



Title: study of patients admitted with acute pericarditis in a tertiary care centre.

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ABSTRACT

Aim: A detailed analytical study of clinical features, investigations and treatment of patients with acute pericarditis.

Method: Clinical case records were collected from October 2012 to October 2014 (2 years) of all the patients admitted with acute pericarditis in L.G. General hospital. Variables like chest pain and its characteristics, associated symptoms, investigation details, treatment modalities and condition on discharge were noted.

Results: Total 59 patients were included with 73.9% male and mean age of presentation was 38.8 years. Typical pleuritic type of chest pain was present in about twothird while other had dullaching, feeling of heaviness or nonspecific types of chest pain. A pericardial rub was present in only 7 cases. ECG changes of upsloping ST elevation was present in 69.3% while PR segment depression was present in 43%. None of the patients were treated with colchicines in our study.

Conclusions

Acute Pericarditis is one of the clinical conditions which may not follow the classical clinical description. Admission and discharge decisions appear to relate to individual clinical characteristics rather than known risk factors. Use of colchicines may have a promising role to prevent recurrence.

KEYWORDS : acute pericarditis, Pleuritic chest pain, Pericardial rub, ECG Changes in acute pericarditis, colchicine, recurrent pericarditis..

Introduction

Acute pericarditis is an important differential diagnosis in assessment of acute chest pain. Review articles have summarised understanding of the clinical presentation and management of acute pericarditis although based on minimal original data.[1,2] There are few studies of the investigation or management of these patients with the exception of limited studies reviewing echocardiography, troponin use and some specific treatment modalities.[3,9]

Recognition of the ECG findings in pericarditis is important in the assessment of acute chest pain and typical ECG changes are frequently described.[5,7,8]. Small studies have found that troponin rises are relatively common in acute pericarditis but are not associated with an increased risk of complication.[3,5]

Imazio et al [3] describe a management programme for outpatient therapy of low risk acute pericarditis diagnosed in a day hospital setting, but do not describe the population presenting to an ED, or the management of higher risk cases. Acute pericarditis has traditionally been treated with non-steroidal anti-inflammatory drugs (NSAIDs), but recurrence rates have been estimated at up to 32%.[10] The use of colchicine as a treatment for first and recurrent presentations of acute pericarditis has demonstrated a reduction in recurrence in both settings.[6,9,10]

The broad aims of this study were to describe the clinical features, ECG manifestations, investigation, management and disposition of adult patients who received an ED diagnosis of acute pericarditis. Comparison of patient groups was undertaken based on previously defined risk factors.

Methods)

Study design and Subjects

This study was undertaken at L.G. Hospital, an urban Tertiary care hospital. Approval to conduct the study was obtained from the hospital ethic committee. A retrospective medical case review of all the patients diagnosed as pericarditis was undertaken over two years, October 2012 to October 2014.

Data acquisition:

Following case identification, medical records were obtained and

those not fulfilling the correct diagnosis were excluded. Data extracted included patient demographic characteristics, medical history, presenting symptoms, vital signs, physical examination findings, investigation results, treatment, subsequent disposition and follow up. These data were directly entered into a pre-formatted Microsoft Excel 2007 spreadsheet with variables designed after a review of pericarditis literature.

Statistical Analysis

. Means with SD were calculated for continuous variables, and proportions with 95% CI for categorical variables. Based on evidence from previous studies, patients were divided into high and low risk groups for comparative analysis. Statistical significance was assessed using the t test or χ^2 or Fisher's exact test, respectively. Significance was set at 0.05.

Conclusion

This study has demonstrated the clinical features, investigations and management of acute pericarditis in a tertiary care centre.. Classically described clinical and electrocardiographic features are not present in all patients. In particular, ST-segment elevation was present in approximately 70% of patients, pleuritic pain in approximately two-thirds, and postural changes in pain or PR-segment depression in less than half of the patients with the diagnosis.

Based on current evidence, Colchicine should be used routinely in addition to NSAIDs, as a first line treatment for acute pericarditis, which may reduce recurrence.

Discussion

This is a retrospective analytical study of patients admitted with Acute pericarditis in a tertiary care centre. While many of the clinical features and investigations are similar to current understanding of the disease, some findings are not typical.

Chest pain was present in all patients but typical sharp stabbing retrosternal pain, radiating to back was not common. Around half patients described pain as dull aching or other types which may be confused with acute coronary syndrome.

It is important to note that examination findings are not much helpful for diagnosis of acute pericarditis. Classical finding of pericardial rub

was present in only 7/59 no. of patients, though it is highly specific for acute pericarditis according to some studies.

Amongst investigations, typical ECG changes of ST elevation with PR segment depression has highest diagnostic value. All three patients with a low voltage QRS had pericardial effusion. Troponine test is mainly helpful to rule out acute coronary syndrome. Although lesser amount of Troponine elevation was present in – no. of patients.[3,4,5]. Echocardiography showed small or trivial pericardial effusion in majority of patients and two cases had evidence of right atrial diastolic collapse. Constrictive pericarditis was present in two cases.

The high percentage of patients treated with NSAIDs reflects conventional practice, but no cases were treated with colchicine. Evidence suggests colchicine in addition to NSAIDs reduces recurrence rates of pericarditis following a first presentation [6,9]. Of note, however, three patients were treated with steroids despite good evidence that use of corticosteroids can favour recurrence.[10] Limitations

As, there is no Goldstandard criteria for diagnosis of acute pericarditis, we have to combine different clinical features and examination points to reach to final diagnosis. Our study is based on retrospective data analysis, so it may be erroneous if medical documentation in the

notes is not adequate.

Results

Total 80 patients were identified admitted in L.G. hospital with diagnosis of pericarditis, pericardial effusion, pericardial tamponade or pneumopericardium. Of those, 21 were

excluded because of non availability of complete records.

1) Demographic profile

The mean age of presentation was 38.8 (SD-17.4) and 40 /59 (95% CI 66.4% to 81.5%) were men. Mean age of Index presentation for male patients was 37 years compared to 44.1 years for female (p=0.043). Total 5 patients had previous hospitalization with acute pericarditis. Past history of tuberculosis was present in 6 /59 patients.

2) Clinical presentation

Most of the patients described chest pain as pleuritic type 39/59(66.5%, 95% CI 59.1 to 73.4%) more with inspiration, but typical history of radiation to left shoulder was present in only 4/59 (6.7%, 95% CI 3.5 to 11.4%) [Table 1]. Associated symptoms like shortness of breath and presyncope were recorded. Duration of symptoms prior to hospitalization ranged from 1 to 4 weeks although one patient had symptoms of 4 months duration. 27 presentations (95% CI 15% TO 27.4%) had history of 1-2 days duration.

TABLE 1 : CHARACTERISTICS OF CHEST PAIN

no	Symptoms	Number%	%(95% CI)
1	Chest pain	56 (95.5)	91.3 to 98.0
2	Pleuritic pain	39 (66.5)	59.1 to 73.4
3	Postural change in pain	27 (46.4)	38.9 to 54.0
4	Pain with inspiration	27 (46.4)	38.9 to 54.0
5	Character of pain	45 (76)	69 to 82.1
	Sharp	27 (50)	41.3 to 58.7
	Dull aching & other	23 (38)	33.6 to 43
6	Retrosternal pain	35 (59.2)	51.6 to 66.5
7	radiation		
	No radiation	14 (23.5)	17.5 to 30.4
	Multiple regions	9 (14.5)	9.7 to 20.5
	Neck/ jaw/throat	5 (8.4)	4.8 to 13.5
	back	4 (6.7)	3.5 to 11.4
	arm	3 (4.5)	2.0 to 8.7
	Left shoulder	17 (28.1)	.9 to 6.4
8	Associated symptoms		
	Shortness of breath	20 (33.5)	26.6 to 40.9
	Nausea/vomiting	14 (11.7)	4.3 to 12.7
	lightheadedness	7 (7.8)	7.4 to 17.3
	Dysphagia	1 (0.8)	.1 to 4.0

	Recent infection	16 (27.4)	21 to 34.6
	syncope	1	.1 to 4.0

3) physical examination

Only /59 had elevated temperature recorded. /59 had elevated JVP. Tachycardia was present in all the patients. Increased respiratory rate (>20) commonly recorded. A typical pericardial rub was recorded in no. of patients.

4) investigations

TABLE 2: ECG CHANGES

ECG Findings	No. %	%(95% CI)
ST Elevation	41 69.3	62.0 to 76.0
PR Depression	29 49.2	41.7 to 56.8
ST Depression	16 27.4	21.0 to 34.6
PR Elevation	16 27.4	21.0 to 34.6
No abnormality	11 17.9	12.6 to 24.3
Abnormal Twave	7 11.2	7.0 to 16.8
Low voltage QRS	1 1.7	0.4 to 4.9
Electrical alternans	0 0	0

[Table 2]. All the patients had ECG done. Typical ST Elevation 41/59 69.3% (95% CI 62.0 to 76%) with PR Depression 29/59 49.2% (95% CI 41.7 TO 56.8) was recorded in less than half of patients. ST Depression and PR elevation was present in 16/59 27.4% (95% CI 21.0 to 34.6). Positive Troponine test was present in 4/59 patients 6.4% (95% CI 3.1% to 11.5%). Thyroid function test detected one patient with hyperthyroidism.

CXR	No. %	%(95% CI)
Performed	59 90.5	85.2 to 94.4
Normal	44 74.7	67.3 to 81.2
Infiltrate, opacity or consolidation	5 8.0	4.3 to 13.3
Enlarged heart	3 4.3	1.7 to 8.7
atelectasis	1 1.8	0.4 to 5.2
other	16 9.9	5.8 to 15.8

Echocardiography reports were available for review in 19 (31.8% (95% CI 25.0% to 39.2%) presentations. Of those performed, 9 (56.1% (95% CI 42.3% to 69.2%)) were normal and a pericardial effusion was seen in 10 studies (29.8% (95% CI 18.4% to 43.4%)). Although most effusions were small or trivial in size, two cases had evidence of right atrial diastolic collapse. Constrictive pericarditis was present in 2 patients.

Treatment

Treatment details were recorded in 58 (96.6% (95% CI 92.8% to 98.7%)) presentations. The most frequent medications used were NSAIDs, which were given in 84.4% (95% CI 78.1% to 89.5%) of cases. Colchicine was not used in any patients, of which two were repeat presentations. A wide variety of other medications were used in 15 (26.6% (95% CI 20.2% to 33.8%)) presentations, including antacids, anticoagulants, antianginal agents and antibiotics. Three patients were given corticosteroids. One patient required pericardiocentesis.

Cause

The underlying cause of pericarditis was not defined, or was documented as idiopathic in 45 (74.8% (95% CI 67.8% to 81.0%)) of cases in this study. A presumed viral pericarditis was recorded in 11 patients (17.3% (95% CI 12.1% to 23.7%)). Two patients had constrictive pericarditis and one had cardiac tamponade.

Discharge and Followup

All of the patients were discharged from hospital and average length of stay was 6 days. No mortality was found. Two patients with con-

strictive pericarditis were discharged with antitubercular drugs.

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