



Factors Responsible for Late Presentation of STEMI Patients in our Population

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Authors' contributions

This work was carried out in collaboration among all authors. Author GFS designed the study, collect the data and wrote the protocol. Authors SHM and AAS literature review and guideline. Authors AAS AGM and JK managed the literature searches data analysis and contribution in manuscript writing. All authors read and approved the final manuscript.

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ABSTRACT

Objective: To determine the reasoning factors responsible for late presentation of ST elevation myocardial infarction patients at tertiary care Hospital.

Methodology: This cross-sectional study took place at cardiology department of Liaquat University of medical and health sciences. Study duration was 6 months from June 2018 to November 2018. All the patients those were diagnosed as ST elevation myocardial infarction, reached delayed in Hospital and either of gender were included. Patients or their attendant were interviewed regarding demographic information including reasons of delayed reaching in Hospital. All the information was collected via self-made proforma. Data analysis was done by SPSS version 20.

Results: Total 64 patients were interviewed to assess the reasons of late arrival. Patients mean age was 55.90+12.88 years. Males were commonest 51(79.7%). Most of the cases 44(68.8%) were illiterate. According to the pain arising time most of the patients 84.4% reached after 24 hours. Most common reasons which were responsible for late arrival were lack of medical knowledge and

late referral by local health care facilities; followed by 10.9% patients had financial issues, 12.5% due to negligence and 09.4% reached late due to unavailability of resources.

Conclusion: In these study causes of delayed arrival were lack of medical knowledge and late referral followed by financial problems, negligence and unavailability of resources.

Keywords: STEMI; late arrival; causes.

1. INTRODUCTION

Cardiovascular diseases are the significant reasons of the morbidity and mortality throw-out the world globally, with around 17.7 million deaths during 2015, comprising 31% of the total global mortality [1]. ST-segment elevation myocardial infarction (STEMI) seems to be the most serious type of acute coronary syndrome (ACS) following unexpected cardiac death [2]. In acute STEMI cases, the timeframe between the occurrences of symptoms to receipt of medical treatment remains a key predictor of death [3]. The alarmingly increased pre-hospital delay seems to be a major contributor to this. This leaves many patients unlikely to undergo life-saving revascularization intervention in a prompt manner and decreased revascularization efficacy for those receiving it. The key factors behind delayed arrival to Hospitals among patients with acute MI involve unawareness of ischemic symptoms, spending so much time travelling to nearby hospitals and complexities involved [4]. It seems likely that time from symptom onset is, in part, a proxy for the downstream status of the myocardium. Duration of ischemia is related to extent of infarction and its complications, such as intra-myocardial hemorrhage [3,5]. For those STEMI individuals presenting during 12 h after symptom initiation, present guidelines recommend pursuing reperfusion intervention [2,6]. Pre-hospital time delay is an important factor in STEMI, which lowers the probability of revascularization as well as increases mortality [1]. Despite advances in STEMI treatment, in late presenting patients, total ischemic timeframe remains prolonged [7]. Although, the objective of STEMI is to minimize infarct duration, negative outcomes, and death through timely and full coronary reperfusion through primary coronary angioplasty (PCI) or fibrinolysis [2]. Different national and international studies showed different causative factors regarding late arrival of patients having ST-elevation myocardial infarction. An international study stated that late presenters showed greater rates of cardiac dysfunction, longer hospital stays, with clear predictors of delayed presentation being female gender, diabetes, and lack of Angina.

Prolonged survival for the patients presenting late was slightly lower [8]. A national study discussed factors for presentation delay from the patient side can possibly include absence of knowledge regarding the importance of symptoms, absence of transportation services, financial challenges, and yet wrong initial diagnosis [9] However this study has been conducted to evaluate the reasoning factors responsible for late presentation of ST elevation myocardial infarction patients at tertiary care Hospital.

2. MATERIALS AND METHODS

This cross-sectional study took place at cardiology department of Liaquat University of medical and health sciences. Study duration was 6 months from June 2018 to November 2018. All the patients those were diagnosed as ST elevation myocardial infarction cases, reached delayed in Hospital and either of gender were included. Cases were reached timely, having no ST elevation myocardial infarction and those were not agree to contribute to this study were excluded. Patients or their attendant were interviewed regarding demographic information including reasons of delayed reaching in Hospital. Late presentation after 12 hours was considered as positive. All the information was collected via self-made proforma. Data analysis was done by using SPSS version 20.

3. RESULTS

Total 64 patients were interviewed to assess the reasons of late arrival. Patients mean age was 55.90 ± 12.88 years. Males were commonest 51(79.7%) and females were 13(20.3%). Almost all patients were married only 5 patients were unmarried. Most of the cases 44(68.8%) were illiterate, followed by 06(9.4%) were matric passed, 11(17.2%) had education of intermediate and only 2 patients were graduate Table 1.

According to the pain arising time most of the patients 84.4% reached after 24 hours, 12.5% reached between 13 to 24 hours and only 2 patients reached till 12 hours after pain Table 2.

Table 1. Demographic statistics of the patients n=64

Variables	Statistics	
Patient's age	Mean	55.90 years
	Median	60.0 years
	Std. Deviation	12.88 years
	Minimum	26 years
	Maximum	80 years
Gender	Male	51(79.7%)
	Female	13(20.3%)
Marital status	Married	59(92.2%)
	Unmarried	05(7.8%)
Educational status	Primary	01(1.6%)
	Matriculation	06(9.4%)
	Intermediate	11(17.2%)
	graduate	02(3.1%)
	Illiterate	44(68.8%)

Table 2. Pain arising time till reaching the hospital n=64

Pain arising duration	Frequency	Percent
≤12 hours	02	03.1
13 to 24 hours	08	12.5
>24 hours	54	84.4
Total	64	100.0

Table 3. Factors responsible for late arrival hospital n=64

Factors	Frequency	Percent
lack of medical knowledge	20	31.2
Not aware about chest pain	01	01.6
Financial issues	07	10.9
Late referral by local health care facilities	21	32.8
Negligence	08	12.5
Unavailability of resources	06	09.4
Total	64	100.0

Most common reason which were responsible for late arrival were lack of medical knowledge and late referral by local health care facilities. 10.9% patients had financial issues, 12.5% due to negligence and 09.4% reached late due to unavailability of resources Table 3.

4. DISCUSSION

In acute ST-segment elevation myocardial infarction (STEMI) cases, the timeframe between the occurrence of symptoms to receipt of medical treatment remains a key predictor of death. In this study, patients mean age was 55.90±12.88 years. Males were commonest 51(79.7%) and females were 13 (20.3%). According to the pain

arising time most of the patients 84.4% reached after 24 hours, 12.5% reached between 13 to 24 hours and only 2 patients reached till 12 hours after pain. In comparison to our results, study conducted by Rodrigues JA et al. [10] reported that the mean age of patients was 60.70±11.60 years and 71% males. The hospital stay after the initiation of angina was more than 6 hours in 23% of cases, known as late presentation. The average presentation duration was 3 hours, being considerably greater among late presenters. The patients reported different causative factors for their delayed hospital arrival. The symptoms were misinterpreted in remarkable 49 % as only being muscular in nature or thinking that they had "gas" (bloating

and indigestion). While in other research, misunderstanding of symptoms was being reported as a factor that causes delay, this research indicates it as a primary factor. In addition, it is not widely known that angina is misinterpreted by the majority as "gas". This research indicates that because of coronary heart disease, dyspeptic symptoms can occur.

In our study, most common reason which were responsible for late arrival were lack of medical knowledge and late referral by local health care facilities. 10.9% patients had financial issues, 12.5% due to negligence and 09.4% reached late due to unavailability of resources. Similarly, study conducted by Khan JA et al [11] reported that The key cause for delayed arrival at hospital(49 %) was misunderstanding of symptoms, after that seeking a local healthcare professional (25%), residing in an region away from a hospital facility (10%), waiting for the disappearance of symptoms with home care (8 percent), scarcity of transportation (4%) and lacking an attendant to take the patient towards hospital (4%). However, study conducted by McNair PW et al. [12] reported that diabetes, feminine gender, and lack of Angina were closely linked to late presentation in their multivariable study. (c- statistic = 0.70).

5. CONCLUSION

In this study causes of delayed arrival were lack of medical knowledge and late referral followed due to financial problems, negligence and unavailability of resources. More studies are needed on this subject. Heart consultants and ambulances should be arranged at local basic health units to early diagnosis and arrival to Hospitals to decrease the morbidity and mortality.

CONSENT

Informed consent was taken from the Patients.

ETHICAL APPROVAL

As per international standard or university standard written ethical approval has been collected and preserved by the author(s).

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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