PERICARDIAL EFFUSION IN CASES OF MYOCARDIAL INFARCTION

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ABSTRACT

Objective: To determine the frequency of pericardial effusion in cases of Myocardial Infarction. **Methodology:** This was a cross sectional study that was carried out at Lahore General Hospital, Lahore during November 2017 to May 2018. The cases of acute myocardial infarction (MI) of both male and female gender with age more than 30 years were selected by non-probability consecutive sampling. The diagnosis of MI was made on the basis of chest pain of 5 or more on visual analogue scale and certain ECG changes i.e. ST segment elevation, depression or T wave inversion and positive trop T test. Then these cases underwent echo-cardiography and pericardial effusion was noted irrespective of its amount. **Results:** In this the mean age of the 100 participants of Acute MI was 54.57±9.78 years. There were 58% of cases male and 71% had acute Anterior walk MI. Pericardial effusion was seen in 23 (23%) out of 100 cases. There was no significant difference in terms of gender and age groups with p values of 0.81 and 0.89. Pericardial effusion was significantly high in AWMI where it was observed in 20 (28.17%) cases as compared to 3 10.34%) cases with IWMI with p value= 0.001. **Conclusion;** Pericardial effusion is seen in every 4th case suffering from acute MI and acute AWMI has shown significant association with this.

KEYWORDS: AWMI, IWMI, Pericardial effusion.

INTRODUCTION

Cardiovascular diseases are amongst the top ten causes of death occurring almost equally across the globe and amongst them ischemic injuries due to acute coronary syndromes (ACS) is the leading one. ACS has two major subsets comprising myocardial infarction (MI) and angina pectoris.[1]

Myocardial Infarction can be attributed to an on going central, crushing and radiating pain towards jaw or upper limb on the left side lasting for at least half an hour and associated with characteristic ST-T changes on electrocardiogram (ECG) and a rise in the cardiac enzymes. ECG and the enzymes are the major diagnostic tools.[2,3]

MI can result in wide array of symptomatology and organ damages not only involving the heart but also the surrounding and the peripheral viscera like pericardium, lungs, kidneys etc. Pericardial effusion is defined as collection of the free fluid around the heart in a closed cavity called as pericardium. It can affect the functionality of the heart and that indirectly depends upon the speed and volume of the fluid accumulation. The most common cause of pericardial effusion in Pakistan is Tuberculosis and in the world as viral infection but there are a number of cases that develop it after acute MI. X rays Chest reveal a globular or flask shaped heart and echocardiography is the investigation tool of choice like in other structural disease of the heart.[4,5]

OBJECTIVE

To determine the frequency of pericardial effusion in cases of Myocardial Infarction.

MATERIAL AND METHODS

This was a cross sectional study that was carried out at Lahore General Hospital, Lahore during November 2017 to May 2018. The cases of acute myocardial infarction (MI) of both male and female gender with age more than 30 years were selected by non-probability consecutive sampling. The diagnosis of MI was made on the basis of chest pain of 5 or more on visual analogue scale and certain ECG changes i.e. ST segment elevation, depression or T wave inversion and positive trop T test. The cases with history of trauma, uraemia and those with bleeding disorders were excluded from this study. Then these cases underwent echo-cardiography and pericardial effusion was noted irrespective of its amount.

Statistical analysis

SPSS version 23 was used to analyse data and post stratification chi square test was applied and p value less than 0.05 was considered as significant.

RESULTS

In this the mean age of the 100 participants of Acute MI was 54.57±9.78 years. There were 58% of cases male and 71% had acute Anterior walk MI. Pericardial effusion was seen in 23 (23%) out of 100 cases. There was no significant difference in terms of gender and age groups with p values of 0.81 and 0.89 as in tables I & II. Pericardial effusion was significantly high in AWMI where it was observed in 20 (28.17%) cases as compared to 3 10.34%) cases with IWMI with p value= 0.001 as in table III.

Table I: Pericardial effusion & gender.

Gender	Pericardial effusion		Total
	Yes	No	
Male	14 (24.56%)	43 (75.44%)	57 (57%)
Female	9 (20.93%)	34 (79.07%)	43 (43%)
Total	23 (23%)	77 (77%)	100 (100%)

p= 0.81

Table II: Pericardial effusion & age.

Age	Pericardial effusion		Total
	Yes	No	
35 to 50	10 (23.80%)	32 (76.20%)	42 (42%)
>50	13 (22.41%)	45 (77.59%)	58 (58%)
Total	23 (23%)	77 (77%)	100 (100%)

p= 0.89

Table III: Pericardial effusion & MI type.

MI Type	Pericardial effusion		Total
	Yes	No	
IWMI	3 10.34%)	26 (89.66%)	29 (29%)
AWMI	20 (28.17%)	51 (71.83%)	71 (71%)
Total	23 (23%)	77 (77%)	100 (100%)

p= 0.001

DISCUSSION

Myocardial infection is a potential life threatening entity and have immense ways to be fatal as it can lead to cardiogenic shock, can result in variety of arrhythmias and the other complications like pericardial effusion if ended up in temponade may not allow much time to survive; though the latter one is still an under rated complication anticipated.

Pericardial effusion was seen in 23 (23%) out of 100 cases of acute MI in the present study. The detection of this effusion in the present study was slightly lower in contrast to the data analysis of the previous studies. In a similar pattern of study done in Pakistan as well by Rehman et al, they found pericardial effusion after acute MI in 32% of the cases in their two hundred subjects.[6] In

another one from Pakistan the rate of pericardia effusion was seen to be 27 per cent after MI defected on echocardiography which was closer to the present study.[7] The studies across the globe found it in lesser number of cases and was seen in less than ten percent of the cases. The incidence of pericardial effusion in a study by Belkin et al, was to be 8%.[8] In another similarly designed study by Sugiura et al also revealed it to be 8% in cases of MI that were managed by Primary percutaneous intervention.

Pericardial effusion was significantly high in AWMI where it was observed in 20 (28.17%) cases as compared to 3 10.34%) cases with IWMI with p value= 0.001. The data regarding the type of MI i. e AWMI and IWMI and also regarding STEMI and NSETMI was variable; though the higher rates were seen in cases with AWMI and STEMI.[9-11]

CONCLUSION

Pericardial effusion is seen in every 4th case suffering from acute MI and acute AWMI has shown significant association with this.

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