C-reactive protein (CRP) and the presence of significant pericardial effusion are prognostic markers of increased risk of recurrence and structural complications, characterizing the so-called "inflammatory phenotype." This phenotype is associated with a longer clinical course, the need for additional therapies, and a higher probability of progression to recurrent or constrictive forms of the disease. Early identification of these inflammatory parameters allows for more accurate risk stratification and the targeting of individualized approaches, reducing the duration of inflammatory activity and improving the overall prognosis of patients (Imazio et al., 2025).

In addition to pharmacological treatment and interventions targeting the acute phase, it should be noted that continuous and structured clinical follow-up after

symptom resolution is essential to ensure full recovery and reduce the risk of late complications, such as constrictive pericarditis — a condition characterized by thickening and loss of elasticity of the pericardium, resulting in limited diastolic filling and symptoms of systemic congestion (Imazio et al., 2025).

Recent evidence shows that prolonged monitoring and early detection of persistent inflammation are associated with a lower incidence of this complication and better functional outcomes (Imazio et al., 2025).

Thus, early recognition of risk factors and prolonged follow-up are fundamental pillars in the modern approach to acute pericarditis, optimizing prognosis and promoting safer, evidence-based clinical practice.

CONCLUSION

Pericardial pathology is common in cancer patients and is often present at the time of tumor diagnosis. Pericardial effusion is the most common clinical syndrome, but there is limited evidence on its management. Complementary measures to pericardiocentesis, such as treatment with colchicine, sclerosing agents, and balloon pericardiotomy, may reduce recurrences. (Lorenzo-Esteller et al., 2024)

Acute pericarditis is widely recognized as the most common inflammatory heart disease, often classified as idiopathic or viral, but notable for its high recurrence rate, ranging from 15% to 50% of cases (LAZAROU, Emilia et al., 2022). The pathophysiology of recurrence is driven by underlying dysimmune disorders, involving both the innate immune system response (typical of interleukin-1-mediated "autoinflammatory diseases") [IL-1] and inflammasome activation) and the adaptive response (typical of autoantibody-mediated "autoimmune diseases"). Standard treatment is based on the combination of aspirin or nonsteroidal anti-inflammatory drugs (NSAIDs) with colchicine, which has been shown to be effective in reducing the recurrence rate (MARQUES, Cindy, 2021). For refractory forms, particularly those dependent on corticosteroids, IL-1 receptor antagonists, such as Anakinra and Rilonacept, represent an emerging and effective therapeutic strategy, demonstrating rapid and sustained remissions. Prognostic risk factors are crucial, and the presentation of an inflammatory phenotype (elevated C-reactive protein and pericardial effusion) is independently associated with an increased risk of recurrence (IMAZIO, Massimo et al., 2025). Other relevant findings include the high prevalence of pericardial disease in cancer patients (often malignant effusion), which indicates an unfavorable prognosis (LORENZO-ESTELLER, Laia et al., 2024), the rarity of pericarditis associated with Graves' disease (as an autoimmune/metabolic complication) (ESTRELA SANTOS, Mariana et al., 2025), and the complex syndrome of effusive-constrictive pericarditis (ECP), whose distinctive diagnostic feature is persistently elevated right atrial pressure (>10 mmHg or a drop of less than 50%) after pericardiocentesis (AL-SAIEGH, Yousif et al., 2021).

The modern approach to acute pericarditis requires rigorous risk stratification, using tools such as the Torino Pericarditis Score, to guide therapy and follow-up (Lazarou et al., 2022). For the most severe and refractory cases that progress to constrictive pericarditis, pericardiectomy remains the only curative option, despite its high

associated morbidity and mortality (Marques et al., 2021). In addition, surveillance for emerging etiologies, such as pericardial involvement in COVID-19, is essential, especially in the pediatric population, where presentation and management may differ significantly from adults (Shahid et al., 2023).

REFERENCES

AL-SAIEGH, Yousif et al. Diagnosis and treatment of effusive-constrictive pericarditis: a case report. **European Heart Journal - Case Reports**, 2021. DOI: 10.1093/ehjcr/ytab174.

ESTRELA SANTOS, Mariana et al. Acute Pericarditis Associated With Graves' Disease: A Case Report. **Cureus**, v. 17, n. 2, e78588, 2025.

IMAZIO, Massimo et al. Outcomes of acute pericarditis with an inflammatory phenotype. **International Journal of Cardiology**, v. 423, p. 132945, 2025.

LAZAROU, Emilia et al. Acute Pericarditis: Update. **Current Cardiology Reports**, v. 24, p. 905-913, 2022.

LORENZO-ESTELLER, Laia et al. Pericardial Disease in Patients with Cancer: Clinical Insights on Diagnosis and Treatment. **Cancers**, v. 16, n. 20, p. 3466, 2024.

MARQUES, Cindy; CACOUB, Patrice. [Pericarditis]. **La Revue du Praticien Médecine** Générale, v. 71, n. 1, p. 79-83, 2021.

SHAHID, Rida et al. Pediatric Pericarditis: Update. **Current Cardiology Reports**, v. 25, p. 157-170, 2023.