

## ORIGINAL RESEARCH

**Prevalence of post myocardial infarction complications in geriatric population****<sup>1</sup>Akanksha Mehra, <sup>2</sup>Sanmit Jindal, <sup>3</sup>Moushume Chowdhury, <sup>4</sup>Mohammed Motasim Mohiuddin, <sup>5</sup>Nishant Kumar Lal**<sup>1</sup>MBBS, MPH, Government Medical College, Amritsar, Punjab, India<sup>2</sup>MBBS, MPH, Dayanand Medical College, Ludhiana, Punjab, India<sup>3</sup>MPH, M. Pharm, B. Pharm, University of Science and Technology Chittagong, Bangladesh<sup>4</sup>MBBS, MPH, Shadan Institute of Medical Sciences, India<sup>5</sup>BDS, MPH, Inderprastha Dental College and Hospital, India**Corresponding Author**

Akanksha Mehra

MBBS, MPH, Government Medical College, Amritsar, Punjab, India

**Email:** [akankshamehra4@gmail.com](mailto:akankshamehra4@gmail.com)

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**Abstract****Background:** The present study was conducted for assessing the prevalence of post myocardial infarction complications in geriatric population.**Materials & methods:** A total of 100 subjects who were admitted with AMI were enrolled in the present study. Only those subjects were enrolled which were more than 60 years and age and among which one year follow-up details were available. Complete clinical and medical examination of all the patients was done on regular follow-ups. A Performa was made and detailed list of complications associated with myocardial infarction were recorded.**Results:** Post myocardial infarction complications were seen in 53 percent of the subjects. Out of 100 subjects, mortality was seen in 13 percent of the subjects. Weak grip strength, cognitive impairments, visual impairments and hearing impairments were seen in 20 percent, 10 percent, 15 percent and 23 percent of the subjects respectively.**Conclusion:** Geriatric patients are associated significant proportion of post myocardial infarction complication. Hence; careful follow-up of all the geriatric subjects should be done.**Key words:** Geriatric, Post myocardial infarction**Introduction**

In the early 20th century, acute myocardial infarction AMI was generally considered a fatal event diagnosed only at autopsy. Until the 1970s, with appropriate understanding of its usual clinical presentation and diagnosis, it was conservatively managed with prolonged bed rest and afterwards with a sedentary lifestyle.<sup>1-3</sup>

Most myocardial infarctions are due to underlying coronary artery disease, the leading cause of death in the United States. With coronary artery occlusion, the myocardium is deprived of oxygen. Prolonged deprivation of oxygen supply to the myocardium can lead to myocardial cell death and necrosis. Patients can present with chest discomfort or pressure that can radiate to the neck, jaw, shoulder, or arm. In addition to the history and physical exam, myocardial ischemia may be associated with ECG changes and elevated biochemical markers such as cardiac troponins.<sup>4,5</sup>

Although infrequently encountered in contemporary clinical practice, post-acute myocardial infarction (AMI) mechanical complications are associated with considerable mortality and morbidity. These complications include free-wall rupture (FWR), ventricular septal rupture (VSR), and papillary muscle rupture (PMR). As the landscape of AMI treatment has evolved over the past decades with a focus on reducing ischemic time and timely reperfusion via primary percutaneous coronary intervention (pPCI), the mortality rates related to AMI have declined. However, a similar decline in mortality rates associated with post-AMI mechanical complications has not been observed.<sup>6- 8</sup> Mechanical complications (MC) remain a rare but devastating complication of myocardial infarction (MI). The most communally encountered MC in clinical practice are ventricular septal rupture, papillary muscle rupture and free wall rupture.<sup>9</sup> Hence; the present study was conducted for assessing the prevalence of post myocardial infarction complications in geriatric population.

### Materials & methods

The present study was conducted for assessing the prevalence of post myocardial infarction complications in geriatric population. A total of 100 subjects who were admitted with AMI were enrolled in the present study. Only those subjects were enrolled which were more than 60 years and age and among which one year follow-up details were available. Complete clinical and medical examination of all the patients was done on regular follow-ups. A Performa was made and detailed list of complications associated with myocardial infarction were recorded. All the results were recorded in Microsoft excel sheet and was subjected to statistical analysis using SPSS software

### Results

A total of 100 geriatric subjects were analyzed. Mean age of the subjects was 65.9 years. Among these 100 subjects, 63 were males while the remaining were females. Post myocardial infarction complications were seen in 53 percent of the subjects. Out of 100 subjects, mortality was seen in 13 percent of the subjects. Weak grip strength, cognitive impairments, visual impairments and hearing impairments were seen in 20 percent, 10 percent, 15 percent and 23 percent of the subjects respectively.

**Table 1: Prevalence of Post myocardial infarction complications**

Post myocardial infarction complications	Number	Percentage
Present	53	53
Absent	47	47
Total	100	100

**Table 2: Post myocardial infarction complications**

Post myocardial complications	Number	Percentage
Mortality	13	13
Weak grip strength	20	20
Cognitive impairments	10	10
Visual impairments	15	15
Hearing impairments	23	23

### Discussion

Worldwide, coronary artery disease (CAD) is the single most frequent cause of death. Some 550 thousand deaths were attributed to CAD across European Union countries in 2017, accounting for 12% of all deaths. The in-hospital mortality of unselected ST-elevation myocardial infarction (MI) patients in the national registries of the ESC countries varies

between 4% and 12% and is mainly driven by acute heart failure or cardiogenic shock (CS) due to severe left ventricular (LV) systolic dysfunction.<sup>10, 11</sup> Prognosis following MI depends on a number of factors including geographic location, patient's health, extent of heart damage, and treatment given. Early risk stratification post-MI is important to determine patients at increased risk for a recurrent ischemic event and those at increased risk for cardiac death (arrhythmic or non-arrhythmic). Imaging allows for in-hospital assessment of prognosis and may guide patient post-MI management. If a patient is at high-risk for another event, treatment planning will likely be more aggressive and include invasive coronary angiography and possibly coronary revascularization.<sup>12- 14</sup> Hence; the present study was conducted for assessing the prevalence of post myocardial infarction complications in geriatric population. A total of 100 subjects who were admitted with AMI were enrolled in the present study. Only those subjects were enrolled which were more than 60 years and age and among which one year follow-up details were available. Complete clinical and medical examination of all the patients was done on regular follow-ups. A Performa was made and detailed list of complications associated with myocardial infarction were recorded. Puerto et al assessed the time trends in the incidence, management, and fatality rates of MCs, and their influence on short-term mortality in older patients with AMI. The main findings of the study are the following: The in-hospital mortality decreased from 34.3% to 13.4%. The absolute mortality due to MC decreased from 9.6% to 3.3%; however, the proportion of deaths due to MC among all deaths did not change. The incidence of MC decreased from 11.1% to 4.3% with no change in the high hospital fatality rate over time. In parallel, the proportion of patients undergoing surgical repair decreased from 45.2% to 17.6%, with no differences in the poor post-operative survival rate. The investigators conclude that although the incidence of MC has decreased significantly along with the implementation of PPCI this reduction was proportional to other causes of death and was not accompanied by an improvement in fatality rates, with or without surgery. MCs have become less frequent, but remain catastrophic in the elderly.<sup>15</sup>

Despite the greater risk of AMI among older patients and the increasing size of this population, the relationship between age, clinical presentation and outcome of AMI in elderly patients is incompletely understood. Many prior observational studies and clinical trials have classified elderly patients as a single population, not specifically evaluating differences in older subgroups, particularly those 75 years of age and older. The few studies that have explored age-associated differences in AMI presentation and outcomes in this cohort have been limited to small numbers of very elderly patients, usually drawn from individual centers or regions.<sup>16- 18</sup> Sanmartín-Fernández M et al evaluated possible changes in epidemiology or prognosis of complications post AMI with current available strategies. A total of 241,760 AMI episodes were analyzed, MI mechanical complications were observed in 842 patients: cardiac tamponade in 587, ventricular septal rupture in 126, and mitral regurgitation due to papillary muscle or chordae tendineae rupture in 155 (there was more than one complication in 21 patients). In-hospital mortality was 59.5%. On multivariate adjustment, variables with significant impact on in-hospital mortality were: age, ST-segment elevation AMI, cardiogenic shock, cardio-respiratory failure, and chronic obstructive pulmonary disease. No significant trends in risk-adjusted in-hospital mortality were detected. Cardiac intensive care unit availability and more experience with mechanical complications management were associated with lower adjusted mortality rates. Mechanical complications occur in 3.5 per thousand AMI, with no significant trends to better survival over the past few years.<sup>19</sup>

## Conclusion

Geriatric patients are associated significant proportion of post myocardial infarction complication. Hence; careful follow-up of all the geriatric subjects should be done.

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