Research Article

A cross sectional study on pericardial effusion in patients of acute myocardia infarction

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ABSTRACT

Objective: To assess the pericardial effusion in patients of acute myocardial infarction

Methodology: This cross sectional study was conducted at Department of Cardiology, Lahore General Hospital, Lahore from March 2018 September 2018 over the period of six months. Total 100 patients of myocardial infarction having age 30-80 years either male or female were selected and pericardial effusion was assessed in these selected patients.

Results: In present total 100 patients of myocardial infarction were selected and pericardial effusion was assessed. Mena age of the patients of myocardial infarction was 51.57±10.43 years. Male patients were 54 (54%) and female patients were 46 (46%). Pericardial effusion was noted in 18 (18%) patients.

Conclusion: Results of present study showed a higher number of patients with Pericardial effusion. Most of the patients were male but difference was insignificant. Pericardial effusion was significantly associated with sub type of AMI.

Key words: AMI, Pericardial effusion, Ischemic heart

INTRODUCTION

Ischemic heart is disease is one of the high burden diseases prevalent worldwide and is considered among the deadliest causes along with the infectious diseases and trauma. Acute coronary syndrome is a subset of this entity and is defined as syndrome of chest pain and ischemic changes to the myocardium. It can be divided broadly into angina and acute myocardia infarction (AMI). This stratification is done on the basis of duration of chest pain, particular ST segment changes and raised cardiac enzymes. AMI can further be stratified into STEMI and NSETMI depending upon the ST elevation in the former setting.[1] There are wide range of structural and functional complications associated with this. Along with the cardiac complications, extra cardiac complications are also found and they indirectly can affect the heart as well and among them embolization of clot, shock and pericardial effusions are most commonly encountered.[2,3] Pericardial effusion (PE) is accumulation of fluid around the heart in pericardial membrane which can acutely compress on heart and lead to its failure and in cases of haemorrhage effusion in ruptured myocardium it can lead to temponade and death as well. Hence it can be a life threating emergency and relied largely upon the volume and rate of accumulation.[4,5]

MATERIAL AND METHODS

This cross sectional study was conducted at Department of Cardiology, Lahore General

Hospital, Lahore from March 2018 September 2018 over the period of six months. Total 100 patients of myocardial infarction having age 30-80 years either male or female were selected. Patients with trauma, bleeding disorders, hypo albuminemia were excluded from the study. Study was approved by the ethical committee and written informed consent was taken from every patient. Pericardial effusion was assessed in these selected patients and findings were entered in pre-designed proforma along with demographic profile of the patients.

All the collected data was entered in SPSS version 18 and analysed. Mean and SD was calculated for age. Categorical data was presented as frequency and percentage.

RESULTS

Mena age of the patients of myocardial infarction was 51.57 ± 10.43 years. Out of 100 patients of MI, Pericardial effusion was noted in 18 (18%) patients. (Fig. 1) Male patients were 54 (54%) and female patients were 46 (46%).

Figure 1: Frequency of pericardial effusion
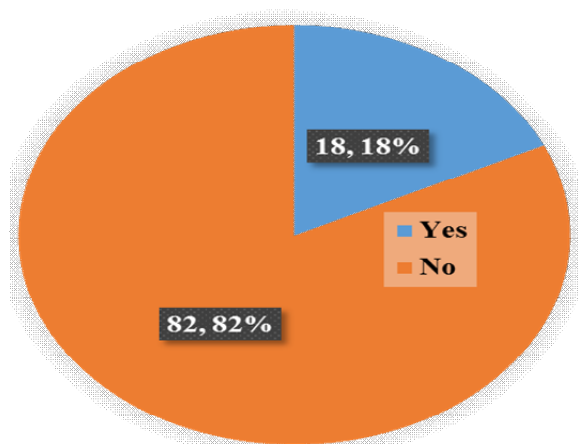
Pericardial effusion was found in 09 (16.67%) male patients and 09 (19.57%) female patients. Statistically in signification between pericardial effusion and gender was noted with p value 0.87. (Table 1) Selected patients were divided into two equal groups according to duration of AMI i.e. < 12 hour group and ≥12 hour group. Total 34 (34%) patients belonged to < 12 hour group and 66 (66%) belonged to ≥12 hour group. Pericardial effusion was noted in 06 (17.64%) patients and 12 (18.18%) patients respectively in < 12 hour group and ≥12 hour group. Statistically insignificant association of pericardial effusion with duration of AMI was noted with p value 0.97. (Table 2) Total 28 (28%) patients was found with IWMI and 72 (72%) patients found with AWMI. Pericardial effusion was found in 02 (7.14%) patients of IWMI and 16 (22.22%) AWMI patients. Significant association between pericardia effusion and sub type of AMI was noted with p value 0.001. (Table 3)

Table 1: Pericardial effusion (PE) and gender

Gender	Pericardial effusion			p value
	Yes	No	Total	
Male	09 (16.67%)	45 (83.33%)	54 (54%)	
Female	09 (19.57%)	37 (80.43%)	46 (46%)	0.87
Total	**18 (18%)**	**82 (82%)**	**100**	

Table 2: Pericardial effusion (PE) and duration of AMI

Duration of AMI	Pericardial effusion			p value
	Yes	No	Total	
< 12 hour	06 (17.64%)	28 (82.36%)	34 (34%)	
≥12 hour	12 (18.18%)	54 (81.82%)	66 (66%)	0.97
Total	**18 (18%)**	**82 (82%)**	**100**	

Table 3: Pericardial effusion (PE) and sub-type of AMI

Sub-type of AMI	Pericardial effusion			p value
	Yes	No	Total	
IWMI	02 (7.14%)	26 (92.86%)	28 (28%)	
AWMI	16 (22.22%)	56 (77.78%)	72 (72%)	0.001
Total	18 (18%)	82 (82%)	100	

DISCUSSION

Myocardial infarction can be fatal not only directly due to heart failure; but also due to various other non cardiac complications like pericardial effusion. The accumulation of the fluid at rapid pace and large in volume can compress the heart and lead to its failure and death and hence its early diagnosis and management is mandatory to reduce such morbidity and mortality.

In this study out of 100 cases of acute MI, pericardial effusion was seen in 18 (18%) of the cases. The results of this study revealed slightly less presentation as compared to the previous studies. Hafeez et al carried a study on cases of acute MI, and it was seen that out of their 200 cases, PE was seen in 64 (32%) cases.[6] Similar finding was observed by Ali et al where this finding of PE was seen in 27% of cases.[7] In contrast to these above mentioned studies, the study done by Belkin et al revealed that 8% of cases presenting with AMI developed pericardial effusion.[8] The difference in these cases can be explained by the difference in inclusion criteria; difference in severity nd also the difference in the management plan of such cases.

Pericardial effusion was seen significantly high in cases suffering from acute AWMI where it was observed in 16 (22.22%) cases as compared to 2 (7.14%) of cases with p= 0.001. The data was variable in previous studies and some has shown significant and the others non significant results regarding the type of MI for development of pericardial effusion. But one thing was consistent that pericardial effusion was seen more in cases with AWMI as compared to IWMI.[9-11]

CONCLUSION

Results of present study showed a higher number of patients with Pericardial effusion. Most of the patients were male but difference was insignificant. Pericardial effusion was significantly associated with sub type of AMI.

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