

KNOWLEDGE AND LIFE-STYLE CHANGES FOR PATIENTS WITH MYOCARDIAL INFARCTION AFTER PERCUTANEOUS CORONARY INTERVENTION

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ABSTRACT

Introduction

Myocardial infarction (MI) is a cardiovascular syndrome associated with myocardial ischemia. Percutaneous coronary intervention (PCI) is an effective method for treating myocardial infarction that allows for a short hospital stay and rapid recovery. This study aimed to assess Knowledge and Life-style changes of myocardial infarction Patients after percutaneous coronary intervention.

Study design and Methods

A descriptive study research design has been utilized. A purposive sample of (100) patients with myocardial infarction who underwent Percutaneous coronary intervention were chosen to be included in the present study. Data were collected from 2nd October, 2020 to 1st April, 2021. A close-ended questionnaire of four parts was constructed by the authors to assess the knowledge and life-style changes of myocardial infarction Patients after Percutaneous coronary intervention, a questionnaire including four parts included to achieve this aim. Data were analyzed through SPSS software program Descriptive analysis and inferential.

Results

The study found that the majority of the sample were males (67%), a high percentage 40% of sample with age group (51-60) years old. Also, the study was found that 60% of patients had fair knowledge regarding heart attack, 61% of patients are moderately active relating to daily physical activity.

Conclusion

There was some lacking of the necessary basic knowledge about myocardial infarction patients after Percutaneous coronary intervention.

KEYWORDS: Knowledge, Life-style, Myocardial infarction, percutaneous Coronary Intervention.

INTRODUCTION

Cardiovascular diseases (CVD) are one of the most important challenges of the current age (Kasprzyk et al., 2018). CVD is the world's leading cause of death. Contrary to common assumption, it is a primary cause of death and disability in low-resource settings, and despite the significant reduction in global mortality over the past two decades, years of life lost due to CVD are increasing in low- and middle-income countries (Rehman et al., 2021). As a result, prevention is considered a top priority all over the world (Collins et al., 2017).

Cardiovascular diseases, particularly ischemic heart disease (IHD) and stroke are the leading cause of death and disability worldwide (Roth et al., 2020). IHD is caused by a lack of blood flow

to the heart muscle. IHD is caused by a decline in coronary blood flow induced by coronary artery atherosclerosis in more than 95% of cases, which is why the phrase "coronary heart disease" is frequently used to characterize this disease. According to the World Health Organization (WHO), IHD is still the leading cause of mortality worldwide (Kasprzyk et al., 2018).

Myocardial infarction (MI) is a cardiovascular syndrome associated with myocardial ischemia. It is also known as a heart attack, the usual cause by sudden blockage in a coronary artery is the formation of a blood clot (thrombus). The blood clot typically forms inside a coronary artery that already has been narrowed by atherosclerosis (Mehta, Wei, and Wenger, 2015).

Patients with myocardial infarction are mainly treated with fibrinolytic drugs and percutaneous

coronary intervention, formerly known as angioplasty (with stent) (Ab Manap et al, 2018). Patients with myocardial infarction may feel fear that life is coming to end. The patients require understanding and support from the nurses and physician, patient education is important and should be focused on a lifestyle change, and may recognize the individual patient needs (Mehta et al., 2016).

People with low or moderate activity every day have a higher rate of myocardial infarction, because exercise is very important for the prevention of heart disease. Regular movement and exercise creates new blood vessels in the heart muscle and increases exercise tolerance, resulting in increased blood flow. (Hayashi et al., 2019).

Finally, the researcher found that risk factors through lifestyle need to modification and evidence-based medical therapies are critical for improving survival and preventing recurrent cardiovascular events in patients with myocardial infarction (MI).

This study was conducted to assessment of Knowledge and Life-style changes of Myocardial Infarction Patients After Percutaneous Coronary Intervention.

PATIENTS AND METHODS

A descriptive study research design has been utilized, a purposive sample of (100) patients with myocardial infarction who underwent percutaneous coronary intervention was chosen to be included in the study, the study was conducted from 2nd October, 2020 to 1st of April, 2021 at Cardiac Center at Azadi Teaching Hospital in Duhok city. The close-ended questionnaire of four parts were used, included:

The first part was socio-demographic data, which was concerned with determining the socio-demographic characteristics of the respondents through a design sheet. This part includes seven essential items (age, gender, level of education, employment, type of daily working, economic condition, and current disease history).

The second part was Anthropometric Measurement, which aimed to reveal some measures and proportions of human body for the participants that are important for the current study. This part consists of 10 basic measurements which are: (BMI Body Mass Index, existence of chest pain, MI zone, time of chest pain, time of hospitalization, number of heart attacks, history of risk factors related to MI,

smoking, and family history). The participants were classified according to Body Mass Index (BMI) into four groups: underweight, normal weight, overweight or obese.

The third part was about patients' knowledge regarding heart attack which included knowledge regarding myocardial infarction (MI) through 12 close-ended statements related to definition of MI, signs and symptoms, causes, pain, risk factors, etc. Participants rate their level and degree of knowledge according to a three- Likert scale consisting of the following responses (I know, Uncertain and I do not know), and was the

Finally, the fourth part of the questionnaire was inquiring about the assessment of knowledge and lifestyle of patients with myocardial infarction who underwent percutaneous coronary intervention. It is worth noting that the questionnaire was built based on the researchers' assessment of the patients most prominent needs, and based on a comprehensive review of the literature and based on the researcher's clinical background and experience. This part consists of four important sections in assessing the patients' lifestyle, which are:

- a. Food Habits, which is consisted of 11 items.
- b. Normal daily physical activities, including 11 items,
- c. Relaxation training and breathing to decrease anxiety, which consisted of 4 items,
- d. and Medicinal habits, including 7 items.

Three-Likert scales were utilized for all of those four sections, where participants were required to express the level of their food habits, daily physical activities, relaxation anxiety and medicinal habits according to this scale.

Statistical methods

Data analyses was conducted through SPSS software program Descriptive analysis was conducted including: frequencies distribution, means, standard deviations and percentages in order to characterize the sample in terms of demographic and illness-related characteristic, and to determine the level of the variables and the order of the dimensions of the study variables.

RESULTS AND FINDINGS

Table (1): Socio-Demographic Characteristics of Study Sample Participants

Variables		Frequency	Percentage
Age Group	31-40 years	4	4
	41-50 years	17	17
	51-60 years	40	40
	61 years and more	39	39
Gender	Male	67	67
	Female	33	33
Level of Education	Read and Write	46	46
	Primary school	4	4
	Intermediate	26	26
	Secondary School	6	6
Occupational Status	College Graduate	18	18
	Employee	22	22
	unemployed	62	62
Type of daily working	Retired	16	16
	Light working	36	36
	Moderate working	37	37
Income	Hard-working	27	27
	Not Sufficient	19	19
	Moderate	67	67
Where did you get health education before last hospitalization?	Sufficient	14	14
	No	59	59
	Nurses	6	6
	physician	10	10
	TV	0	0
	Internet	10	10
	Relatives	15	15

Table (1): Patients' current history and medical anthropometric characteristics

Variables		Frequency	Percentage
Current disease history	1st year	73	73
	2nd year	12	12
	3rd year	5	5
	4th year and more	10	10
Have chest pain	No	1	1
	Yes	99	99
Intensity	Mild	2	2
	Moderate	29	29
	Severe	69	69
Location	Central	24	24
	sub-central	40	40
	Epigastric	32	32
	Back pain	4	4
MI Zone	Inf. MI	36	36
	Anterior. MI	41	41
	Ext. MI	1	1
	Septal. MI	0	0
	Anterolateral MI	18	18
Time of chest pain	Lateral MI	4	4
	Morning	37	37
	evening	28	28
Time of hospitalization	night	35	35
	First 6 hrs. of chest pain	27	27
	6- 12 hrs. of chest pain	29	29
Heart Attack	After 12 hrs. of chest pain	44	44
	First	86	86
	Second	12	12
	Third	0	0
	Fourth and more	2	2

Table (3): -Patients' History of risk factors related to myocardial infarction

Risk Factors		Frequency	Percentage
Diabetes mellitus	No	50	50
	Yes	50	50
BMI	Normal weight 18.5- 24.9	5	5
	Overweight 25-29.9	49	49
	Obesity 30 and more	46	46
Hypertension	No	51	51
	Yes	49	49
Previous stroke	No	98	98
	Yes	2	2
Hyper cholesterol	No	48	48
	Yes	52	52
IHD	No	68	68
	Yes	32	32
Stress	No	48	48
	Yes	52	52
Sedentary lifestyle	No	28	28
	Yes	72	72
Physical Inactivity	No	51	51
	Yes	49	49
Salty diet intake	No	63	63
	Yes	37	37
Eating fat food	No	48	48
	Yes	52	52
Alcohol consumption	No	77	77
	Yes	23	23
Cigarette Smoking	Non-Smoker	69	69
	Smoke 1-10 Cigar/day	4	4
	Smoke 11-20 Cigar/day	8	8
	more than 20 Cigar/day	19	19
Family	First-degree	56	56
	Second degree	44	44

Table (4): Assess Knowledge and Life-style change for Patients with Myocardial Infarction After Percutaneous Coronary Intervention

Variables		Frequency	Percentage	Mean (SD)
Patient's knowledge regarding heart attack	Low (12-19)	1	1	26.53 (3.791)
	Fair (20-27)	60	60	
	Good (28-36)	39	39	
Food Habits	Unhealthy food habits (11-18)	26	26	22.38 (5.574)
	Inconstant food habits (19-26)			
	Healthy food habits (27-33)	50	50	
		24	24	
Daily physical activity	Sedentary active (11-18)	26	26	21.32 (4.264)
	Moderately active (19-26)	61	61	
	Highly active (27-33)	13	13	
Relaxation training and breathing to decrease anxiety	Sometimes done (11-18)	26	26	20.95 (4.713)
	Often done (19-26)	64	64	
	Always done (27-33)	10	10	
Medicinal habits	Few times (7-11)	5	5	16.46 (3.512)
	Most times (12-16)	53	53	
	Always (17-21)	42	42	
				8
				3
				2
				6
				0

DISCUSSION

Table one shows the socio-demographic characteristics of the sample. The sample consist of both gender (males and females). The majority of the sample were males (67%), This result was comparable to the results of Mohammad et al. (2013) study, which showed that the incidence of myocardial infarction most prevalent among all cases was male sex, where the proportion of males reached (65.9%). Also, this result was agree with a Kamal et al. (2019) study that showed that the percentage of males who had suffered a myocardial infarction in Assiut University Heart Hospital was much greater than that of women, where the percentage of male patients was 77%. This was explained by Kamal et al. (2019) as men are affected at an earlier age than women and have higher incidence of high blood pressure and led to develop atherosclerosis earlier in life. Also, Abbasi et al. (2018) mentioned that gender is a risk factor of cardiovascular disease, where males are at higher risk of MI than women, and males are more likely to suffer MI early at life.

Our study presented that 40% of sample with age group (51-60) years old. These study agree with the present study regarding age group, as people are exposed to multiple risk factors of MI with aging. Age is one of the factors that cannot be altered, where several changes occur during aging that reduce functional status and compromise cardiovascular health, where the wall of the ventricle and aorta become stiffer and heart's pumping efficiency decrease (Strait & Lakatta, 2012). This is in line with the study of Jiang et al. (2020) that showed that cardiovascular disease incidence and prevalence increases with age. It is a major cardiovascular disease expected to increase in people with a mean age of 60 years.

Regarding samples level of education, patients who can only read and write were high percentage of 46%. Xiao et al. (2018) also noted that more than half of the MI patients (55.8%) did not complete primary school or are only graduated from junior high school. This can be explained by Barbareschi et al. (2011) who showed that there is a strong and independent positive association between the level of education and the level of knowledge of cardiovascular disease.

The large percentage of patients are unemployed with a percentage of 62%. In addition to the fact that the type of daily working in moderate daily work with (37%), this result is similar to Saccomann et al. (2010) which

indicated that the largest proportion of cardiovascular patients participating in their study in Japan were out of work, and that lack of movement and activities due to their lack of work constituted a predisposing factor for heart disease.

Moreover, it can be said that people who have low or moderate daily work have a high rate of myocardial infarction, because occupational physical activity is important for the prevention of coronary artery disease. Activity and regular exercise build new blood vessels in the heart muscle tissue and increase activity tolerance, which leads to increased blood circulation. However, sedentary work exposes the patient to various comorbidities including obesity, hypertension and hypercholesterolemia leading to myocardial infarction (Hayashi et al., 2019).

The majority of sample were moderate in economic status (67%), This indicate that low (insufficient) economic status has no relation in developing MI. This result was in contrast to Davari et al. (2019) study who reported that socio-economic factor such as lower income and bad living situation contribute to the risk of developing MI. However, the current study results deny this result and indicate that developing MI depends more on health behavior and risk factors including smoking, hypertension, obesity, etc. Finally, there were highly percentage of sample (59%) they not got health education before.

In table two, regarding to the intensity, there were highly percentage of the sample had severe chest pain (69%) This was in line with Rahman et al. (2019) who found that severe chest pain can be a differentiating symptom in myocardial infarction patients, where the intensity of chest pain in patients with myocardial infarction disease was 2.6 units higher as compared to those with other epicardial coronary vessel diseases.

In addition, Smukowska-Gorynia et al. (2015) recommended the quick and immediate admission of MI patient with severe chest pain to the nearest hospital to reduce the zone of necrosis in the myocardial tissue and increase the cardiac perfusion by receiving management.

About the location of chest pain (40%) of sample have a sub-central location of pain. Malik et al. (2013) indicated that with MI, the most recognizable symptom is usually pain in the middle of the chest that may spread to the back, jaw, or left arm. This sub-central pain is usually resulted from the deposits, called plaques, cause the coronary arteries to narrow and may prevent a

normal amount of oxygen-rich blood from reaching the heart muscle.

According to MI zone, (41%) of patients have myocardial infarction in the anterior side of heart. This was in line with Bronheim et al. (2019) who found that anterior myocardial infarction (AMI) is a common heart disease than posterior or inferior infarction and associated with significant mortality and morbidity. The prognosis of patients with anterior MI is worse when compared to those with inferior or posterior MI. Patients with anterior MI usually have a complicated hospital course as compared to inferior/posterior MI.

Regarding time of hospitalization, the (44%) of patients was hospitalized after 12 hrs. of chest pain. This was in contrast to Guan et al. (2019) who found that the median time from symptom onset of MI to hospital arrival was 4 h (interquartile range 2–7.5 h).

With regard to heart attack, most of patient had the first attack (86%). This was in line with the study of Riegel et al. (2017) who explained that the first attack is important for the patient, it alerts the patient to treat his/her condition significantly in the future by prevention, administering medications, conducting investigation and also providing self-care to avoid another recurring heart attack. While in the second or third heart attack, the infarction area increases with necrosis cells and the conditions lead to a weakening of the heart.

In term of the risk factors half of sample (50%) suffers from diabetes, This indicates that more than half of patients with MI have diabetes mellitus which is an important predisposing factor for MI. In agreement with the present study (Kiani, f.2016) which indicated that there was highly significant relationship between diabetes mellitus and coronary artery disease such as myocardial infarction. The investigator believes that the individuals with diabetes are more likely to experience a myocardial infarction and have worse outcomes compared with non-diabetic individuals, and people with DM were also three time likely admitted to hospital due to heart-related conditions. Regarding BMI, most of the sample are obese and overweight, where (49%) suffer from overweight, while (46%) of patients suffer from obesity. This was in line with Lee et al. (2022) study that showed that increased BMI is directly related to incidence of myocardial infarction. This can be explained by Stadler & Marsche (2020) who stated that obese people are thought to produce increased level of LDLs and

triglycerides, which are strongly implicated in atherosclerosis. Also, obesity increases the heart size growing, causing increased myocardial oxygen consumption, raises the risk of MI, associated with high blood cholesterol and blood pressure. In regard hypertension, about (49%) suffer from hypertension. This was similar to a study of Rathore et al. (2018) which showed that high blood pressure is more prevalent in old age, is a worse risk factor for the heart and is responsible for at least 70% of heart disease at this age. It had been confirmed that persons with elevated blood pressure are likely to develop peripheral vascular disease, coronary heart disease, and sudden death. So far hypertension is evidenced to be a major risk factor for coronary artery disease.

Relating to hyper cholesterol level in the blood, the results showed that approximately of (52%) had hypercholesterolemia. This was in line with the result of Vergeer and Holleboom (2010), who have showed that a high serum cholesterol level is a primary risk factor in patients age 65 and older, for each 1% increase in total cholesterol, the risk of myocardial infarction by 2% to 3% similar to risk in younger persons. With regard to ischemic heart disease, the study findings indicate that the vast majority of the sample do not suffer from previous ischemic heart disease (68%) of patients do not complain of any IHD. This was in line with the study of Mohammad et al. (2021) which showed that acute myocardial infarction was the first manifestation of ischemic heart disease in 49% of the patients. With regard to smoking tobacco and alcohol consumption, he majority of the sample (69%) are non-smokers and (77%) do not drink alcohol. This result contradicts the study of Kamal et al. (2019), which indicated that the largest percentage of myocardial infarction patients are smokers and drink alcohol with a percentage of (74%). The result of the current study also contradicts with Xiao et al. (2018) where the results showed that three fourths of the myocardial infarction participants (75.8%) have a history of smoking and half of them (50%) have a history of drinking. Regarding family history, results showed that most of the patients (56%) have first-degree relatives who suffer from MI. This result was similar to a study of Rathore et al. (2018) who stated that a family history of myocardial infarction is a major risk factor for AMI. Several genetic variants are associated with an increased risk of AMI and a family history of AMI in a first-

degree relative increases the risk of AMI by two folds.

As for the lifestyles and dietary that may constitute risk factors for myocardial infarction, results showed that the vast majority of the sample (72%) live a sedentary lifestyle and (63%) of study group eat salty food. This was in line with Rathore et al. (2018) who found that inactive people who have sedentary lifestyle are more likely to develop myocardial infarction. On the other hand, a study of Gong et al. (2013) showed that physical activity contributes to reducing the risk of coronary heart disease by up to 20%-30%.

A sedentary lifestyle increases insulin resistance, induces obesity, increases blood glucose levels, plasma lipids and prothrombotic factors that lead to coronary heart disease and myocardial infarction (Gaziano, 2008).

In table (4), the data analysis showed that 60% of patients they had fair knowledge regarding heart attack, also they show that 50% of the patient's Inconstant food habits. Regarding to the Daily physical activity, this study was presented that 61% of patients had Moderately active, for the Relaxation training and breathing to decrease anxiety 64% had often done by patients, and finally, 53% of patients Most times take medication on time. The study of Rius-Ottenheim et al. (2017) showed that a healthy dietary pattern, especially high consumption of vegetables, fruits, whole grains, fish and low-fat dairy products, and MI patients trying to reduce depression and optimism, and training in relaxation and breathing to reduce anxiety and medical habits were positively associated with increased health education for through health educational programs. In conclusion, the study concluded that majority of the sample were males and both sexes males and females had lack of knowledge about lifestyle changes among patients with myocardial infarction.

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