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Relationship Between Times And Onset Of Symptoms Of Acute Myocardial Infarction Patient At Ccu In Erbil City

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Abstract:

Aim and Objective: The aim of this study is to find out the time onset of acute myocardial infarction in different times and relationship between myocardial infarction symptoms of patients.
Background: Acute Myocardial Infarction is occurring because of sustained ischemia, causing irreversible myocardial cell death. Thrombus formation causes 80% to 90% of all acute myocardial infarction.
Design: A quantitative, cross sectional study design.
Methods: A study was conducted in coronary care unit on Acute Myocardial Infarction patient at Erbil Hospitals of Hawler, Rizgary and East Emergency Teaching Hospitals. This study was started from May, 2019 to October of 2019.
Results: A non-probability convenience method used to recruit patients. Informal oral consent was obtained. Data was analysed through the Statistical Package for Science Service, V 20. Descriptive statistical analyses that was include. Frequency and percentage. The Inferential statistical data analysis through Chi-square and Fisher's Exact tests: used to find out the association between categorical variables. Probability of p–value and considered significant at the level of ≤ 0.05. The researcher was collected the data through face to face interview after taking an agreement from patients and the samples were interviewed via one session about half an hour with protect patient trust and confidentially.
Conclusions: The results of the study indicated that more than half of the study sample were had severe chest pain in the morning and nearly one third of them were had diaphoresis and shortness of breathing at night. The majority of the sample were had no nausea, vomiting and most of them were felt palpitation at night.

Recommendations:
1-Further study should be done this problem to reduce morbidity and mortality.
2-Provide information to the patient on cardiac problems to be knowledgeable about the disease process.
3-Guide the patient when feeling the chest pain especially in the morning visit the nearest hospital.

Introduction

Acute Myocardial Infarction (AMI) is occurring because of sustained ischemia, causing irreversible myocardial cell death. Thrombus formation causes 80% to 90% of all acute myocardial infarction. The earliest tissue to become ischemic is the sub-endocardium (1).

Acute Myocardial infarction is an emergent situation characterized by an acute onset of myocardial ischemia that results in myocardial death, if intervention does not occur promptly. The area of infarction develops over minutes to hours as the cells are deprived of oxygen, ischemia develops, cellular injury occurs and the lack of oxygen results in infarction or death of the cells (2&3).

Physical changes do not occur in the heart until six hours after the infarction, when the infarcted region appears blue and swollen, after 48 hours, the infarcted area turns gray with yellow streaks as neutrophils invade the tissue and begin to remove the neurotic cells (4).

The heart attack can happen to anybody anywhere at any time. Ischemia is the most common causes of deaths among ventricular fibrillation (1). It could be due to blockage of an artery that supplies blood to an area of the art. As the age progresses, the inner walls of arteries develop some plaques of cholesterol, fats and other substances (5&6).

Heart attack is more dangerous in the morning than other time, some patients who had acute myocardial infarction between 6 am and midday suffered a fifth more damage to their heart muscle compared with those had myocardial infarction later on. It found to have higher blood levels of these enzymes than those who had heart attack later in the day, with increase in peak levels of 18% and 24.6% (7).

A study found that the risk of experiencing a myocardial infarction is increased during the first hours of the morning. Sleep apnea syndrome is associated with an enhanced adrenergic activity, prolonged a few hours after awakening.(8).A study demonstrate that the onset of myocardial infarction in a peak in a mid to late morning. The morning peak has been prescribed to the effects of the surge

in catecholamine that accompanies awakening and assuming the upright posture (9).
Myocardial infarction occurred 2.8 times more frequently during morning hours as compared to evening. Controllable and non-controllable risk factors have been associated with an increased risk of myocardial infarction (10). this pandemic has affected a wide range of people's lives, including school hours, school teachers are actually the first respondent in cases of disasters or emergencies. They must be able to deal properly with health emergencies both in normal children, and those children with special health care needs (17). Healthcare professionals have realized that much of their technical and administrative activities arrelated to the management and provision of patient information, diagnosis, treatment and medical research. Hence, we can recognize the role of computer and the idea of using it in medicine and its relation to health sciences and the relationship of the latter with computer science and medical engineering (18).

Patients and Methods:

A quantitative, cross sectional study was conducted on MI patient at Erbil Teaching Hospitals. This study was conducted in Coronary Care Unit in Erbil City Hospitals of Hawler, Rizgary and East Emergency Teaching Hospitals. This study was started from May, 2019 to October of 2019. The target population of the study was included patients who has Acute Myocardial Infarction and admitted to Coronary Care Unit in Erbil Teaching Hospitals. All patient who participated and able to answer the questions. Unconscious Patients or reject to participate the study. A non-probability convenience (purposive) method used to recruit patients with acute myocardial infarction who participated in the study. Informal oral consent was obtained from each participant. The researcher promised to keep the participant's information confidential and use these data for this study only then explaining the purpose of this study to each participant. In addition to above the researcher told each participant that this is a voluntary work, and they can leave any time even the process is not completed. The formal permission obtained from both of the Ethical and Scientific Committees in the College of Nursing/ Hawler Medical University (Code No.81 in 12/5/2019). Data was analysed through the SPSS (Statistical Package for Science Service) for Windows V.23 application for statistical data analysis. It was included following: Descriptive statistical analyses that was include. Frequency and percentage. The Inferential statistical data analysis through Chi-square and Fisher's Exact tests: used to find out the association between categorical variables. All statistical procedures were tested on a probability of p–value and considered significant at the level of ≤ 0.05. The researcher was collected the data through face to face interview after taking an agreement from patients and the samples were interviewed via one session about half an hour with protect patient trust and confidentially.

Results

Table 1: Characteristics of Sociodemographic of the study sample

Characteristics of Sociodemographic		**F**	**%**
Age group	34-47	15	15.3
	48-61	45	45.9
	62-75	29	29.6
	76-89	9	9.2
Gender	male	64	65.3
	female	34	34.7
Level of education	illiterate	52	53.1
	read	15	15.3
	primary	13	13.3
	secondary	3	3.1
	diploma	4	4.1
	bachelor	11	11.2
Residential	rural	62	63.3
	urban	36	36.7
Total		**98**	**100**

Table 1. Shows that there were highest percentages (45.9%) within age group 48-61. The majority of the sample (65.3%) were male, most of them (53.1%) were illiterate, while 63.3% of the sample were lived in the rural.

Table 2: Symptoms of Myocardial Infarction of the 98 samples

Did you have		F	%	Time onset					
				Morning		Evening		Night	
				F	%	F	%	F	%
Severe chest pain	yes	89	90.8	53	54.1	10	10.2	26	26.5
	no	9	9.2	N/A	N/A	N/A	N/A	N/A	N/A
Diaphoresis	yes	65	66.3	22	22.4	15	15.3	28	28.6
	no	33	33.7	N/A	N/A	N/A	N/A	N/A	N/A
Shortness of breathing	yes	65	66.3	20	20.4	12	12.2	35	35.7
	no	33	33.7	N/A	N/A	N/A	N/A	N/A	N/A
Cough	yes	48	49	23	23.5	10	10.2	15	15.3
	no	50	51	N/A	N/A	N/A	N/A	N/A	N/A
Nausea and vomiting	yes	37	37.8	24	24.5	8	8.2	5	5.1
	no	61	62.2	N/A	N/A	N/A	N/A	N/A	N/A
Palpitation	yes	74	75.5	22	22.4	12	12.2	40	40.8
	no	24	24.5	N/A	N/A	N/A	N/A	N/A	N/A
Fatigue	yes	66	67.3	27	27.6	20	20.4	18	18.4
	no	32	32.7	N/A	N/A	N/A	N/A	N/A	N/A
Anxiety	yes	60	61.2	23	23.5	17	17.3	20	20.4
	no	38	38.8	N/A	N/A	N/A	N/A	N/A	N/A

Table 2. Shows that 54.1% of the sample were has had severe chest pain in the morning, while 28.6% were had diaphoresis and shortness of breathing in the night. Although 51% of them were had no cough, from the rest 23.5% of them had coughing in the morning. About 62.2% has no nausea and vomiting, from the rest 24% has had nausea and vomiting in the morning. Also 75.5% has had palpitation, from this 40.8% they feel palpitation in the night, Also 67.3% of the sample were had fatigue and in the morning were 27.6%. Regarding anxiety were 61.2% and most of them (23.5%) exposed in the morning.

Table 3: Relationship between sociodemographic characteristics and symptoms of Myocardial Infarction

Symptoms of Myocardial Infarction		Age group n=98								P-Value
		34-47		48-61		62-75		76-89		
		F	%	F	%	F	%	F	%	
Severe chest pain	Yes	15	16.9	43	48.3	23	25.8	8	9.0	0.061
	No	0	0.0	2	22.2	6	66.7	1	11.1	
Diaphoresis	Yes	7	10.8	35	53.8	17	26.2	6	9.2	0.111
	No	8	24.2	10	30.3	12	36.4	3	9.1	
Shortness of breathing	Yes	9	13.4	31	46.3	20	29.9	7	10.4	0.834
	No	6	19.4	14	45.2	9	29.0	2	6.5	
Cough	Yes	4	8.3	21	43.8	15	31.3	8	16.7	0.031
	No	11	22.0	24	48.0	14	28.0	1	2.0	
Nausea and vomiting	Yes	5	13.5	17	45.9	13	35.1	2	5.4	0.645
	No	10	16.4	28	45.9	16	26.2	7	11.5	
Palpitation	Yes	11	14.9	31	41.9	26	35.1	6	8.1	0.202
	No	4	16.7	14	58.3	3	12.5	3	12.5	
Fatigue	Yes	8	12.1	29	43.9	22	33.3	7	10.6	0.405
	No	7	21.9	16	50.0	7	21.9	2	6.3	
Anxiety	Yes	9	15.0	31	51.7	16	26.7	4	6.7	0.451
	No	6	15.8	14	36.8	13	34.2	5	13.2	

Table 3. Shows that there were significant relationship between signs and symptoms of cough with age group which was 0.031, while others were show non-significant relationship.

Table 4. Shows symptoms with gender among myocardial infarction of 98 samples

Symptoms of Myocardial Infarction		Gender n=98				P-Value
		Male		Female		
		F	%	F	%	
Severe chest pain	Yes	58	65.2	31	34.8	0.928
	No	6	66.7	3	33.3	
Diaphoresis	Yes	39	60.0	26	40.0	0.121
	No	25	75.8	8	24.2	
Shortness of breathing	Yes	42	62.7	25	37.3	0.423
	No	22	71.0	9	29.0	
Cough	Yes	31	64.6	17	35.4	0.883
	No	33	66.0	17	34.0	
Nausea and nausea	Yes	20	54.1	17	45.9	0.068
	No	44	72.1	17	27.9	
Palpitation	Yes	48	64.9	26	35.1	0.872
	No	16	66.7	8	33.3	
Fatigue	Yes	43	65.2	23	34.8	0.963
	No	21	65.6	11	34.4	
Anxiety	Yes	37	61.7	23	38.3	0.342
	No	27	71.1	11	28.9	

This table shows that there were non-significant relationship between all signs and symptoms with both genders.

Symptoms of Myocardial Infarction		Level of Education n=98												P-Value
		Illiterate		Read		Primary		Secondary		Diploma		Bachelor		
		F	%	F	%	F	%	F	%	F	%	F	%	
Severe chest pain	Yes	48	53.9	13	14.6	10	11.2	3	3.4	4	4.5	11	12.4	0.383
	No	4	44.4	2	22.2	3	33.3	0	0.0	0	0.0	0	0.0	
Diaphoresis	Yes	40	61.5	7	10.8	8	12.3	2	3.1	2	3.1	6	9.2	0.260
	No	12	36.4	8	24.2	5	15.2	1	3.0	2	6.1	5	15.2	
Shortness of breathing	Yes	38	56.7	7	10.4	11	16.4	1	1.5	2	3.0	8	11.9	0.167
	No	14	45.2	8	25.8	2	6.5	2	6.5	2	6.5	3	9.7	
Cough	Yes	29	60.4	7	14.6	7	14.6	0	0.0	1	2.1	4	8.3	0.345
	No	23	46.0	8	16.0	6	12.0	3	6.0	3	6.0	7	14.0	
Nausea and vomiting	Yes	24	64.9	6	16.2	0	0.0	1	2.7	0	0.0	6	16.2	0.021
	No	28	45.9	9	14.8	13	21.3	2	3.3	4	6.6	5	8.2	
Palpitation	Yes	39	52.7	15	20.3	7	9.5	2	2.7	2	2.7	9	12.2	0.007
	No	13	54.2	0	0.0	6	25.0	1	4.2	2	8.3	2	8.3	
Fatigue	Yes	38	57.6	9	13.6	8	12.1	2	3.0	1	1.5	8	12.1	0.447
	No	14	43.8	6	18.8	5	15.6	1	3.1	3	9.4	3	9.4	
Anxiety	Yes	30	50.0	8	13.3	7	11.7	3	5.0	3	5.0	9	15.0	0.398
	No	22	57.9	7	18.4	6	15.8	0	0.0	1	2.6	2	5.3	

Table5. Shows the relationship between symptoms with level of education among myocardial infarction of 98 samples

This table show that there were significant relationship between nausea and vomiting with level of education and show highly significant relationship between palpitations with level of

education. While shows non-significant relationship between other signs and symptoms with level of education.

Table 6. Shows the relationship between symptoms with residential area among myocardial infarction of 98 samples

Symptoms of Myocardial Infarction		Residential Area n=98				P-Value
		Rural		Urban		
		F	%	F	%	
Severe chest pain	Yes	55	61.8	34	38.2	0.343
	No	7	77.8	2	22.2	
Diaphoresis	Yes	38	58.5	27	41.5	0.166
	No	24	72.7	9	27.3	
Shortness of breathing	Yes	40	59.7	27	40.3	0.282
	No	22	71.0	9	29.0	
Cough	Yes	29	60.4	19	39.6	0.567
	No	33	66.0	17	34.0	
Nausea and vomiting	Yes	19	51.4	18	48.6	0.057
	No	43	70.5	18	29.5	
Palpitation	Yes	42	56.8	32	43.2	0.019
	No	20	83.3	4	16.7	
Fatigue	Yes	35	53.0	31	47.0	0.003
	No	27	84.4	5	15.6	
Anxiety	Yes	36	60.0	24	40.0	0.399

Table 6. Show that there were significant relationship between signs and symptoms such as palpitation and highly significant such as fatigue with residential area. While others show non-significant relationship.

Discussion:

Regarding table 1, there were less than half of sample within age group (48-61) years. The majority of the sample was male, illiterate and lived in the rural. While one third of them were unemployed and lived urban. A study which conducted in Birmingham,UK, that 46.7% of the sample aged more than 45 years, about gender 53% of the sample was male and 45.4% of was unemployed.(11)

About symptoms of myocardial infarction that appear on the patient who participate in the present study, table2 shows that more than half of the study sample had severe chest pain in the morning. A study said that heart attacks occur more often between 6 a.m. to noon the study suggest increased sympathetic nervous system tone and elevated cortisol levels during this time can lead to rupture of cholesterol plaques in coronary arteries ultimately leading to a fold higher risk factors of heart attack early in the morning (12).

Another study demonstrated that myocardial infarctions are at least three times more occur in the morning than in the late evening(13). Another study said that myocardial infarction mostly occurred in the morning hours with 26.3% of the patients, but higher peak 26.4% occurred in the evening(14).

The present study shows that nearly one third of the study sample had diaphoresis and shortness of breathing at the night. A study which was done in the Norwegian patients they found that 33% of the study sample were had dyspnea in the morning (15).

Regarding cough more than half of the sample were had no cough in all times of the day.

In the present study, the majority of the sample had no symptoms of nausea and vomiting and most of them were felt palpitation at night. I don't find any study to support present study.

As regard of fatigue and anxiety most of the samples has had fatigue and anxiety in morning. There was a study which agrees with present study that done in the Norwegian patients they found that 62% of the study sample were had fatigue in the morning (15).

The relationship between age group and symptoms in table 3, shows that there were only significant relationship between cough and age group, while other symptoms were show non-significant relationship with age group. This mean that most common of symptoms has no relationship with age group, may be symptoms occur at any time of age.

Regarding table 4, there were no any significant relationships between all symptoms with both genders. According to the present study, that mean all symptoms had no relationship with gender, by the way there is no any significant. A cohort study said that there is a differences between the heart attack symptoms experienced by men and women, and looked that there were relationship with both gender influenced by age (16).

Table 5, explore significant relationship between symptoms such as nausea and vomiting with level of education, while show highly significant with palpitation with level of education. Regarding other symptoms show non-significant relationship with level of education. In regard residential area, table 6 show significant relationship of palpitation as a symptom with residential area, while this table show highly significant relationship of fatigue as symptoms with residential area. Unfortunately the researcher didn't find study to support present study.

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