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Research Article

Awareness regarding Myocardial Infarction among Diabetic Patients Attending in a Tertiary Level Hospital

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Abstract

Objective: Diabetes has been associated with an increased risk of cardiovascular disease. Mortality and morbidity due to myocardial infarction (MI) is increasing day by day among diabetic patients. The objective of this study was to find out the awareness on myocardial infarction among diabetic patients attending in a tertiary level Hospital.

Methods: A descriptive cross sectional design was used for this study. Altogether 100 diabetic patients were selected using non-probability purposive sampling technique. Data were collected by using structure interview schedule. Data were analyzed on the basis of research objectives and research questions through SPSS version 16.0. Data were interpreted by using descriptive statistics. Chi square test was calculated to measure association between awareness level and selected socio- demographic characteristics at 95.0% confident level.

Results: More than half (54.0%) of respondents were from the age group of 40-59 years, mean age was 55.3 (SD ± 10.6) years and 52.0% were female. Only 97.0% respondents had heard about the myocardial infarction and only 55.7% of respondents had adequate level of awareness. The mean score was 39.0(SD ±6.86). Near about one third of respondents (32.9%) had awareness on meaning of myocardial infarction as death of heart muscle. Most of the respondents (91.1%) were aware on risk factors of MI i.e. high blood pressure (BP) and obesity followed by stress (88.6%), and diabetes mellitus (84.8%). Almost all respondents were aware on major preventive measures of MI i.e. maintaining healthy weight (97.2%), consuming low fat and cholesterol diet (94.4%), avoiding stress (94.4%) and controlling BP (94.4%). Awareness level of the respondents was statistically significant with their sex and economic status whereas there was no significant association between age, ethnicity, occupation, education and residence of the respondents.

Conclusion: Respondents under the care of diabetes clinic of such tertiary level hospital were not adequately aware about MI. Education and awareness was not sufficient on myocardial infarction among the diabetic patients. Therefore, awareness program on myocardial infarction should be conducted in the hospital and community focusing on group of diabetic patients.

Keywords: Awareness; Myocardial Infarction; Diabetic Patients

Introduction

Cardiovascular diseases (CVDs) are the number one cause of death globally. An estimated 17.7 million people died from CVDs in 2015, representing 31.0% of all global deaths. Of these deaths, an estimated 7.4 million were due to coronary heart disease. Over three quarters of CVD deaths take place in low- and middle-income countries World Health Organization (WHO) [1].

In South Asian countries (India, Pakistan, Bangladesh, Sri lanka and Nepal) contribute the highest proportion of the burden of cardiovascular diseases [2].

Coronary heart disease (CHD) is gradually emerging as one of the major health challenge in Nepal. The burden of CHD is increasing in Nepal due to rapid change in life style and urbanization [3].

According to American heart association [4], there is strong correlation between cardiovascular disease (CVD) and diabetes. At least 68.0% of people age 65 or older with diabetes die from some form of heart disease and 16.0% die of stroke. Adults with diabetes are two to four times more likely to die from heart disease than adults without diabetes. Diabetes to be one of the seven major controllable risk factors for cardiovascular diseases. Similarly, other several studies demonstrated the function of programmed

cell death and oxidative stress in pathogenesis of diabetic complications including myocardial infarction [5-8].

Diabetes today is a burning issue among people in developing countries like Nepal due to change in life style and behavioral pattern. Morbidity and mortality due to myocardial infarction is increasing day by day. In India, awareness of diabetes mellitus and its complications among diabetic patients reported that only 50% diabetic patients are aware of heart attack [9], but no study was to be found in Nepal. Therefore, this study was carried out to find out awareness on myocardial infarction among diabetic patients.

Materials and Method

A descriptive cross sectional designed study was conducted among 100 type two diabetes patients who were attending endocrinology outpatient department of Tribhuvan University Teaching Hospital, Kathmandu. This tertiary level, referral hospital was established in 1983, where the patients represent from different geographical region, cultural and ethnic group of the country. Sample size was calculated by using formula z^2pq/L^2.

Where,

Value of "p" will be taken as 50.0% that is 0.5 referring the prevalence of India [10].

q= Proportion in the target population without the characteristics of interest

q= 1-0.5 = 0.5

L= Allowable error i.e. 10.0% = 0.1

Sample size (n)= z^2pq/L^2

= 4x 0.5x0.5/ 0.1x0.1

= 1/0.01

=100

Therefore, sample size was 100.

Non-probability purposive sampling method was used. Both male and female patients above 30 years old; conscious and well oriented with time, place and person; and diagnosed as type 2 diabetes mellitus by the Endocrinologist at least 6 months before the data collection were included in the study.

Data were collected by using structured interview schedule which was developed by researchers and translated into local (Nepali) language. Pretesting of the instrument was done among 10.0% of sample size in same setting and excluded in final study. Informed consent was taken from each respondent before collecting data. Ethical approval was taken from Ethical Review Board of Institute of Medicine, Tribhuwan University (IRB, IOM, TU). Data were collected from 17 July 16 August, 2017. Data were analyzed on the basis of research objectives and research questions through SPSS version 16.0. Data were interpreted by using descriptive statistics. Chi square test was calculated to measure association between awareness level and selected socio- demographic characteristics at 95.0% confident level.

Results

Socio-demographic Characteristics and Health related Profile

Regarding the socio-demographic characteristics, more than half (54.0%) of the respondents belonged to the age group of40-59 years, mean age was 55.3years (SD ± 10.6), 52.0% were female and 51.0% were Brahmin/Chhetri. Similarly, 87.0% respondents were married, 70.0% were literate, 32.0% were house manager and 61.0% were from Kathmandu Valley (Table 1).

Table 1: Socio- Demographic Characteristics of the Respondents.

	n=100
Characteristics	**Percent**
Age group in completed years	
30-39	7.0
40-59	54.0
60 above	39.0
Mean age: 55.3	
S.D: ± 10.6	
Sex	
Female	52.0
Male	48.0
Marital status	
Married	87.0
Unmarried	4.0
Widowed	9.0
Ethnicity	
Brahmin/ Chhetri	51.0
Janajati	35.0
Dalit and Madhesi	14.0
Education	
Can't read and write	30.0
Can read and write only	21.0
Primary level	7.0
Secondary level	13.0
Higher secondary level	23.0
Bachelor and above	6.0
Occupation	
House manager	32.0
Service	18.0
Business	18.0
Agriculture	23.0
Others*	9.0
Address	
Outside Kathmandu valley**	61.0
Inside Kathmandu valley	39.0

*Others: Social worker, Retired

** Kathmandu valley includes Kathmandu, Bhaktapur, Lalitpur

Sixty three percent respondents were diagnosed as diabetic mellitus within 6 months to 5 years before data collection. Majority of respondents with diabetes mellitus has hypertension (59.5%). Only 2.0% respondents had a past history of MI (Table 2).

Table 2: Health Profile of the Respondents.

		n=100
Variables	**Number**	**Percent**
Duration of diagnosis of diabetes		
6months – 5 years	63	63.0
6-10 years	21	21.0
11-15 years	10	10.0
16-20 years	3	3.0
21-25 years	1	1.0
26-30 years	2	2.0
Co – morbidities (n=47)		
Hypertension	28	59.5
Hyperthyroidism	5	10.6
Eye problem	4	8.5
Nerve problem	3	6.3
Hypothyroidism	3	6.3
Others*	4	8.5
History of MI among respondents (n=100)	2	2.0

*Others includes knee pain, backache.

Awareness on Myocardial Infraction

Regarding the awareness on MI, 79.0% of respondents had heard about it, nearly one third of respondents (32.9%) gave the right answer that MI is a death of heart muscle and majority of respondents (75.9%) told that heart is affected in MI. While, concerning about sign and symptoms of MI, 89.5% of respondents told fainting followed by shortness of breath(88.2%), dizziness(76.2%), chest pain(75.0%), sweating(71.1%), pain at neck and shoulder(47.0%) as a sign and symptoms of MI (Table 3).

Regarding the risk factors of MI, respondents had answered that high BP(91.1%) followed by obesity (91.1%), people living with stress (88.6%), diabetic patient (84.8%), alcohol consumer (84.8%), smoker (84.8%), high blood cholesterol level (77.2%) and people living with sedentary life style (73.4%) are the risk factors of MI. Similarly, 68.4% of respondents had answered correctly that people of urban area are prone to get MI and 77.2% of respondents answered that people of above 40 years age groups are more prone to get MI. Concerning the diet, 94.9% of respondents answered that high intake of meat increases the risk of MI and majority of respondents (88.6%) told that red meat are harmful to heart (Table 4).

Table 3: Awareness on Meaning and Signs / Symptoms of Myocardial Infarction

		n=100
Variables	**Number**	**Percent**
Heard about myocardial infarction	79	79.0
Myocardial Infarction is caused by diabetes	42	53.2
Meaning of myocardial infarction (n=79)		
Death of heart muscle #	26	32.9
Heart failure	13	16.5
Stroke	8	10.1
Don't know	32	40.5
Organ affected in myocardial infarction (n=79)		
The heart #	60	75.9
The brain	9	10.1
The lungs	2	2.5
Don't know	8	10.1
Signs / symptoms of MI		
Fainting #	68	89.5
Shortness of breath #	67	88.2
Dizziness #	58	76.3
Chest pain #	57	75.0
Sweating #	54	71.1
Pain at neck and shoulder #	36	47.4

*Multiple responses

#Correct responses

Similarly, majority of respondents (91.1%) gave the correct answer that MI is preventable. Almost all respondents (97.2%) answered that maintaining healthy weight followed by consuming low fat and cholesterol diet (94.4%), avoiding stress (94.4%), controlling BP (94.4%), controlling diabetes (93.0%), quitting smoking (93.0%), quitting alcohol (88.7%) and performing regular exercise (87.3%) are the preventive measures of MI. For preventing stress, 86.1% of respondents answered that ventilation is the most effective measures. Concerning the controlling measures of diabetes, almost all (98.0%) respondents gave the answer of planned and balanced diet followed by regular exercise (97.5%), regular intake of medicine (96.2%) and regular blood sugar checkup (93.7%) are most effective measures (Table 5).

Relationship between Level of awareness on Myocardial Infarction and Selected Variables

Level of awareness on MI was calculated from median value. Median value was 39 (S.D ± 6.86). Among the respondents (n=79), 55.7% had adequate and 44.3% had inadequate level of awareness on myocardial infarction.

Table 4: Awareness on Risk factors of Myocardial Infarction.

		n=79
Variables	**Number**	**Percent**
Risk factors of myocardial infarction*		
People with blood pressure #	72	91.1
Obese person #	72	91.1
People living with stress #	70	88.6
Diabetic person #	67	84.8
Alcohol consumer #	67	84.8
Smoker #	67	84.8
High blood cholesterol #	61	77.2
Sedentary life style #	58	73.4
Residential risk for myocardial infarction		
Urban #	54	68.4
Rural	8	10.1
Both	14	17.7
Don't know	3	3.8
Age group risk for myocardial infarction		
Below 5 years	1	1.3
20 – 40 years	3	3.8
Above 40 years #	61	77.2
Don't know	14	17.7
Diet risk for myocardial infarction		
High intake of meat #	75	94.9
High intake of cholesterol #	72	91.1
High intake of sodium #	60	75.9
Harmful meat for heart		
Red meat #	70	88.6
Fish	3	3.8
Chicken	2	2.5
Don't know	1	5.1

*Multiple responses

correct responses

Table 5: Awareness on Preventive Measures of Myocardial Infarction

		n=79
Variables	**Number**	**Percent**
Is heart disease preventable		
Yes	72	91.1
No	7	8.9
Preventive measures of MI * (n=72)		
Maintaining healthy weight #	69	97.2
Consuming low fat and cholesterol diet #	67	94.4
Avoiding stress #	67	94.4
Controlling blood pressure #	67	94.4
Quitting smoking #	66	93.0
Controlling diabetes #	66	93.0
Controlling alcohol #	63	88.7
Regular exercise #	62	87.3
Controlling measures of stress to prevent MI *		
Ventilation #	68	86.1
Yoga #	65	82.3
Meditation #	60	75.9
Worship / prayer #	60	75.9
Music #	55	69.6
Others #	9	11.4
Controlling measures of diabetes to prevent MI *		
Planned and balanced diet#	78	98.7
Regular exercise#	77	97.5
Regular intake of medicine#	76	96.2
Regular blood sugar check up#	74	93.7
Insulin administration#	51	64.6
Others: sitting alone, sleeping		

*Multiple responses

#correct responses

Similarly, Chi Square was calculated to measure the relationship of level of awareness on MI with selected socio-demographic variables. Respondents' level of awareness was found to be statistically significant with their sex (p= 0.003) (Table 6).

Sources of information

Respondents had received information about MI from different sources. More than two third (72.2%) had received information regarding MI from family members, relatives, friends and 69.6% had received from health workers (Table 7).

Discussion and Conclusion

In this study, 79.0% of respondents had heard about the myocardial Infarction and 21.0% of respondents had never heard about the term myocardial infarction. Regarding cardiovascular conditions caused by the diabetes, 53.2.0% of respondents had answered that diabetes can lead to myocardial infarction. This finding is higher than the findings of study done by [11] in USA, which revealed that 17.0% of respondents with diabetes were aware that diabetes may cause myocardial infarction.

Table 6: Relationship between Level of Awareness on Myocardial Infarction and Selected Variables.

Variables	Awareness level		p-value (x^2)
	Adequate n (%)	Inadequate n (%)	
Age			
Below 55 years	23 (56.1)	18 (43.9)	0.941
Above 55 years	21 (55.3)	17(44.7)	
Sex			
Male	30 (71.4)	12 (28.6)	**0.003**
Female	14 (37.8)	23 (62.2)	
Ethnicity			
Janajati/ dalit/ madhesi	19 (50.0)	19 (50.0)	0.326
Brahmin/ chhetri	25 (61.0)	16 (39.0)	
Occupation			
Agriculture/ house manager	19 (48.7)	20 (51.3)	0.218
Service/business	25 (62.5)	15 (37.5)	
Education			
Literate	37 (57.8)	27 (42.2)	0.434
Illiterate	7 (46.7)	7 (53.3)	
Residence			
Inside Kathmandu valley	26 (51.0)	25 (49.0)	0.255
Outside Kathmandu valley	18 (64.3)	10 (35.7)	

Chi square test was applied at 5.0% significance level

Table 7: Sources of Information on Myocardial Infarction.

		n=79
Sources of information*	**Number**	**Percent**
Family members/ relatives/ friends	57	72.2
Health workers	55	69.6
Television	41	51.9
Radio	38	48.1
Magazine	33	41.8
Others	4	5.1
Others: Experienced by self, self study		

*multiple responses

Among the various risk factors of MI, almost all (91.1%) respondents answered high blood pressure as a major risk factor of MI followed by obesity (91.0%) and diabetes mellitus (88.6%) in contrast to this study conducted by (Karthik, 2006) in Spain more than half (55.3%) of the respondents answered high cholesterol level followed by Hypertension (43%), family history (42.5%) with very few patients being aware of DM (14.5%) and obesity (13.6%). The variation might be due to variation in setting and study populations.

In present study, 88.6% of respondents told that red meat is harmful for heart, this finding is considerably similar to finding found in the study done by [12] in which (80.7%) respondents had given correct answer that red meat is harmful for heart.

In this study, majority of respondents (89.5%) were aware of fainting as a sign and symptoms of MI followed by, (88.2%) shortness of breath, (76.2%) dizziness, (75.0%) chest pain, (71.1%) sweating, (47%) pain at neck and shoulder are the signs and symptoms of MI. In contrast to these findings study conducted by [13] in Spain revealed that 81.0% of respondents were aware of chest pain followed by (43.0%) tiredness, (42.0%) shortness of breath, (24.0%) fainting, (42.0%) sweating, (35.0%) pain at neck and shoulder. Present study showed that fainting, shortness of breath, dizziness, chest pain are the more common where as in previous study conducted by [13] in Spain showed that chest pain, shoulder pain/discomfort, shortness of breath, and tiredness were more common during MI in patients with diabetes, and fainting was less common. The variation might be due to variation in setting and study populations.

Regarding the preventive measures of myocardial infarction, almost all the respondents were aware of preventive measures such as (94.4%) consuming low fat and cholesterol diet followed by (94.4%) controlling BP, (94.4%) quitting smoking. The study done by [11] contradicts the present study in which few people with diabetes could name important methods of preventing the risk of heart attack, such as lowering cholesterol (8.0%), quitting smoking (7.0%), reducing blood pressure (5.0%). The variation might be due to variation in setting and study populations.

Results of this study showed (71.4%) males were more aware than female (37.8%) on myocardial infarction, which is supported by the study conducted by [14] in Pakistan revealed that male (60.0%) are more aware than female.

Education seems to play a positive role in increasing the awareness of myocardial infarction, in the present study 57.8% of respondents had adequate awareness among the literate respondents compared to those who are illiterate (46.7%). This finding is supported by the study conducted by [14] in Pakistan in which 75.0% of respondents had adequate awareness among the respondents who were literate compared to those who are illiterate (27.64%) [15].

In conclusion, though the diabetic patients are in regular contact with physician still nearly one third of respondents had never heard about myocardial infarction and nearly half of the respondents had inadequate level of awareness on MI. Therefore, awareness program on myocardial infarction should be conducted in the hospital and community focusing on group of diabetic patients.

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