

Examine the Frequency and Causes of Pericardial Effusion in Patients Presenting With Unexplained Dyspnea

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ABSTRACT

Objective: To determine the frequency and causes of pericardial effusion in patients presenting to emergency department with dyspnea.

Study Design: Prospective/Observational study

Place and Duration of study: This study was conducted at the Department of Cardiology, Bolan Medical Complex Hospital Quetta from April 2019 to September 2019.

Materials and Methods: A total 220 patients of both genders with ages above 20 years presented with dyspnea were enrolled in this study. Patient's detailed medical history was recorded after taking informed consent. All patients had received echocardiography to examine the incidence of pericardial effusion. Causes of pericardial effusion were recorded.

Results: There were 38 (17.27%) patients had pericardial effusion, among these 26 (68.42%) were males while rest 31.58% patients were females. 5 (13.16%) patients had ages <40 years while 33 (86.84%) patients had ages >40 years. 20 (52.63%) patients had small size effusion, 15 (39.47%) patients had moderate size and 3 (7.89%) patients had large size effusion. Neoplastic diseases were the commonest cause of pericardial effusion found in 15 (39.47%) patients followed by idiopathic in 10 (26.32%), uremia in 6 (15.79%) patients, 3 (7.89%) patients had bacterial infectious, 3 (7.89%) had HIV positive and 1 (2.63%) patient had other.

Conclusion: Incidence of pericardial effusion is high in patients with unexplained dyspnea. Neoplastic was the commonest cause of pericardial effusion.

Key Words: Pericardial effusion, Frequency, Causes, Dyspnea, Electrocardiogram

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INTRODUCTION

Evaluating the heart is common practice in the modern emergency department (ED). Emergency echocardiography was first described more than a decade ago when it was recognized that life-threatening processes such as cardiac tamponade could be quickly diagnosed in the ED setting.¹⁻³ A brief evaluation of the heart is included in the focused abdominal sonography for trauma (FAST) examination.⁴

One of the most basic indications for emergency ultrasonography of the heart in the ED is to evaluate for

the presence of a pericardial effusion. It is well known that pericardial effusions can cause altered vital signs and may result in death if not rapidly treated.⁵ However, findings such as distended jugular veins, pulsus paradoxus, or electrical alternans are inconsistently present and appear late in the disease process.⁶⁻⁸

Pericardial effusion can be attributed to several etiologies, including malignant and non-malignant causes.⁹ The known causes include neoplasia, infection, congestive heart failure, iatrogenicity, radiation, trauma, connective tissue diseases, pericardial injury, and metabolic causes such as uremia and hypothyroidism; a substantial number of effusions are idiopathic.¹⁰

The cause of dyspnea in a patient presenting to the ED can be varied. Emergency physicians (EPs) commonly discover reactive airways disease, lung infections, psychiatric disease, cardiac processes, anemia, congestive heart failure, and pulmonary embolism as causes for dyspnea. However, when such pathology is ruled out, some patients remain with a diagnosis of unexplained dyspnea.¹¹ The present study was conducted aimed to examine the frequency of

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pericardial effusion and associated causes in patients presented with unexplained dyspnea.

MATERIALS AND METHODS

This prospective/observational study was conducted at Department of Cardiology, Bolan Medical Complex Hospital Quetta from 1st April 2109 to 30th September 2019. A total 220 patients of both genders with ages above 20 years presented with unexplained dyspnea were enrolled in this study. Patients detailed medical history including age and sex were recorded after informed written consent. Patients less than 20 years, patients with dyspnea and those with no written consent were excluded from the study.

All patients had received complete laboratory examination. Ultrasonography and chest x-rays was performed on all the patients. Echocardiography, CT scan and MRI was done to examine the incidence of pericardial effusion. Effusions were categorized as small when the fluid stripe measured less than 10 mm. Moderate-sized effusions measured 10 to 15 mm. Large effusions measured more than 15 mm. Causes of pericardial effusion were examined such as neoplasm, idiopathic, viral infection, collagen vascular, bacterial, renal diseases, and HIV. All the data was analyzed by SPSS 24

RESULTS

There were 38 (17.27%) patients had pericardial effusion (Fig. 1). Among these 26 (68.42%) were males while rest 31.58% patients were females. 5 (13.16%) patients had ages <40 years while 33 (86.84%) patients had ages >40 years. 20 (52.63%) patients had small size effusion, 15 (39.47%) patients had moderate size and 3 (7.89%) patients had large size effusion (Table 1). According to the causes of pericardial effusion we found neoplastic diseases were the commonest cause of pericardial effusion found in 15 (39.47%) patients followed by idiopathic in 10 (26.32%), uremia in 6 (15.79%) patients, 3 (7.89%) patients had bacterial infections, 3 (7.89%) had HIV positive and 1 (2.63%) patient had other (Fig. 2).

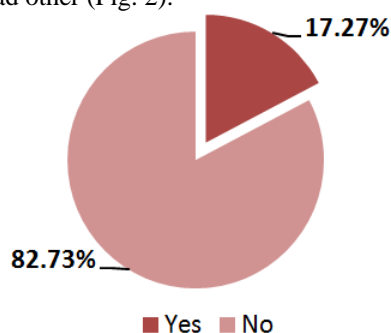


Figure No. 1: Incidence of pericardial effusion

Table No.1: Demographical details of pericardial effusion patients

Variable	No.	%
Gender		
Male	26	68.42
Female	12	31.58
Age (years)		
<40	5	13.16
>40	33	86.84
Effusion size		
Small	20	52.63
Moderate	15	39.47
large	3	7.89

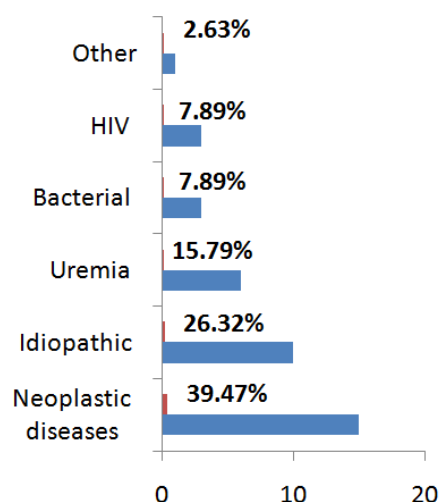


Figure No. 2: Etiology of pericardial effusion

DISCUSSION

Pericardial effusion is common clinical disorder with high rate of morbidity and mortality.¹² Unexplained dyspnea is one of the most important cause of pericardial effusion which leads to increase cardiac problems.¹³ The present study was conducted to examine the frequency of pericardial effusion in patients presented with unexplained dyspnea. In this regard 220 patients were enrolled and among these pericardial effusion was observed in 38 17.27% patients. A study conducted by Shimony et al¹⁴ reported the incidence rate of pericardial effusion in unexplained dyspnea patients was 13.6%. Another study by Albugami et al¹⁵ reported that the incidence rate of pericardial effusion in MI patients was 28.6%. Some of other studies demonstrated that the incidence rate of pericardial effusion varies 10 to 30%.¹⁶⁻¹⁸

In present study male patients was high in numbers 68.42% as compared to females 31.58% and majority of patients were ages above 40 years. These results were similar to many of previous studies regarding pericardial effusion in which male patients were at high risk in developing pericardial effusion 55 to 70% as

compared to females and 40 to 70 years was the commonest age group.^{19,20}

In our study according to the size of pericardial effusion we found that 20 (52.63%) patients had small size effusion, 15 (39.47%) patients had moderate size and 3 (7.89%) patients had large size effusion. A study conducted by Sagristà-Sauleda et al²¹ regarding pericardial effusion in hypothyroid patients and they reported that pericardial effusion in this study was 17%. 2 out of the 70 hypothyroid patients showed evidence of pericardial effusion. Mild pericardial effusion was found in 11 patients (15.71%) and moderate pericardial effusion in 1 patient (0.01%). Shimony et al¹⁴ also showed similarity to our findings in which majority of patients had small size pericardial effusion.

In present study according to the causes of pericardial effusion we found neoplastic diseases were the commonest cause of pericardial effusion found in 15 (39.47%) patients followed by idiopathic in 10 (26.32%), uremia in 6 (15.79%) patients, 3 (7.89%) patients had bacterial infections, 3 (7.89%) had HIV positive and 1 (2.63%) patient had other. These results were similar to many of previous studies in which neoplastic diseases, idiopathic, viral infection, renal failure and HIV positive were the important causes of pericardial effusion. Some other studies revealed that viral infection is the most common identifiable cause of acute pericarditis, the condition may be associated with many diseases. Nonviral causes of pericarditis include bacterial infection, MI, chest trauma, and neoplasm.²²⁻²⁴

CONCLUSION

Pericardial effusion is one of the most common malignant disorder that can lead to increase morbidity and mortality rate. We concluded from this study that incidence of pericardial effusion is high in patients with unexplained dyspnea. Neoplastic was the commonest cause of pericardial effusion followed by idiopathic, collagen vascular, renal diseases, infection and HIV positive.

Author's Contribution:

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Data Analysis:	Dost Muhammad, Abdul Ghaffar, Fazal-ur-Rehman
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Final Approval of version:	Riaz-ur-Din

Conflict of Interest: The study has no conflict of interest to declare by any author.

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