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ORIGINAL ARTICLE

STUDY OF AGE, SEX AND ETIOLOGIC SPECTRUM OF PERICARDIAL EFFUSION IN TERTIARY CARE HOSPITAL

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ABSTRACT: Pericardial effusion is perhaps one of the most commonly overlooked clinical conditions and definite establishment of etiological agent is not always easy, successful or satisfactory. In this study, 50 cases of pericardial effusion admitted in Medical wards were analysed with emphasis on pattern of age and gender distribution, clinical presentation and etiology. The incidence of pericardial effusion common in age group between 21-40 years. The incidence of pericardial effusion is more in males. In the present study, the youngest patient is 15 year old and the oldest is 62 year old. Breathlessness being commonest symptom and raised JVP Is commonest sign. 60% of cases are of tuberculosis etiology, 15% are due to uremia and malignancy each, and 5% due to collagen vascular disease.
KEYWORDS: Pericardial Effusion, Tuberculosis, Uremia, Cardiac Tamponade.

INTRODUCTION: The pericardium has interested outstanding physicians from the biblical past to the current era. Knowledge of pericardial disease dates back to the time of GALEN [A.D 131-201], who gave the pericardium its name.

It is often involved by processes that affect the heart, but it may also be involved by diseases of adjacent tissues and may itself be a primary site of disease.[1,2] Etiologic studies of pericardial effusion have been done in the west and a viral etiology has been commonly reported but in tropics, etiologic spectrum could be much different because of different social, economic, nutritional and immunologic factors.[3,4,5]

AIMS AND OBJECTIVES:

1. To study the pattern of age, sex distribution, clinical presentation and etiology of moderate to large sized pericardial effusion in medical wards.
2. To study the prevalence of tubercular pericardial effusion
3. To study the incidence of cardiac tamponade.

MATERIALS AND METHODS: The patients admitted in the medical wards of Govt. General Hospital with the suspicion of pericardial effusion over period of 18 months were taken for study.

Detailed case history was taken for all the cases followed by a thorough clinical examination. This was followed by a set of lab tests to confirm clinical diagnosis.

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In all cases:

1. Urine examination.
2. Hemogram.
3. ESR.
4. Blood sugar.
5. Blood urea.
6. Serum creatinine.
7. Serum electrolytes.
8. Chest x- ray.
9. Electrocardiography.
10. Echocardiography.

Wherever Necessary:

1. ASO titers.
2. RA factor.
3. Antinuclear antibodies, Anti ds DNA antibodies.
4. Serum cholesterol.
5. Thyroid profile.
6. Cardiac enzymes.
7. Mantoux test.
8. Pericardiocentesis and fluid analysis.
9. CT scan chest.

BASIS OF DIAGNOSIS: The diagnosis of the cause of pericardial effusion is not an easy one and requires a battery of investigations and sometimes may not be revealed even then.

In this study, routine urine and blood investigations, and specific investigations based on diagnostic suspicion were taken up. In all cases, electrocardiography and chest radiography were done, in those where the findings suggested a diagnosis of pericardial effusion, its presence was confirmed by echocardiography.

To find the etiology, pericardial fluid analysis was done including volume, colour, specific gravity, proteins, cell count, ADA levels, Grams and AFB staining and culture for pyogenic organisms and mycobacteria. The diagnosis of tuberculous effusion was based on increased erythrocyte sedimentation rate, lymphocytosis in blood, positive Mantoux test, exudative effusion on pericardial fluid analysis, increase in pericardial fluid ADA levels, with or without a positive AFB stain and mycobacterial culture. Other causes of effusion were simultaneously ruled out.

In one case of tuberculous effusion there was associated cervical lymphadenitis confirmed as tuberculosis on biopsy.

In uremic effusion, uremic symptoms in patient, an increased serum creatinine, electrolyte abnormalities in serum, ultrasound evidence of kidney disease were taken into account and other causes of effusion were ruled out. In the malignant effusions which were studied, one patient had a history of carcinoma breast, underwent radical mastectomy five years back and had developed secondaries brain who presented with an effusion which was exudative on analysis. Other causes of effusion were ruled out. In other case, patient had adenocarcinoma fundus of stomach and

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thickening of pericardium on CECT chest. In another case patient had bronchogenic carcinoma with mediastinal lymphadenopathy.

The diagnosis of pericardial effusion in SLE was based on criteria for clinical diagnosis of SLE as per American rheumatology association, demonstration of antinuclear antibodies and anti-double standard DNA antibodies. In one case where pericardial effusion was associated with Ebsteins anomaly, the routine urine and blood investigations were normal, pericardial fluid was transudate, ANA, anti-ds DNA anti bodies were negative, no other systemic disease was made out, hence the effusion was categorized as Ebsteins anomaly associated with idiopathic effusion.

Pericardiocentesis was avoided in those cases where there was a contraindication in the form of prolonged bleeding time, as in uremic effusions and in those cases where the diagnosis was obvious on other investigations.

OBSERVATION AND DISCUSSION: Pericardial effusion is perhaps one of the most commonly overlooked clinical conditions and definite establishment of etiological agent is not always easy, successful or satisfactory. In this study, 50 cases of pericardial effusion were analysed with emphasis on age and gender distribution, clinical presentation and etiology.

A. AGE AND SEX INCIDENCE IN PERICARDIAL EFFUSION: As shown in table number 1, the highest age incidence of pericardial effusion between 21-40 years. The youngest patient is 15 year old and the oldest is year old.

J. C. Banerjee et al[6] in their study, observed that the peak age incidence was between 21-30 years. In the study of Pillay,[7] the greatest incidence was between 20-40 years.

Age	Number of Patients	Percentage
11-20	5	10%
21-30	20	40%
31-40	7	15%
41-50	8	15%
51-70	10	20%

Table 1: Showing the age incidence

The incidence of pericardial effusion is more in males, that is 65%. Banerjee[6] et al reported 60% incidence in males in their study. Pillay[7] reported 80% incidence in males in their study of 40 cases.

Sex	Number of Patients	Percentage
Male	32	65%
Female	18	35%

Table 2: Showing the sex incidence

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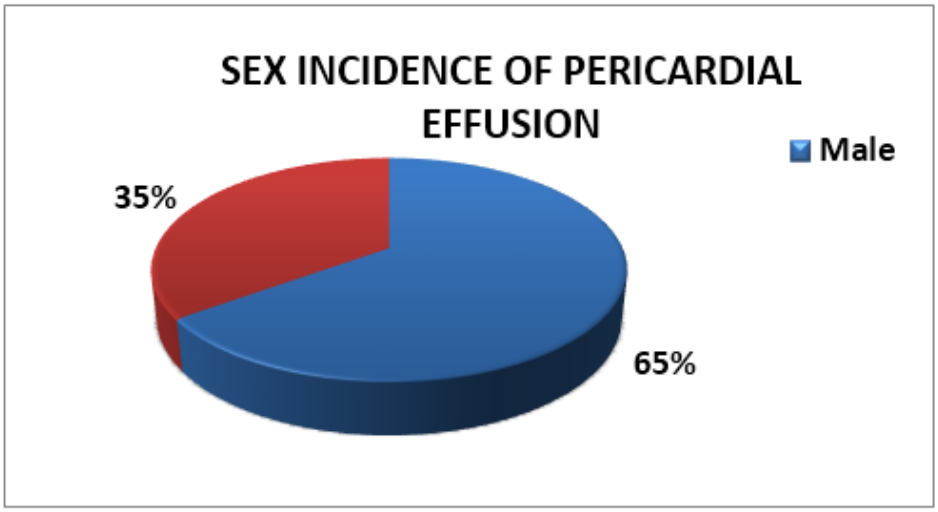

B. SYMPTOMATOLOGY: Breathlessness on exertion or rest is one of the earliest and most disabling symptom. In the present study, dyspnea is present in 100% of cases. The next common symptom is fever which is present in 60% of cases. John Hageman et al reported dyspnea as predominant symptom in their study.

Berry and Banerjee reported breathlessness in 65% of cases in their study. Banerjee reported fever in 60% of cases in his study. Hageman[8] et al reported fever as a predominant symptom in 73% of cases. Banerjee JC[9] observed fever in 80% of their cases. Chest pain is observed in 30% of cases in this study. Hageman reported chest pain in 39% cases. In the present study, swelling of feet is present in 80% of cases. In the study of Berry and Banerjee, swelling of feet was observed in 60% cases. Hageman et al reported swelling of feet in 55% of cases. Banerjee reported swelling of feet in 50% of cases.

Symptoms	No. of Patients	Percentage
Pyrexia	30	60%
Dyspnea	50	100%
Chest Pain	15	30%
Loss of Weight	20	40%
Swelling of Feet	40	80%
Distension of Abdomen	20	40%
Night Sweats	25	50%

Table 3: Showing symptoms

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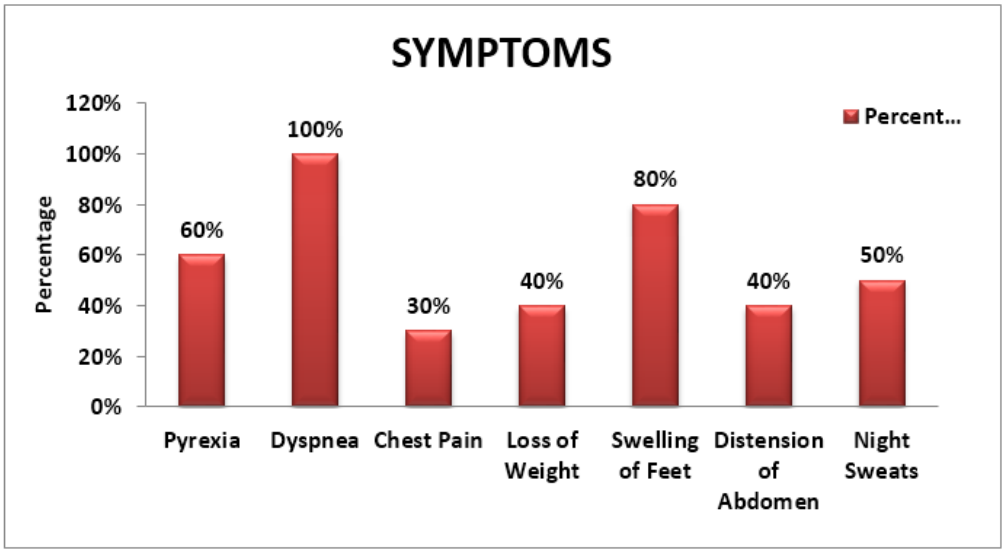

Signs	No. of Patients	Percentage
Pedal Edema	40	80%
Lymphadenopathy	5	10%
Tachycardia	30	60%
Pulsus Paradoxus	15	30%
Raised Jugular Venous Pressure	45	90%
Hepatomegaly	40	80%
Impalpable Apex	25	50%
Cardiomegaly	50	100%
Distant Heart Sounds	25	50%
Pericardial Rub	15	30%
Ewarts Sign	15	30%

Table 4: Showing signs

The commonest sign noted in the present study, is raised jugular venous pressure, seen in 100% of cases. Berry and Banerjee[6] reported raised JVP in 55% cases. Banerjee reported raised JVP in 56% of cases. Hageman[8] reported raised JVP in 59% cases. In the present study, hepatomegaly is observed in 80% of cases. Banerjee et al reported hepatomegaly in 60% cases. In the present study, pulsus paradoxus is noted in 30% cases, which coincides with the study of Banerjee.[9,5]

Hageman et al reported pulsus paradoxus in 45% cases in their series. In the present study, Ewarts sign is observed in 30% of cases. Banerjee[6] observed Ewarts sign in 16% cases. Hageman et al reported Ewarts sign in 20% cases. In the present study, pericardial rub is observed in 30% cases. Banerjee[6] reported rub in 25% cases. Berry and Banerjee[6,9] reported rub in 50% cases. Hageman reported rub in 41% cases

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C. ETIOLOGY OF PERICARDIAL EFFUSION: The diagnosis of pericardial effusion is by demonstration of tubercle bacilli in the smear of pericardial effusion or by the growth of tubercle bacilli in culture.[10] The diagnosis of tuberculous effusion is difficult because of rarity of direct bacteriological proof. However the diagnosis may be suggested by Insidious onset, low grade fever, associated pleural effusion, tuberculous lung lesion, matted lymph nodes, sterile pericardial fluid, and response to anti tuberculous treatment.

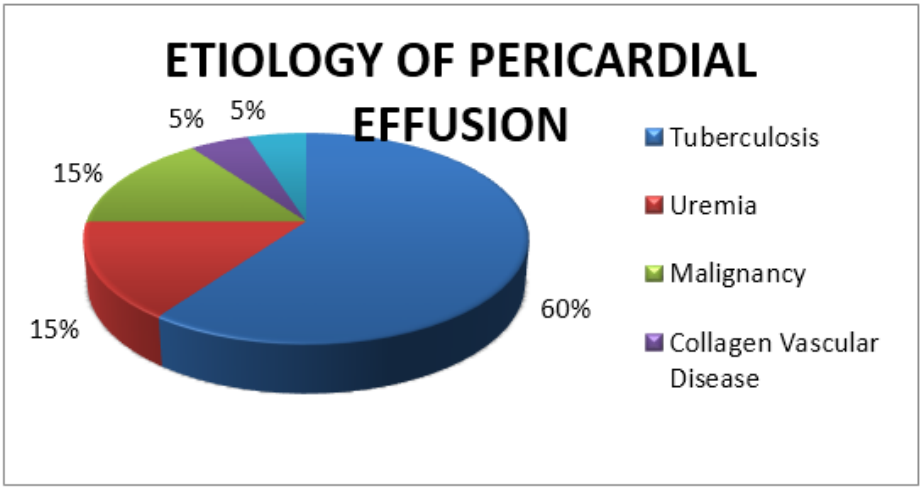
In the present study, 60% of cases are of tuberculous etiology, 15% are due to uremia and malignancy each, and 5% due to collagen vascular disease.

In the series of Pillay,[7] 52.5% cases were of tuberculous etiology. In the series of Banerjee, 62.5% cases were of tuberculous etiology. J.N Berry and Banerjee[6] reported 60%cases of tuberculous etiology in their series. Their incidence of malignant etiology was 5.56% and incidence of pyogenic etiology 2.78%.

In the present study of 50 cases of pericardial effusions of different etiology, the following signs and symptoms were noted.

Etiological Types	No. of Cases	Percentage
Tuberculosis	30	60%
Uremia	8	16%
Malignancy	7	14%
Collagen Vascular Disease	2	4%
Others	3	6%

Table 5: Showing etiological types



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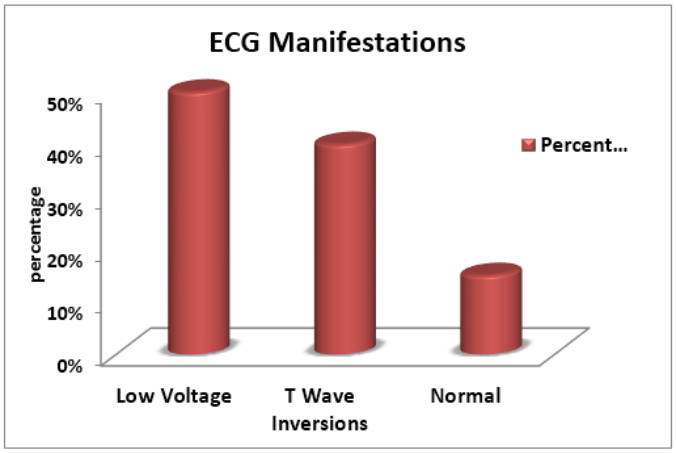
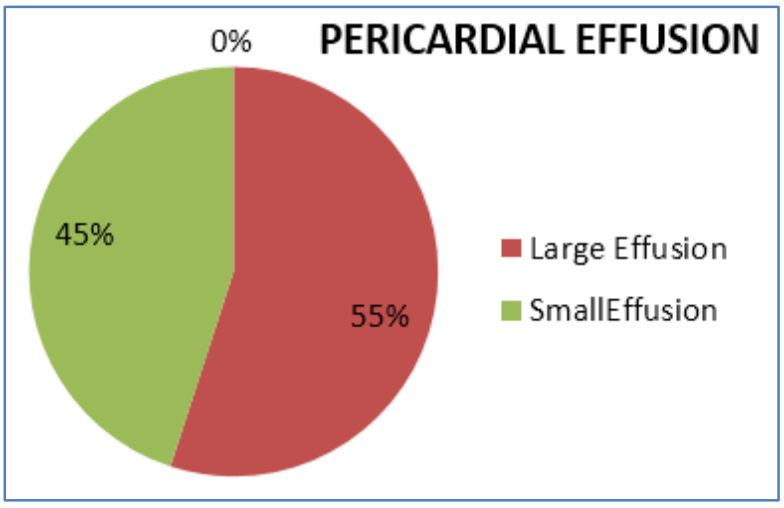
D. ELECTROCARDIOGRAPHIC FINDINGS: In 50% cases low voltage is observed. ST, T changes are seen in 40% cases. Normal electrocardiography is recorded in 16% cases.



E. PROPORTION OF LARGE AND MODERATE EFFUSIONS: An effusion is considered small, when the amount of fluid is less than 100 ml. When the amount of fluid is between 100-500 ml, it is considered a moderate effusion.[11] If the pericardial fluid is more than 500 ml, it is considered a large effusion. In this study, large effusions are 55% and small effusions 45%.

In majority of effusions, pericardial fluid is noted anteriorly, apically and posteriorly. Large effusions show greater accumulation of fluid anteriorly and apically. In the present study swinging motion of heart is seen in one patient who had a large effusion, but was not in cardiac tamponade.[11] Swinging motion of heart is associated with striking undulant motion of anterior right ventricular wall and posterior left ventricular wall.



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SUMMARY AND CONCLUSIONS:

1. It is common in the age group of 21-40 years in present study. Banerjee et al in their study observed that the peak age incidence was between 21-30 years. In the study of Pillay the greatest incidence was between 20-40 years.
2. Pericardial effusion is more common in males 65%.in present study. Banerjee et al reported 60% incidence in males in their study. Pillay reported 80% incidence in males in their study of 40 cases.
3. Breathlessness is the commonest symptom observed in pericardial effusion in 100% of cases and fever is present in 60% of cases. Hageman et al reported breathlessness as predominant symptom in their study. Banerjee reported breathlessness in 65% of cases in their study and fever in 60% of cases.
4. Raised jugular venous pressure is the commonest sign in 90%of cases. Banerjee reported raised JVP in 55% of cases. Hageman reported raised JVP in 59% cases.
5. Tuberculosis is the commonest etiological factor for pericardial effusion in India. In the present study 60% of cases are of tuberculous etiology. In the series of Pillay 52.5% cases were of tuberculous etiology. In the series of Banerjee 62.5% cases were of tuberculous etiology.
6. Uremia and malignancy are next to tuberculosis in causing pericardial effusion 15% each. In the series of J.N Berry and Banerjee incidence of malignant etiology was 5.56%.

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