

The study of the relationship between pain onset time interval and referring of patients with MI to Khatami Al Anbia hospital of zahedan, Iran (2014-2015).

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Abstract

Coronary artery diseases are one of the important health problems in the world, although considerable progresses have been made to decrease the mortality, they are still the first cause of death in many countries. One of the most effective factors on patients' mortality is the interval between pain onset time and referring to hospital. This is a cross sectional study in which 213 patients were examined who had been diagnosed to have heart failure. Data gathering took 18 months. Data gathering tool was a designed checklist which was filled up by an experienced nurse during interview and obtained results were recorded in files. Results of the study showed that 70% of patients were women and only 30% were men. 48% of them were illiterate and patients age mean and standard deviation was 58.3 ± 12.6 . The mean \pm SD of pain onset time till referring to hospital was 12.1 ± 2.1 . Statistical tests showed a significant correlation between sex and the mean of referring time ($P < 0.05$) but the relation between age and referring time was not significant. Obtained results of the study indicated a considerable delay in patients referring to hospital regarding this point that the best effect of drugs is in the first 30 minutes of chest pain and the most mortality rate also happens in the first hours thus based on these results it is necessary to pay attention to chest pain and to provide public training and instruction to cope with it.

Keywords: Pain onset, Time interval, MI.

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Introduction

Nowadays, coronary artery diseases are one of the most important causes of mortality and acute MI is one of the common heart disorders in hospitalized patients [1]. Referring time to hospital is one of the important factors for reducing the danger and consequences of MI which decline potential complications because most treatment interventions for these patients are usually effective at early hours of MI. Results of GISS group researches and observing more than 11000 patients showed that intravenous Streptokinase considerably reduce the mortality rate of patients who had taken this drug during the first six hours from the beginning of MI symptoms [2]. Results of a study which examined the relationship between pain and taking Streptokinase showed that mortality rate decreased 18% in those who had taken thrombolytic drugs in a short interval and it decreased 25% in patients who had ST segment rise or main branch block in ECG [3]. One of the most important factors related to the effect of these drugs is patients referring time after pain onset time and drug prescription. The most desired mentioned time has been stated less than 30 minutes from emergency admission till drug prescription as, thus patients quick and immediate referring to hospital after pain onset time is of great importance [4].

In case of delay in referring to hospital the aforementioned drug cannot be used [5]. Considering the culture and awareness of society about acute chest pain, it seems that some individuals do some traditional treatments based on their assumption of their chest pain before referring to hospital and if the pain is intensified they refer to medical centre. Only few studies regarding this case have been done at least in Iran or researchers could not have reached it. Pain onset time till referring to hospital emergency was 106 minutes in the study of Soltani et al and the delay in 48.4% of patients was related to long distances. Regarding the importance of the on time referring to medical centres after pain onset and restricted studies in this case, and with regard to previous studies it was shown that the best effect of the drug is at the first 30 minutes of chest pain, and the highest mortality also occur during first hours, the present study was carried out on hospitalized patients with diagnosis of MI at CCU wards of Khatam Al Anbia hospital of Zahedan to precisely determine the interval between pain onset time in MI patients and their referring to hospital. We hope that the results of this study show the precise interval which is significant; it also can help treatment and health practitioners to think of necessary strategies regarding this issue.

Materials and Methods

It is an analytical descriptive and cross-sectional study. Sampling was done using enumeration of population from 2014 till 2015. 213 patients with acute MI who had referred to emergency ward of Khatam Al Anbia hospital of Zahedan were observed in this study and they were all hospitalized at CCU ward. The ethical aspect of this study was approved by the Institutional Ethics Committee of Zahedan University of Medical Sciences and a written consent was given from all patients. Data gathering tool was a questionnaire which included demography, infarct place, ECG observations, Para clinic tests, admission time to emergency, admission time to CCU ward etc. An experienced trained nurse gathered the data.

Statistical analysis

Spss version 20 was used to analyse the data. Student T-test was used to compare the data. Values were significant at $P < 0.05$.

Results

Most of the participants (70%) were male (149 individuals) and there were 64 females (30%). 48% of them were illiterate, 48% had diploma and 4% had academic educations. Patients were 29 to 100 years old; the patients' age mean and standard deviation was 58 ± 12.62 (Table 1).

Table 1. Demographic features of patients.

Variables	Values
Gender, No. (%)	
Male	149 (70)
Female	64 (30)
Age, mean \pm SD [Range]	58 ± 12.62 [29-100]
Educational Status, %	
Illiterate	48
Diploma	48
Academic Education	4

Table 2. Pain onset time interval and referring of patients to hospital.

Interval Time	Mean \pm SD
Male	9.2 ± 14.2
Female	15.9 ± 18
Total	11.2 ± 15.7

The mean of pain onset time till referring to hospital was 11.2 ± 15.7 . The minimum of pain onset time until referring to hospital was 45 minutes after pain and its maximum was 72 hours. Statistical tests showed significant correlation between sex and mean of referring time. Men had lesser referring time than women ($P < 0.05$). The mean of referring for men was 9.2

± 14.2 hours and 15.9 ± 18.1 hours for women (Table 2). The relationship between age and referring time was not significant.

Discussion

Many researches have been carried out about the relevant treatment in the world for patients with MI, which all indicate that the faster the patients refer to hospitals the more effective the drugs will be [6,7]. The most important physiological threat for patients with acute MI is delay which means the duration of time between symptoms till reaching to treatment facilities is long [8]. The importance of this issue is understood when it is recognized that 80 to 85% of MI mortalities occur during first hours after symptoms beginning. Life of some victims can be saved in a condition that they arrive to hospital on time [9]. Streptokinase which is recommended as a fibrinolytic drug for patients with chest pain has the most effect after the first 30 minutes of MI [10]. Other resources have also mentioned that the effectiveness of necessary treatment for reperfusion (using trombolizan, angioplasty, or both) strongly depends on the interval between coronary artery blockage beginning and reperfusion [10,11].

Pain onset time duration till referring to hospital in the present study had been 11 hours, while results of Mirzaeis study which was carried out in Kerman showed that pain onset time duration till referring to treatment centres was 2 hours which is very different from the present study [11]. In another study by Saberi et al. in Kashan that evaluated the prehospital delay and its related factors in patients with MI, the mean of delay was 240.44 ± 295.30 min [12]. In Momeni et al. study in Iran the mean delay was 7.4 ± 16.25 hours [13]. What reasons cause this delay? It seems that delay time from heat attack beginning to hospitalization at hospital can be divided into three stages. 1. Patients decision making time to state unease and asking help. 2. Moving the patient from pain onset place to the emergency of treatment centres. 3. Delay duration from hospital emergency to hospitalization at CCU, but of course many factors have roles in these three stages. However the second stage has not been attended in the present study and in fact first and the second stages are combined together.

It was distinguished in this study that the most delay had been related to patients' decision making and asking help, other stages were less important regarding wasting time. In Saberi et al, a significant relation was observed between the delay time and location of residency [12]. According to a study by Xie et al. Pre-hospital delay is mainly caused by the patient's own decisions and it is much longer than in-hospital delay and the time required deciding on initiating reperfusion therapy [14]. Results of Taghadossis study (examining delay factors of referring of patients with acute MI to Shahid Beheshti hospital of Kerman, Iran in 2004) showed that 89% of patients had delay longer than 8 hours while referring to emergency [15]. Gillhe has mentioned that symptoms beginning time till referring to hospital takes 110 minutes and African women had the most delay. Women had more delay than men in the present study which may be due to rise of pain tolerance threshold in

women or more prevalence of MI in men, women do not attribute chest pain to heart and coronary artery diseases so they do not do anything to reduce it, also women are afflicted with MI in older ages and this may reduce pain and pains become more tolerable [16].

There was no significant correlation between referring age and delay in the present study while study of Taghadossi showed that along the increase of age delay generally increases and individuals over 60 have often referred with longer delay than previous group [13]. Crumlish study showed that aging lengthens the delay of these patients [17]. It was recognized in the present study that 47% of patients were illiterate and they had longer delay than educated ones and dispersion of longer delay is more in this group than the others ($P < 0.05$) which corresponds to study of Taghadossi et al. [18]. The excessive delay may be due to the following reasons:

1. Illiteracy and low level education of patients
2. Lack of awareness of chest pain and its symptoms
3. Attributing chest pain to other non-cardiac causes

We can acknowledge based on the results of this study that ignoring chest pain, long delay in referring to medical centres and taking medical helps are important factors which can finally make the therapy ineffective. If patients arrive early, MI complications can be considerably reduced. It is recommended that public training about chest pain and coping with it should be done; moreover some ways for encouraging people in society for referring to medical centres on time when they feel chest pain should be found. People should also be aware of delay complications. If on time arrival to medical centres is emphasized we can prevent unpleasant complications and mortalities of these patients. Results of this study indicate considerable patients delay in referring to hospital. According to the previous studies it was understood that the best effect of the drug is at the first 30 minutes of chest pain, and the highest mortality also occur during first hours. Therefore it is necessary to pay attention to this issue. Public training of society and how to deal with chest pains is felt more than before. It is better that the study be repeated with a larger sample size in different cities to reach a more precise result in this study we did not have the facilities to collect samples from other cities.

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