

# Medications Used by the Patients with Chest Pain before Reporting to the Emergency Room at National Institute of Cardio-Vascular Diseases, Karachi, Pakistan

Zulfiqar Ali Shaikh, Ghulam Ali, Imtiaz Ali Waggan, Husnain G. Ali, Sabika Murtaza Hassan, Sadiya Fatima Shamim, Saba Saleem

## ABSTRACT

**OBJECTIVES:** To document the medicines taken by patients, with chest pain reporting to the cardiac emergency room, and to determine the role of patients and health care providers to deal with cardiac emergency.

**PATIENTS AND METHODS:** This cross-sectional study was conducted at National Institute of Cardiovascular Disease (NICVD) Karachi from June 01 to September 2007. Patients with chest pain were taken detailed history and were especially asked for the medicines taken by them prior to presenting at NICVD after which they were treated as per routine. A predesigned proforma was used to record the data.

**RESULTS:** The study subjects had a male to female ratio of 64:36, from various occupations and socio-economic strata. The patients who came by ambulance were 100 (15%), and the medications were used by only 152 (22.9%). This was the first visit to cardiac emergency of 403 (60.8%) patients. One hundred fifty-three (23%) patients were referred, 67 (10.1%) transferred, and 443 (66.8%) came directly because of their symptoms. 283 (42.7%) patients had visited another doctor before coming to NICVD.

**CONCLUSION:** The number of male patients with chest pain reporting to cardiac emergency was more; a vast majority did not have access to ambulance and did not take emergency measures. In majority of cases, other health care providers did not advise to take some medicine in emergency.

**KEY WORDS:** Chest pain, Emergency, Medications.

## INTRODUCTION

Cardiovascular related chest pain is most often due to ischemic heart disease, such as myocardial infarction and angina pectoris. Ischemic heart disease is the most common cause of morbidity and mortality in the population over the age of 65.<sup>1</sup> Other cardiovascular causes may be pericarditis or aortic dissection.

NICVD is a specialized hospital for cardiovascular diseases, therefore in this study only patients with cardiac emergencies are considered. The therapeutic options available to such patients range from nitrates, anti-platelet therapies, fibrinolytic therapies, to percutaneous coronary intervention. Therapeutic measures lose their efficacy as time passes.

Fibrinolytic Therapy Trialists' (FTT) Collaborative Group found that the absolute mortality benefit from thrombolytic therapy was as follows: three percent at 5 weeks for presentation within 6 hours, two percent for within 7 to 12 hours, and one percent for presentation within 13 to 18 hours.<sup>2</sup>

The medications used with cardiac emergency are

crucial to decrease morbidity and mortality. This study is conducted to determine the knowledge and attitude of the patients with chest pain and role of the health care providers attending them before reporting to tertiary care cardiac hospital.

## PATIENTS AND METHODS

This cross-sectional study was conducted at National Institute of Cardio-Vascular Diseases (NICVD), Karachi from August 01 to September 30, 2007. The treatment provided is either free or heavily subsidized. The information was collected by filling a pre-tested standardized proforma. The patients who consented to participate were included in the study, and those who did not agree were excluded. The study was conducted after the approval of ethical committee of NICVD and Dow University of Health Sciences, Karachi. The data of 663 patients was collected during the period. The results were analyzed using SPSS-16.00.

**RESULTS**

Total number of the study subjects was 663 with a male to female ratio of 64.4:35.6 (427:236). These patients were from 12 to 91 years of age, with mean, mode, median and standard deviation of 55.55, 55.00, 50 and 12.395 respectively. These persons were from various occupations and represented different socio-economic strata (**table I**).

Medications were used only by 152 (22.9%) patients during the journey to the hospital, while 511 (77.1%) patients did not use medications. Out of these 152 patients, 14 (9.2%) did not have the idea of the type of medicine taken by them; 87 (57.2%) used Angised followed by Disprin 7 (4.6%), and the rest used Captopril, Garnil, Isocarpyl, Panadol, Zafnol and Homeopathic medicine.

Only 99 (23.2%) of males and 53 (25.5%) of females used some medicines on their way to the hospital.

Among all 319 (46%) patients reported at emergency room between 8:00 am to 4:00 pm, 217 (32.8%) patients reported between 4:00 pm to 12:00 midnight and only 127 (19.2%) reported between 12:00 midnight and 8:0 am.

This was the first visit of 403 (60.8%) patients to cardiac emergency. One hundred fifty-three (23.1%) patients were referred to NICVD, 67 (10.1%) transferred from other hospitals, and 443 (66.8%) came directly because of their symptoms.

Total 283 (42.7%) patients had visited another doctor, while 380 (57.3%) had not seen any other doctor before coming to NICVD.

The transport used by the patients for coming to NICVD is shown in **graph I**.

The patients who had to wait for 00 to 10 minutes were 616 (93%), and the remaining 47 (7%) waited for 15 to 45 minutes before being attended by a doctor at NICVD.

Total 608 (91.7%) patients said that they will come back to the same hospital i.e. NICVD, if they developed the identical symptoms again.

Any medication used by the patients during their journey towards the cardiac emergency, and its association with the mode of arrival, first or more visits to NICVD and visit to another doctor is shown in **table II**.

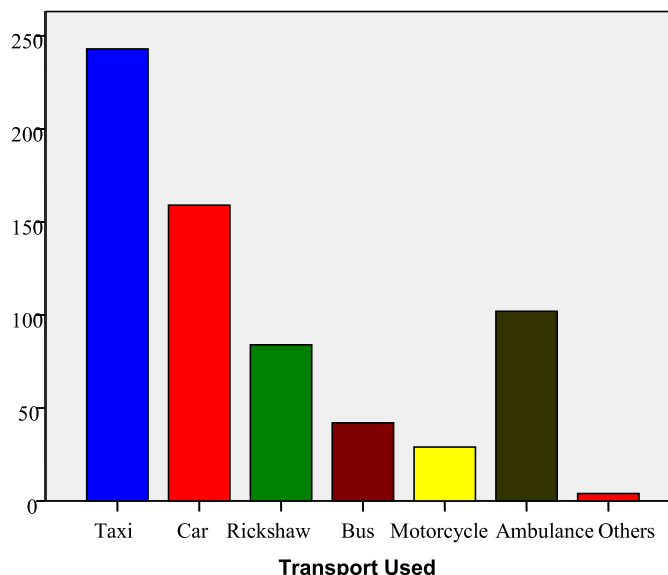
The transport used by the patients with chest while coming to cardiac emergency, and its association with any medication is shown in **table III**.

**TABLE I: OCCUPATION OF THE STUDY PARTICIPANTS (n=663)**

Occupation	Frequency (%)	Occupation	Frequency (%)
Doctor	5 (0.8)	Government Job	17 (2.6)
Farmer	5 (0.8)	Private Job-3	17 (2.6)
Watchman	5 (0.8)	Teacher	19 (2.9)
Engineer	7 (1.1)	Unemployed	20 (3.0)
Peon	7 (1.1)	Government Officer	22 (3.3)
Landlord	8 (1.2)	Labourers	29 (4.4)
Lawyer	8 (1.2)	Private Job-2	31 (4.7)
Private Job-4	12 (1.8)	Businessman	39 (5.9)
Professor	12 (1.8)	Small Business	52 (7.8)
Private Job-1	14 (2.1)	Retired	145 (21.9)
Driver	15 (2.3)	Housewife	174 (26.2)

Private Job-1 = Income up to Rs. 10000 / Month  
 Private Job-2 = Rs. 11000 to 20000  
 Private Job-3 = Rs. 21000 to 40000  
 Private Job-4 = More then Rs. 40000  
 Government Job = Up to Grade 16 (including Clerk)  
 Government Officer = Grade 17 and above  
 Small Business = Income up to Rs. 40000  
 Businessman = Income More than Rs. 40000

**GRAPH I: TRANSPORT USED BY THE PATIENTS FOR COMING TO NICVD (n = 66)**



**TABLE II: ASSOCIATION OF ANY MEDICATION USED BY THE PATIENTS DURING JOURNEY WITH MODE OF ARRIVAL, FIRST VISIT AND VISIT TO ANOTHER DOCTOR MEDICATIONS USED BY THE PATIENTS**

Mode of Arrival			First Visit to Emergency		Visit to Another Doctor	
Referral	Used	58 37.9%	Used	84 (20.8%)	Used	95 (33.6%)
	Not Used	95 (62.1%)	Not Used	319 (79.2%)	Not Used	188 (66.4%)
	Total	153 (100.0%)	Total	403 (100.0%)	Total	283 (100.0%)
Transfer	Used	19 (28.4%)				
	Not Used	48 (71.6%)	More Visits		No Visit to Another Doctor	
	Total	67 (100.0%)	Used	68 (26.2%)	Used	57 (15.0%)
Direct	Used	75 (16.9%)	Not Used	192 (73.8%)	Not Used	323 (85.0%)
	Not Used	368 (83.1%)	Total	260(100.0%)	Total	380 (100.0%)
	Total	443 (100.0%)				

**TABLE III: ASSOCIATION OF ANY MEDICATION USED BY THE PATIENTS DURING JOURNEY WITH THE TRANSPORT USED FOR COMING TO NICVD**

Transport Used	Any Medication Used		
	Yes	No	Total
Taxi	58 (23.9%)	185 (76.1%)	243 (100%)
Own Car	33 (20.8%)	126 (79.2%)	159 (100%)
Rickshaw	12 (14.3%)	72 (85.7%)	84 (100%)
Bus	10 (23.8%)	32 (76.2%)	42 (100%)
Motorcycle	09 (31.0%)	20 (69.0%)	29 (100%)
Ambulance	28 (27.5%)	74 (72.5%)	102 (100%)
Others	02 (50.0%)	02 (50.0%)	04 (100%)

**DISCUSSION**

More than 50% of the 1.2 million people who suffer an acute myocardial infarction (AMI) or coronary death each year in the United States die in an emergency room (ER) or before reaching a hospital within an hour of symptom onset.<sup>3</sup> The time lapse between onset of pain and treatment includes the time taken to recognize the severity of symptoms, travel time and the door to needle time. Financial concerns, lack of awareness of cardiac symptoms, lack of proper medical facilities and non-availability of transport contribute to increase time lapse. Studies conducted in the United States have shown that financial concerns may affect the utilization of Emergency Medical Services among

low-income patients experiencing a cardiac event.<sup>4,5</sup> This may result in a serious or life threatening delay in acquiring medical attention.

Emergency cardiac chest pain must be dealt with in a stepwise fashion. American College of Cardiology/ American Heart Association recommends pre hospital use of morphine, oxygen, nitroglycerin and aspirin for suspected ST Elevation Myocardial Infarction (STEMI) unless otherwise contra-indicated. Early use of aspirin is beneficial and particularly stressed. This should be followed by obtaining a 12 lead ECG and initiation of fibrinolytic therapy as soon as possible.<sup>6</sup>

A shorter time from onset of pain to hospital presentation and commencement of fibrinolytic therapy has been shown to improve survival.<sup>7,8</sup> A study conducted by the National Registry of Myocardial Infarction from 1999 to 2002 demonstrated that in-hospital mortality decreased with shorter door to needle time.<sup>9</sup> Other studies have shown that fibrinolytic agents have survival benefits<sup>2</sup> but are most effective when administered within 2 hours from symptom onset.<sup>10-12</sup>

The results show that almost half of the patients reported to cardiac emergency during morning hours; and these patients even delayed their coming to cardiac emergency hospital as they preferred to come in the morning. This could be due to assumption that more and senior doctors are available during these hours.

The males suffer much more from cardio-vascular

diseases than females; as the number of males visiting cardiac emergency was almost double as compared to females. There was no difference of risk among the people from various socio-economic and occupational groups, as people from all walks of life reported at the ER for cardiac emergency (shown in table 1).

Most of the patients used taxi 239 (36%) or their own car 157 (23.7%) or some other transport, and only 100 (15%) of them came by ambulance. This suggests that there is either lack of information or non availability of ambulances.

It seems that most of the people do not have knowledge of emergency measurements for heart problems, particularly angina and heart attack, as a vast majority of the patients (77.1%) did not use any medication to deal with their problem of chest pain, while coming to the cardiac emergency. There was only a little difference in using medicine between those who had come first time (21%) and those who came more than once (26%). Surprisingly, only 33.6% of the patients who had visited some doctor, had used some medication; and 15% of them who had not visited any doctor before coming to NICVD, had used medicine. Sixty two per cent of the referred by a health care provider and 72% of the transferred from some health care facility and 83% of the direct coming patients did not use medicine. This suggests that even a majority of health care providers did not advise to take some medicine in emergency.

The care provided in emergency at NICVD is not delayed as 93% of the patients were attended within ten minutes.

## CONCLUSION

Medication administered during the early period of chest pain, preferably at the onset of pain, can be crucial to the survival of the patient. Awareness of chest pain and its underlying causes is vital to treatment and recovery of the patient. There is a need of mass awareness and sensitization of health care providers to deal with cardiac emergency.

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*AUTHOR AFFILIATION:*

**Dr. Zulfiqar Ali Shaikh** (*Corresponding Author*)  
Assistant Professor, Department of Community Medicine  
Dow University of Health Sciences  
Karachi, Sindh-Pakistan.  
Email: drzulfiqarshaikh@gmail.com

**Dr. Ghulam Ali**  
Associate Professor, Department of Forensic Medicine  
Dow University of Health Sciences  
Karachi, Sindh-Pakistan.

**Dr. Imtiaz Ali Waggan**  
Associate Professor, Department of Anatomy  
Dow University of Health Sciences  
Karachi, Sindh-Pakistan.

**Dr. Husnain G. Ali**  
Jinnah Postgraduate Medical Center  
Karachi, Sindh-Pakistan.

**Dr. Sabika Murtaza Hassan**  
Third Year Medical Students  
Sindh Medical College, Karachi, Sindh-Pakistan.

**Dr. Sadiya Fatima Shamim**  
Third Year Medical Students  
Sindh Medical College, Karachi, Sindh-Pakistan.

**Dr. Saba Saleem**  
Third Year Medical Students  
Sindh Medical College, Karachi, Sindh-Pakistan.