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Pericarditis: Treatment and Indications for Admission

Case: 17-year-old male with no past medical history presents with sharp, retrosternal chest pain and shortness of breath for the past six hours. These symptoms began acutely at 3 am, waking the patient from sleep, and have been present constantly since then. The symptoms are worsened by the patient lying down or taking deep breaths. He denies fever, recent illnesses, alcohol/drug use, and has no family history of heart disease. His workup includes labs showing an elevated CRP with normal cardiac markers, a chest x-ray showing a moderate globular enlargement of the cardiac silhouette, and an EKG showing 1st degree A-V block and diffuse 1 mm ST segment elevation. The patient is diagnosed with pericarditis and has a bedside echo performed showing a moderate pericardial effusion.

Clinical Question: What is the recommended treatment regimen for acute pericarditis and what are the indications for admission?

Evidence: Most cases of acute pericarditis are either **idiopathic or secondary to viral infections and will resolve spontaneously over 1-3 weeks**. However, symptoms can be managed with a course of NSAIDs and other adjuncts. The current recommended pharmacologic therapies include **NSAIDs, colchicine, and glucocorticoids**[1].

- **NSAIDs:** Aspirin, ibuprofen, indomethacin, and IM/IV ketorolac have been shown to be effective in relieving symptoms of pericarditis through observational studies. One such study in 2004 looked at treating pericarditis with an aspirin regimen and found that 87% of patients had a complete resolution of symptoms. The recommended treatment length is 7-14 days. However, treatment should then be tapered until complete resolution of symptoms or until the CRP returns to normal. Recommended dosing is aspirin 650-975 mg TID or ibuprofen 400-800 mg TID[1]. A few small observational studies suggest that no NSAID is more effective than any other in treatment. Ibuprofen is generally preferred since it has the lowest rate of side effects but aspirin should be used in any patient that has a history of myocardial infarction[2].
- **Colchicine:** Colchicine has been shown in recent studies to be effective in treating symptoms of pericarditis. The COPE trial in 2005 was a prospective trial that randomized 120 pts with their first episode of acute pericarditis to receive aspirin and colchicine or just aspirin alone. In the aspirin plus colchicine group there was a **significant reduction in symptoms at 72 hours and a reduction in recurrence rates at 18 months** giving a number needed to treat of 5 to prevent recurrence[3]. The recommended dosing is 0.5-0.6 mg BID for up to 3 months. Colchicine is usually well tolerated with the main side effect being diarrhea[1].
- **Glucocorticoids:** Steroids are not currently recommended for first line treatment of pericarditis. They have been shown to have higher recurrence rates after the steroid is stopped and they should only be used in patients who are **refractory to the initial treatment of NSAIDs and colchicine**. The recommended cardiology dosing is 1 mg/kg/day for 2 weeks and then a slow taper[1].

In terms of needing admission, concerning signs for a poor prognosis are **fever, subacute onset, associated myocarditis, a large pericardial effusion or any concerning signs of impending**

cardiac tamponade, immunosuppressed patients, or patients with a history of anticoagulation[4]. Patients with these risk factors may benefit from admission to be closely monitored for development of tamponade or purulent pericarditis. One study reported 253 patients with acute pericarditis, none of which had any of these poor prognostic signs, and none of the patients had serious complications during the average follow-up of 39 months when treated as outpatients[2].

Summary: The current recommended treatment regimen for acute pericarditis is NSAIDs, either aspirin or ibuprofen, for 2 weeks and colchicine for 3 months. Glucocorticoids should only be used in patients with refractory pericarditis. Most patients do well as outpatients, but some may benefit from admission if they have poor prognostic factors on initial presentation.

References:

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