

GENDER DIFFERENCE AND FACTORS AFFECTING PRE HOSPITAL DELAY AMONG PATIENTS WITH ACUTE MYOCARDIAL INFRACTION

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ABSTRACT

BACKGROUND

Acute Myocardial Infraction (AMI) is a serious and life-threatening manifestation of coronary artery disease (CAD) affecting both males and females, which need immediate management. The present study was aimed to assess the gender difference and factors affecting pre-hospital delay among patients with AMI.

MATERIALS AND METHODS

The 290 patients admitted with AMI from 13-02-2016 to 26-03-2016 were studied. A descriptive comparative design was adopted for the study. Socio personal and clinical variables of the subjects were assessed. Pre-hospital delay was measured in terms of time from the onset of symptoms till the patient reaches a health care setting. One hour after the onset of symptom of AMI was considered as the Golden hour. Data was analysed using SPSS 20.0 software.

RESULTS

Out of the 290 patients with AMI (145 males and 145 females), only 32.4% of males and 24.1% of females reached a health care setting within 1 hr of onset of symptoms. 35.2% of male patients and 43.5% of female patients reached the health care setting only after 6 hrs of onset of symptoms.

Among the male patients, prehospital delay was significantly associated with place of onset of symptoms ($p < 0.05$), presence of someone with the patient at the time of onset of symptoms ($p < 0.05$), and perception of symptoms developed, as an emergency ($P < 0.001$). Whereas in female patients, significant association was observed in prehospital delay with age of the patient ($p < 0.05$), nature of the first symptom experienced ($P < 0.05$) and perception of symptoms developed as an emergency ($p < 0.001$).

CONCLUSION

The present study throws light into the existence of prehospital delay among patients with AMI in both males and females. The factors affecting prehospital delay vary between males & females.

KEYWORDS

Acute Myocardial Infraction, Prehospital Delay.

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BACKGROUND

Being a life-threatening manifestation of CAD, AMI needs prompt recognition and management. Despite major advance in technology resulting in innovative reperfusion therapies, majority of individuals with AMI symptoms do not seek professional medical treatment in a timely manner. This treatment seeking delay contributes significantly to the

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disability & death associated with AMI. AHA guidelines recommend appropriate medical interventions to be administered within one hour of onset of symptoms ("golden hour") for maximum reperfusion and to minimize damage of myocardial tissue.¹

Many a times patients take more than one hour to decide to seek treatment. Those patients who used emergency medical service had significantly shorter pre-hospital delay time than those who transported themselves to the hospital.²

Comparison of prehospital behaviour patterns of men & women following acute onset of chest pain revealed that severity of symptoms proved to be the strongest influence in shortening pre-hospital delay. Men were more ready than woman to believe that they might be having a heart attack & this belief led them to seek treatment promptly.³

Pre-hospital delay is affected by age of the patient, severity of angina pain, history of CAD and perception of symptom as a cardiac problem.⁴

Variables that significantly predict pre-hospital delay are misinterpretation of nature of pain, illiteracy and pain resistance behaviour. Interventions to decrease pre-hospital delay must focus on improving public awareness of AMI symptoms and early treatment benefits.⁵

In this study, we aim to study gender difference and factors affecting pre-hospital delay in patients admitted with AMI at Govt. Medical College Hospital, Kozhikode.

Aim and Objectives

To assess the pre-hospital delay and gender difference in pre-hospital delay among patients admitted with AMI. The study also aimed to find out the association between pre-hospital delay and factors affecting pre-hospital delay.

MATERIALS AND METHODS

A descriptive comparative study was conducted in the department of cardiology, Medical College, Kozhikode among patients admitted with AMI from 13-02-16 to 26-03-16.

Inclusion Criteria

Patients with AMI who are hemodynamically stable at the time of data collection were included in the study.

Exclusion Criteria

Patients who are mentally challenged or deaf and dumb where excluded.

A total 290 patients with AMI (145 males and 145 females) were enrolled in the study. After explaining the purpose of the study and ensuring confidentiality of the data informed written consent was obtained. Data were collected using semi structured interview schedule to assess factors affecting pre-hospital delay. Data were analysed using 20th version of SPSS statistical package. Prehospital delay was categorized as <1hr, 2-6 hrs, >6 hrs. The gender difference in pre-hospital delay between males & females were analysed. Association of pre-hospital delay and factors affecting delay was computed among both males & females.

RESULTS

A total of 290 patients diagnosed with AMI were studied. Among the participants 77.6% belonged to the age group 51-70 yrs. All the studied patients were residing in an area at distance of <6.5 km from Govt. Medical College Hospital Kozhikode. 90.7% of the participants were unaware of the emergency ambulance number. 44.5% of them used auto rickshaw as a mode of transportation to hospital. 46.6% of participants were diabetic and 42.8% of them had previous history of AMI. 64.8% of the participants were unaware of symptoms of AMI. 52% of the patients reported chest pain as the first symptom experienced first symptom to experience.

Among the total 290 patients only 28.3% reached the hospital within the golden hour (1 hour) after MI. 32.4%

reached with 1-6 hrs and 39.3% reached only after 6 hrs of onset of symptoms. There was no statistically significant association between pre-hospital delay and gender ($p > 0.05$). Male patients who developed the symptoms at their work place, perceived the symptom as an emergency and those who had someone with them during the onset of symptom had significantly shorter pre-hospital delay ($p < 0.05$). Whereas among female patients who experienced chest pain as the first symptom and perceived the symptom as an emergency had significantly shorter pre-hospital delay ($p < 0.05$, $p < 0.001$)

| Variables | f | % |
|--|-----|------|
| Age (Years) | | |
| 31-40 | 11 | 3.8 |
| 41-50 | 54 | 18.6 |
| 51-60 | 91 | 31.4 |
| >60 | 134 | 46.2 |
| Distance between Residence and Nearest Hospital (KM) | | |
| 0.5-2.4 | 155 | 53.5 |
| 2.5-4.4 | 89 | 30.7 |
| 4.5-6.4 | 46 | 15.8 |
| Awareness of Emergency Ambulance No. | 27 | 9.3 |
| Place of onset of symptoms | | |
| House | 230 | 79.3 |
| Work place | 38 | 13.1 |
| travel | 19 | 6.6 |
| others | 3 | 1 |
| Presence of Someone at the Time of Symptom Onset | 262 | 90.3 |
| Perception of Symptom as Emergency | 89 | 30.7 |
| Pre Hospital Delay (in Hrs) | | |
| < 1 | 82 | 28.3 |
| 1-6 | 94 | 32.4 |
| >6 | 114 | 39.3 |
| Table 1. Main Characteristics of the Study Population (N = 290) | | |

| Pre Hospital Delay (in Hrs) | Males (n = 145) | | Females (n = 145) | |
|---|-----------------|------|-------------------|------|
| | f | % | f | % |
| < 1 | 47 | 32.4 | 35 | 24.1 |
| 1-6 | 47 | 32.4 | 47 | 32.4 |
| >6 | 51 | 35.2 | 63 | 43.5 |
| Table 2. Gender Wise Distribution Based on Prehospital Delay | | | | |

DISCUSSION

In the present study 96.2% of the participants were aged above 40 yrs. This finding is in concordance with the findings of the study conducted to forecast the prevalence of rates of CHD and the study conducted at SRG Hospital Thalawar to determine risk factors of AMI both of which

revealed that prevalence rates of CHD among adults aged 40 yrs. and above are likely to increase.^{6,7}

In our study 46.6% of the participants were diabetic which is found matching with the prospective case control study from intensive care unit to assess the risk factors for AMI in coastal region of India. The study concluded that DM is an independent risk factor for AMI.⁸

Among the participants, 71.7% of them reached the healthcare setting after the Golden hour of AMI (i.e. 1 hr after the symptom onset). A study conducted by Indian College of cardiology Kerala state Registry also showed that 88% of the patients with AMI reached the health care facility after one hour of onset of symptoms.⁹

The present study showed that 32.4% of males with AMI reached the health care setting within one hour whereas only 24.1% females reached within one hour. This finding was found similar to a number of studies which concluded that female have a greater prehospital delay than males.^{2,3,10-14}

Present study revealed no statistically significant association between pre-hospital delay and gender. This finding was supported by the studies conducted by University hospital Salvador and Andhra Medical College, Vishakhapatnam which showed that gender did not change the association of interest.^{15,16}

Females above 60 yrs. of age had a comparatively prolonged pre-hospital delay in the present study which is in concordance with the findings of the study conducted to assess factors associated with pre-hospital delay which showed an increase in pre hospital delay with older age.¹²

A study conducted to compare North American and Australian patient's sociodemographic, clinical, cognitive, emotional and social factors associated with behaviour in seeking treatment for symptoms of MI showed that patients who were at home during onset of symptoms had a longer pre-hospital delay. The present study also showed a longer pre-hospital delay among male patients who were at home during onset of symptoms of AMI.¹⁷

Present study revealed that, among the participants who perceived the symptoms of AMI as an emergency majority of them reached a health care setting within one hour of onset of symptoms. A cross sectional survey conducted at CCU of Dr. Heshmat Hospital Rasht also showed that perceiving the symptoms of AMI as not so serious was a factor causing longer pre-hospital delay.¹⁸

Present study concluded that there was no significant association between pre-hospital delay and literacy, mode of transportation and previous history of AMI. This is in concordance with the findings of a study conducted at Andhra Medical College which also showed that there was no significant association between pre-hospital delay and age, literacy, mode of transportation and previous history of AMI.¹⁶

CONCLUSION

AMI is a medical emergency requiring immediate management to save the life of the victims. Many of the patients with AMI were unaware of the symptoms and were

unable to reach & health care setting within the golden hour after MI. Moreover, majority of them don't even know the emergency ambulance number. Enhanced public awareness is the need of the time to reduce the morbidity and mortality from AMI.

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