Acute and Recurrent Pericarditis

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KEYWORDS

• Pericarditis • Diagnosis • Therapy • Prognosis

KEY POINTS

- Pericarditis may be due to infectious causes (mainly viruses and tuberculosis) and noninfectious causes (especially postcardiac injury syndromes, systemic inflammatory diseases, and cancer).
- The diagnosis of pericarditis is clinical and based on the presence of a minimal number of 2 clinical criteria (pericarditis chest pain, pericardial rubs, suggestive electrocardiographic changes, and new or worsening pericardial effusion).
- A triage of patients with pericarditis is warranted to identify high-risk cases to be admitted to hospital. High-risk features of a nonviral cause and complications especially include high fever (>38°C), subacute onset, cardiac tamponade, and large pericardial effusion.
- Empirical anti-inflammatory therapies are warranted to control chest pain and reduce the risk of recurrences especially by the use of weight-adjusted doses of colchicine.
- The prognosis is related to the underlying cause. Recurrences occur in 10% to 30% of cases after a first episode, and colchicine halves the recurrence risk. The risk of constriction is very low (<1%) in viral and idiopathic pericarditis and high for bacterial causes.

INTRODUCTION

Acute and recurrent pericarditis is the most common pericardial syndrome encountered in clinical practice. Pericarditis may occur as an isolated process or as a manifestation of a systemic disease (eg, inflammatory systemic disease).

Being at the interface of different medical and surgical specialties (eg, cardiology, internal medicine, rheumatology, cardiac surgery), pericarditis has remained the Cinderella of heart diseases for decades, and only in the last 10 to 15 years has received growing interest, first clinical trials and prospective cohort studies, and international guidelines for management.

The aim of the present review is to summarize the current knowledge on the cause, diagnosis, therapy, and prognosis of pericarditis with a focus on the last 5 to 10 years of studies that were more relevant for clinical practice.

Cause

The incidence of acute pericarditis has been reported as 27.7 cases per 100,000 person-years in an Italian urban area (North Italy), with concomitant myocarditis in about 15% of cases.[1] Pericarditis is responsible for 0.1% of all hospital admissions and 5% of emergency room admissions for chest pain.[2]

The cause of acute and recurrent pericarditis varies, and causes are essentially divided into infectious and noninfectious causes (**Box 1**).[3–7] Worldwide, the most common cause of acute pericarditis is tuberculosis, because of its high frequency in developing countries, where tuberculosis is endemic and often associated with human immunodeficiency virus infection.[8,9] In developed countries with a low prevalence of tuberculosis (eg, Western Europe and North America), viral agents are presumed to be the causative

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Box 1
Main causes of acute and recurrent pericarditis

Infectious causes:

Viral (common): Enteroviruses (coxsackieviruses, echoviruses), herpesviruses (EBV, CMV, HHV-6), adenoviruses, parvovirus B19 (possible overlap with etiologic viral agents of myocarditis)

Bacterial: Mycobacterium tuberculosis (common, other bacterial rare), *Coxiella burnetii*, *Borrelia burgdorferi*, rarely: *Pneumococcus* spp, *Meningococcus* spp, *Gonococcus* spp, *Streptococcus* spp, *Staphylococcus* spp, *Haemophilus* spp, *Chlamydia* spp, *Mycoplasma* spp, *Legionella* spp, *Leptospira* spp, *Listeria* spp, *Providencia stuartii*

Fungal (very rare): *Histoplasma* spp (more likely in immunocompetent patients), *Aspergillus* spp, *Blastomyces* spp, *Candida* spp (more likely in immunocompromised host)

Parasitic (very rare): *Echinococcus* spp, *Toxoplasma* spp

Noninfectious causes:

Autoimmune and autoinflammatory (common):

Systemic autoimmune diseases (especially systemic lupus erythematosus, Sjögren syndrome, rheumatoid arthritis, scleroderma);

Systemic vasculitides (eg,eosinophilic granulomatosis with polyangiitis or allergic granulomatosis, previously named Churg-Strauss syndrome, Horton disease, Takayasu disease, Behçet syndrome):

Other systemic inflammatory diseases (eg, sarcoidosis, inflammatory bowel diseases);

Autoinflammatory diseases (Familial Mediterranean fever, tumor necrosis factor [TNF] receptor TRAPS)

Neoplastic:

Primary tumors (rare, above all pericardial mesothelioma)

Secondary metastatic tumors (common, above all lung and breast cancer, lymphoma)

Metabolic:

Uremia

Traumatic and iatrogenic:

Early onset (rare):

Direct injury (penetrating thoracic injury, esophageal perforation)

Indirect injury (nonpenetrating thoracic injury, radiation injury)

Delayed onset:

Pericardial injury syndromes (common) postmyocardial infarction syndrome, postpericardiotomy syndrome, posttraumatic, including forms after iatrogenic trauma (eg, coronary percutaneous intervention, pacemaker lead insertion, and radiofrequency ablation)

Drug-related (rare):

- Lupuslike syndrome (procainamide, hydralazine, methyldopa, isoniazid, phenytoin);
- Antineoplastic drugs (often associated with a cardiomyopathy, may cause a pericardiopathy): doxorubicin and daunorubicin, cytosine arabinoside, 5-fluorouracil, cyclophosphamide;
- Hypersensitivity pericarditis with eosinophilia: penicillins, amiodarone, methysergide, mesalazine, clozapine, minoxidil, dantrolene, practolol, phenylbutazone, thiazides, streptomycin, thiouracils, streptokinase, p-aminosalicylic acid, sulfa-drugs, cyclosporine, bromocriptine, several vaccines, granulocyte-macrophage colony-stimulating factor, anti-TNF agents

Related to management issues (for recurrences, common):

- Inappropriate dosing and/or tapering of anti-inflammatory medical therapy
- Lack of exercise restriction during the acute phase

A simple classification is to divide into infectious and noninfectious causes.
Abbreviations: HHV, human herpes virus; spp, species; TRAPS, TNF receptor associated periodic syndrome.