Original Article

Patients delay in seeking medical care for acute myocardial infarction symptoms

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Objective: To determine the reasons for delay in seeking medical care among patients with myocardial infarction symptoms.

Methodology: Participants of this cross-sectional descriptive study consisted of 150 patients with Acute Myocardial Infarction. They were referred to Kermanshah Shahid Beheshti Heart Hospital, Iran at least 30 minutes after the onset of Myocardial Infarction symptoms. Data collection was via structured questionnaire and patient medical charts.

Results: 74% patients arrived at the hospital after two hours. There were significant differences between gender, job, smoking, employment status, place of symptoms onset, and delay time (p<0.05). More than 70% of respondents reported that the attribution of symptoms to other problems and misunderstanding of Myocardial Infarction symptoms had a moderate to high effect on their delay time. Nearly 55% of participants prayed or hoped that signs or symptoms would go away, while 20.7% tried to be relaxed and none of them asked for medical care as a first reaction.

Conclusion: Interventions to decrease pre-hospital delay must focus on improving public awareness of Acute Myocardial Infarction symptoms and increasing their knowledge on early response and treatment benefits. (Rawal Med J 2013;38: 109-112).

Keywords: Myocardial infarction, emergency medical service, chest pain.

INTRODUCTION

Cardiovascular diseases are the most threatening conditions of health and life.[1] It is the cause of death in Iran as about 40% of deaths are as a result of coronary heart disease.[2] Results of recent studies have shown that morbidity and mortality rate decrease if patients receive medical care as quickly as possible after Myocardial Infarction (MI) symptoms onset.[3] Delays in seeking medical care in Acute Myocardial Infarction (AMI) have adverse consequences on patients' conditions,[2] medical cost and limits the potential benefits of early interventions.[2,4]

Early thrombolytic therapy improves perfusion of myocardial ischemic area, limits infarct size and reduces risk of fatal arrhythmias.[5] It increases survival rate up to 50% when provided within one hour after symptom onset.[6] However, many patients with AMI do not benefit because of seeking medical care late,[7] as around 50% seek medical care after 2 hours[8] and more than one-quarter with AMI are refered to the medical center after 6 hours.[9] Recognition of the contributing factors may help to find and develop new interventions to lessen delays and AMI morbidity and mortality rate.[10] There is no enough information on the effective factors of delay time in AMI in Iran. Therefore, the aim of present study was to investigate the causes of delay in seeking treatment among patients with AMI associated with decision time and home-to-hospital delay.

METHODOLOGY

This cross-sectional descriptive study was approved by and the ethical committee of the University of Kerman Medical Sciences. All the subjects signed written consent after receiving information on the study protocol. 150 patients with AMI admitted to Shahid Beheshti Heart Hospital, Kermanshah, Iran participated in the study. They were hospitalized for less than 72 hours. A questionnaire was used, which contained demographic characteristics of patients, history of medical problems, clinical manifestation

of patients at the admission time, social-cultural factors related to delay and first patient's reactions to MI symptoms. Content validity of the questionnaire was 0.89. Reliability was demonstrated by test-retest. It took 40 minutes to fill the questionnaires through bedside interviews.

Descriptive statistics were analyzed for demographic characteristics, delay time duration, clinical data, and sociocultural factors and the first response of patients to AMI symptoms. The statistical analyses were carried out using SPSS® 16 for Windows. Analysis of variance and Kruskal-Wallis, independent *t*-test were conducted to compare demographic characteristics, medical history, patients' symptoms at the admission time and pre-hospital delay-time. The level of confidence for statistical analysis was set at 95% (P < 0.05).

RESULTS

The majority of patients were 60 years old and over, 61.3% were men, 76.7% were married and 63.3% were illiterate. Only 26% patients arrived within two hours after the onset of symptoms, 62% within six hours and 38% more than six hours. According to previous medical history, 52.7% were with hypertension, 40% with angina pectoris, 22% with diabetes mellitus, and 10% with previous MI. The majority of patients had chest pain (99.3%) as gradual (74%) or distributed (94.7%) to arms and left or right hands and epigastric pain (62%) in admitting time and about 80% of patients experienced their symptoms at home. Table 1 shows the effect of sociocultural factors on delay time in seeking medical care.

Table1: Subjects response to the effects of sociocultural factors on the delay time.

Questions related to social cultural factors	Never		Low		Moderate		High	
	N	%	N	%	N	%	N	%
Did not know about the symptoms	23	15.3	4	2.7	97	64.7	26	17.3
Did not realize the importance of symptoms	120	80	18	12	6	4	6	4
Attributed symptoms to other diseases	36	24	3	2	33	22	78	52
Had a history of same pain that came and went	129	86	9	6	11	7.3	1	0.7
Worried about troubling others	10	68	15	10	26	17.3	7	4.7
Insurance problems	121	80.7	3	2	19	12.7	7	4.7
No presence of a bystander	129	86	4	2.7	4	2.7	13	8.7
Did not take consideration of others to the problem	140	93.3	5	3.3	3	2	2	1.3
Did not take others' consideration	140	93.3	5	3.3	3	2	2	1.3
Could not access to any vehicle	90	60	30	20	25	16.7	5	3.3

N= Number of patients

In terms of demographic variables, there were significant differences between gender, job and smoking (P<0.05) on pre-hospital delay times. The delay time increased significantly in patients who were females, housewives or nonsmokers (P<0.05). Patients with onset symptoms at home were much delayed than those who experienced symptoms outside their homes (P<0.05). Patients took much

longer to seek treatment when the chest pain started gradually, or when they experienced epigastric pain (P<0.05).

Table 2. Initial reactions to MI symptoms.

Initial reaction of patients	Number	Percentage
Tried to be relaxed	31	20.70
Wished or hoped signs or symptoms would be removed	83	55.30
Pretended nothing serious happened and tried to think about other things	2	1.30
Told someone who was nearby	24	16.00
Took prescribed drugs	1	0. 67
Took un-prescribed drugs	1	0.67
Self treatment with non medical ways	7	4.70
Tried to remove signs or symptoms with changing position	1	0.67
Referred to a physician's office or the hospital	0	0

N = Number

There were no significant effect of medical history on pre-hospital delay time (P?0.05). Table 2 shows the first response of patients to the MI symptoms.

DISCUSSION

Over a quarter of the patients referred to the hospital in ? 6 hours after symptom onset. Different delay time duration in the literature may be connected to the definition of the pre-hospital delay. For example, Khraim, Scherer[11] defined delays from symptom onset to the time of decision to seek medical care, while some authors defined it as a period from the beginning of MI symptoms to arrival at the hospital.[12,13]

Approximately, 98% of patients did not use emergency medical transportation services as they were unaware of the emergency contact number or had easy access to own transportation. About 70% of the patients recognized their symptoms as serious, but they did not consider them as life threatening or severe enough to get immediate medical help. Furthermore, the majority of the respondents (74%) attributed their symptoms to the gastrointestinal and musculoskeletal problems and

tried to use self-treatment strategies. Many of the patients (82%) stated that they were unaware about AMI symptoms and did not find their symptoms as cardiac origin.

The findings of the current study are consistent with other researches who reported there is no significant relationship between age and delay time.[13,14] Some studies have indicated that older patients refer to the hospital much later than younger patients.[12,15] A possible explanation for this disagreement might be related to small sample size that reduces the statical power.

The results of this study support previous research into this brain area which links gender and delay-time,[13,16] but are in direct contrast with others.[12,15] These conflicts are likely due to differences in the social support of women in different societies. Further, many of the women in current study used self-treatment strategies to control the cardiac symptoms and did not seek medical care early.

The results of this study did not show any significant difference between patient delay and medical history. Conversely Ting et al found that patients with a history of high-risk coronary artery diseases or MI referred to health center earlier and those with diabetes mellitus delayed significantly.[17] This inconsistency may be due to dissimilarity in sample size from different communities. Another important finding was that patients with symptom onset at home took a significantly long time to refer to the hospital than the others. It seems possible that this result is due to easy access to kinds of self-treatment at home. However, most patients ascribed the symptoms to a less important problem such as gastritis or muscle cramps and hence took accessible medication or herbal drugs at home.

Study limitations include the fact that patients who were not stable and died before arriving at the hospital were not included in the study. It may difficult to extend the results of this study to the Iranian population as a whole due to the limited source of the sample and the range of cultural characteristics within the community.

CONCLUSION

Over 50% of patients with myocardial infarction symptoms delayed for at least two hours in seeking

medical treatment. The majority of patients did not believe that the symptoms were of cardiac origin. Most of the patients did not have proper first responses to AMI symptoms. Ther is need to educate the public and increase their awareness of AMI symptoms and the importance of seeking medical care early.

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REFERENCES

1. Kaur R, Lopez V, Thompson DR. Factors influencing Hong Kong Chinese patients' decision making in seeking early treatment for acute myocardial infarction. Res Nursing Health 2006;29:636-46.
2. Donyavi T, Naieni KH, Nedjat S, Vahdaninia M, Najafi M, Montazeri A. Socioeconomic status and mortality after acute myocardial infarction: a study from Iran. Internat J Equity Health 2011;10:1-9.
3. Wu JR, Moser DK, Riegel B, McKinley S, Doering LV. Impact of Prehospital Delay in Treatment Seeking on In-Hospital Complications After Acute Myocardial Infarction. J Cardiovasc Nursing 2011;26:184-93.
4. Bird MW, Woods AG, Warren NA. Factors influencing treatment delays for acute myocardial infarction. Critical Care Nursing Quart 2009;32:19-23.
5. Zahid SA, Khan HS, Shehzad K, Kayani AM, Javed A, Azad AS. Door to Needle Time and its Impact on Successful Thrombolysis. J Rawalpindi Med Coll (JRMC) 2012;16:3-5.
6. Herlitz J, WireklintSundstrom B, Bang A, Berglund A, Svensson L, Blomstrand C. Early identification and delay to treatment in myocardial infarction and stroke: differences and similarities. Scandinavian J Trauma Resuscitation Emerg Med 2010;18:1-13.
7. Fox-Wasylyshyn SM, El-Masri M, Artinian NT. Testing a model of delayed care-seeking for acute myocardial infarction. Clinical Nursing Res 2010;19:38-54.
8. Herning M, Hansen PR, Bygbjerg B, Lindhardt T. Women's experiences and behaviour at onset of symptoms of ST segment elevation acute myocardial infarction. Eur J Cardiovasc Nursing 2011;10:241-7.
9. Nguyen HL, Saczynski JS, Gore JM, Goldberg RJ. Age and Sex Differences in Duration of Prehospital Delay in Patients With Acute Myocardial Infarction A Systematic Review. Circulation: Cardiovasc Quality Outcomes 2010;3:82-92.
10. Perkins-Porras L, Whitehead DL, Strike PC, Steptoe A. Pre-hospital delay in patients with acute coronary syndrome: factors associated with patient decision time and home-to-hospital delay. Eur J Cardiovasc Nursing 2009;8:26-33.
11. Khraim FM, Scherer YK, Dorn JM, Carey MG. Predictors of decision delay to seeking health care among Jordanians with acute myocardial infarction. J Nursing Scholarship 2009;41:260-7.
12. Sarı I, Acar Z, Ozer O, Erer B, Tekbas E, cer E, et al. Factors associated with prolonged prehospital delay in patients with acute myocardial infarction. Turk Kardiyol Dern Ars 2008;36:156-62.
13. Momeni M, Salari A, Shafighnia S, Ghanbari A, Mirbolouk F. Factors influencing pre-hospital delay among patients with acute myocardial infarction in Iran. Chinese Med J 2012;125:3404-9.
14. Banks AD, Dracup K. Are there gender differences in the reasons why African Americans delay in seeking medical help for symptoms of an acute myocardial infarction? Ethnicity Dis 2007;17:221-27.
15. Cheng S, Guo L, Liu J, Zhu X, Yan H. Factors influencing prehospital delay for patients with acute myocardial infarction. J Geriatric Cardiol 2007;4:11-3.
16. Dianati M, Mosavi G, Hajibagheri A, Alavi N. The pre-hospital delay in seeking treatment in patients with acute myocardial infarction referring to a central hospital in Kashan, Iran. Indian J Med Sci 2010;64:448-54.
17. Ting HH, Bradley EH, Wang Y, Lichtman JH, Nallamothu BK, Sullivan MD, et al. Factors associated with longer time from symptom onset to hospital presentation for patients with ST-elevation myocardial infarction. Arch Intern Med 2008;168:959-68.