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Review Article

**COLCHICINE IN THE MANAGEMENT OF PERICARDITIS:
A COMPREHENSIVE REVIEW**¹Asma Anjum, ²Ayesha Batool, ³Fouzia Khan¹Doctor of pharmacy graduate. Department of Cardiology / Clinical Pharmacy
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Glenfield Mallareddy Brain Heart Hospital, Hyderabad, India**Abstract**

Pericarditis is a frequently encountered inflammatory cardiac disorder with a significant risk of recurrence and morbidity. Conventional treatment with nonsteroidal anti-inflammatory drugs (NSAIDs) alone has been associated with suboptimal outcomes, particularly in recurrent cases. Colchicine, a well-established anti-inflammatory agent, has emerged as an effective adjunct therapy in the management of both acute and recurrent pericarditis. This review summarizes the pathophysiology of pericarditis, pharmacological properties of colchicine, evidence from clinical trials, therapeutic indications, dosing strategies, safety considerations, and current guideline recommendations. Data from multiple randomized controlled trials demonstrate that colchicine significantly reduces recurrence rates, symptom persistence, and hospitalization. Its integration into standard treatment protocols has improved overall patient outcomes. Careful patient selection and monitoring remain essential to optimize benefits and minimize adverse effects.

Keywords: Colchicine, Pericarditis, Recurrent pericarditis, Anti-inflammatory therapy, Cardiovascular pharmacotherapy

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1. INTRODUCTION:

Pericarditis accounts for approximately 5% of emergency department presentations with chest pain. It is characterized by inflammation of the pericardial layers due to infectious, autoimmune, post-cardiac injury, or idiopathic causes. Although acute pericarditis is often self-limiting, recurrence occurs in 20–30% of patients, increasing to nearly 50% in untreated or inadequately treated cases. The addition of colchicine to standard therapy has significantly reduced recurrence rates and improved symptom control.

2. PATHOPHYSIOLOGY OF PERICARDITIS

Pericarditis results from activation of the innate immune system following a triggering event such as viral infection, myocardial injury, or systemic inflammation. This leads to recruitment of inflammatory cells, particularly neutrophils, and release of pro-inflammatory cytokines such as interleukin-1 (IL-1) and interleukin-6 (IL-6). The resulting inflammatory cascade causes pericardial irritation, fluid accumulation, and characteristic clinical features including chest pain and electrocardiographic changes.

3. MECHANISM OF ACTION OF COLCHICINE

Colchicine exerts its therapeutic effect through multiple mechanisms:

- Inhibition of microtubule polymerization
- Suppression of neutrophil chemotaxis and adhesion
- Inhibition of NLRP3 inflammasome activation
- Reduction in cytokine release

These actions collectively decrease the inflammatory response within the pericardium, leading to reduced symptom duration and recurrence.

4. PHARMACOKINETIC PROFILE

Parameter	Description
Absorption	Rapid oral absorption
Bioavailability	Approximately 45%
Metabolism	Hepatic (CYP3A4 mediated)
Elimination	Biliary and renal
Half-life	20–40 hours

5. CLINICAL EVIDENCE

Several landmark randomized controlled trials have established the role of colchicine in pericarditis:

Trial	Study Population	Key Outcome
COPE	Acute pericarditis	Reduced recurrence
ICAP	Acute pericarditis	Reduced symptom persistence
CORP	Recurrent pericarditis	Reduced recurrence
CORP-2	Multiple recurrences	Significant benefit

These studies consistently demonstrated that colchicine, when added to NSAIDs, improves clinical outcomes and reduces relapse rates.

6. INDICATIONS

Colchicine is recommended in the following conditions:

- Acute pericarditis (first episode)
- Recurrent pericarditis
- Post-pericardiotomy syndrome
- Idiopathic and viral pericarditis

7. DOSAGE AND ADMINISTRATION

Body Weight	Dose	Duration
<70 kg	0.5 mg once daily	3 months
≥70 kg	0.5 mg twice daily	3 months
Recurrent	Same dose	6–12 months

Clinical considerations:

- Loading dose is generally avoided to improve tolerability
- Dose reduction required in renal or hepatic impairment
- Careful use in elderly patients

8. TREATMENT APPROACH

Initial diagnosis of pericarditis is followed by initiation of NSAIDs combined with colchicine. Clinical response is assessed within 1–2 weeks. Patients with good response continue therapy for the recommended duration, while those with inadequate response may require corticosteroids. Refractory cases may benefit from targeted immunotherapy such as IL-1 inhibitors.

9. SAFETY PROFILE

Common adverse effects

- Diarrhea
- Nausea
- Abdominal discomfort

Serious adverse effects

- Myopathy
- Bone marrow suppression
- Hepatotoxicity

10. DRUG INTERACTIONS

Drug/Class	Effect
Macrolide antibiotics	Increased toxicity
CYP3A4 inhibitors	Elevated colchicine levels
Statins	Increased risk of myopathy

11. CONTRAINDICATIONS

- Severe renal impairment
- Severe hepatic disease
- Concomitant use with strong CYP3A4 inhibitors
- Known hypersensitivity

12. GUIDELINE RECOMMENDATIONS

According to the European Society of Cardiology (ESC) guidelines, colchicine is recommended as first-line adjunct therapy in both acute and recurrent pericarditis. The recommended duration is 3 months for acute cases and 6–12 months for recurrent disease.

13. ADVANTAGES

- Reduces recurrence by approximately 50%
- Steroid-sparing effect
- Cost-effective and widely available
- Well tolerated at low doses

14. LIMITATIONS

- Gastrointestinal intolerance in some patients
- Potential drug interactions
- Requirement for prolonged therapy

15. FUTURE DIRECTIONS

Recent advances in targeted therapy, particularly IL-1 inhibitors such as anakinra and rilonacept, have shown promise in refractory pericarditis. However, colchicine remains the cornerstone of therapy due to its established efficacy, safety, and accessibility.

16. CONCLUSION:

Colchicine has significantly transformed the management of pericarditis by reducing recurrence rates and improving clinical outcomes. Its use as an adjunct to NSAIDs is strongly supported by clinical evidence and guideline recommendations. Appropriate dosing, patient selection, and monitoring are essential to maximize therapeutic benefits and minimize risks.

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