CARDIOVASCULAR HEALTH KNOWLEDGE OF PATIENT ATTENDANTS IN SOUTHERN OF IRAN, SHIRAZ

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ABSTRACT... Background : Knowledge about coronary artery disease and it's risk factors is a very important factor in prevention of ischemic heart disease. The aim of this study was to investigate knowledge of patient attendants about coronary artery disease and its risk factors in southern of Iran; Shiraz. **Design:** Cross sectional study. **Setting:** Shiraz University of Medical Sciences. **Materials and Methods:** 800 patient attendants (persons accompanying patients) selected randomly and divided into two groups (study and control) each including 400 patient attendants. Face to face interview was done and knowledge was measured by correct answers to our standard questionnaire. **Results:** The median knowledge score was 6.89 for study group and was 2.82 for control group out of a possible maximum of 15. Majority of respondents in study group could identify up to three risk factors for coronary artery disease, but in control group could identify only one risk factor. About 5.8% in study group and 37.5% in control group were not able to identify even a single risk factor for coronary artery disease. **Conclusions:** According to our results there is a big gap in knowledge about coronary artery disease and it's risk factors in our population. It means that more educational programs are needed to prevent the increasing rate of coronary artery disease.

Key word: Coronary artery disease; knowledge; risk factors; patient attendants

INTRODUCTION

Efforts to reduce the cost of health care must ultimately focus on prevention rather than treatment of diseases[1]. Efforts to control the epidemic of cardiovascular disease will require the development of new and effective methods for primary prevention[2]. Accurate assessment of the success or failure of any educational program, however, requires a clear understanding of the initial level of knowledge[3]. Although knowledge alone is insufficient, it is thought to be a pre-requisite for making behavioral changes[4]. Monitoring the population's knowledge about coronary artery disease risk factors can help to guide public health programs[5].

It is not known how much the general population is familiar with ischemic heart disease and its risk factors in our country. At present, there is no data about the level of awareness in the general population about prevention and care of patients with CAD in Iran and our study is the first to look into this matter. The aim of this study was to investigate knowledge of patient attendants about coronary artery disease and its risk factors in southern of Iran in Shiraz university of medical sciences.

MATERIALS AND METHODS

This cross sectional study was done at four tertiary care hospitals of Shiraz university of medical sciences from July 2007 to August 2008. 850 patient attendants (defined as persons accompanying patients to the hospital, who are usually family members or close relatives or neighbors) visiting different departments of these hospitals selected randomly and divided into two groups (study and control) each including 400 patient attendants. Study group included patient attendants in cardiac surgery wards where the patients were scheduled for coronary artery bypass grafting and control group included patient attendants in other wards such as urology and orthopedic wards where the patients were not affected by coronary artery disease. Face to face interview was done and knowledge was measured by calculating the correct answers to our standard questionnaire [table I].

Urban dwelling was defined as residences within the geographical bounds of city. Rural dwelling was defined as residing outside the city. Illiterate was defined as one who had not writing and reading capability and had not

Table-I. Questions on which coronary artery disease knowledge score was calculated[4]

Question	Response	Score
What is CAD?	Blocked artery	1
Risk factors for CAD	Smoking	1
	On exercise	1
	Dietary fat	1
	Stress	1
	Hypertension	1
	Diabetes	1
	Age	1
	Male gender	1
	Family history	1
	Obesity	1
	Hypercholesterolemia	1
Symptoms of CAD	Chest pain	1
	dyspnea	1
	sweating	1
	Maximum Score	15

CAD = Coronary Artery Disease

attended any school (even primary). Non university education was defined as one who had attended matriculation school education with passing or without passing education certificate. University education was defined as one who entered the university and spent two or more years with or without completing education. Study subjects were surveyed using a structured questionnaire that was developed to contain questions on four basic themes: (1) understanding of what CAD was; (2) knowledge of risk factors for CAD- respondents were asked what factors are related with CAD and the direction of the relationship between these factors and CAD was specified; (3) knowledge of the symptoms of CAD; and (4) preventive practices relating to CAD-whether subjects thought CAD was preventable and what preventive practices had they undertaken [4]. The questionnaire, consisting of open-ended questions only, was pre-tested in a pilot group of attendants and revised accordingly. All respondents were surveyed uniformly. All questions were asked in persian. Responses to these open- ended questions were recorded in english either by selection from a list of predefined answer categories or in writing if the particular response was not listed. Subjects were asked, at each question, whether they would wished to add anything to their response, but were not prompted or given hints. Subjects were approached in the inpatients departments of the respective hospitals before surgery of the patients. If over the age of 18 years and able to give verbal consent, respondents underwent this standard questionnaire based survey. For statistical analysis, SPSS version 17.0 (SPSS Inc, Chicago, IL, USA) was used. P value <0.05 was mentioned statistically significant. Means and standard deviations were calculated for continuous variables and frequencies for categorical variables. Univariate analysis was performed by simple linear regression to determine the factors associated with knowledge.

RESULTS

850 persons were approached collectively. 50 persons refused to participate or answer the questions. Totally 800 persons got ready to answer the questions; 400 persons were accompanying the patients (relatives, friends and neighbors). Their patients were candidates for coronary artery bypass graft. The control group consisted 400 persons and the persons of this group were neither patients of CAD, nor their first degree relative had. Demographics and clinical characteristics of both groups (Study and control group) are shown in table II.

The interview was face to face. The questionnaire was with the interviewer, the questions were asked in Persian language and then were translated to English by the advisors of the study. They were interviewed to judge their information or knowledge about CAD.

Subjects were asked about what they thought CAD meant. In study group 264 persons (66%) answered correctly (blockage of arteries of heart) and in control group 84 persons (21%) answered correctly. Table III displays the distribution of responses to this question. The participants of both groups were questioned for risk factors for CAD. The most commonly identified risk factors were smoking 295 persons (73.8%) and hypertension 295 persons (73.8%) in the study group, while in the control group hypertension 150 persons (38.5%) and smoking 128 (32%) were reported.

Table-II. Demographics and clinical characteristics of study population

Characteristics	N (%) in study group	N (%) in control group
Hospital		
Namazi	121 (30.3)	
Shahid - Faghihi	109 (27.3)	
Kowsar	83 (20.7)	
Ghalb Al-Zahra	87 (21.7)	
Gender		
Male	227 (56.5)	196 (49)
Female	173 (43.5)	204 (51)
Marital Status		
Single+	98 (24.5)	83 (20.7)
Married	302 (75.5)	317 (79.3)
Residence		
Urban	280 (70.1)	279 (69.8)
Rural	120 (29.9)	121 (30.2)
Age++		
≤ 30	135 (33.8)	128 (32.2)
31-60	236 (59)	214 (53.3)
> 60	29 (7.3)	58 (14.5)
Monthly Income		
< 300000*	149 (37.2)	172 (43)
> 300000	251 (62.8)	228 (57)
Education		
Illiterate	35 (8.75)	46 (11.5)
University education	169 (42.25)	210 (52.5)
Non university Education	196 (49)	144 (36)
Prior Diabetes		
Yes	69 (17.2)	77 (19.2)
No	331 (82.8)	323 (80.8)
Prior Hypertension		
Yes	101 (25.2)	63 (15.8)
No	299 (74.8)	337 (84.2)
Prior HD		
Yes	54 (13.6)	0 (0)
No	346 (86.4)	400 (100)
Family History of IHD		
Yes	337 (84.3)	0 (0)
No	63 (15.8)	400 (100)

N = number, +includes separated and divorced.
++ in years IHD = Ischemic Heart Disease
**In toman (100000 tomans is equal to 100 US dollars)*

Table-III. Assessing knowledge of CAD

What is CAD?	Response count (%) in study group	Response count (%) in control group
Do not know	37 (9.3)	170 (42.5)
Arterial blockage	264 (66)	84 (21)
Chest pain	63 (15.8)	97 (24.3)
Malfunction of the heart	126 (31.5)	123 (30.8)
Valve problem	23 (5.8)	6 (1.5)
Other	1 (0.3)	0 (0)

**multiple responses*

Those participants who answered about risk factors that they did not know the risk factors for CAD were 23 persons (5.8%) in study group and 153 persons (37.5%) in control group (Table IV).

Answers about the symptoms of CAD were as following. Majority of participants replied that chest pain was main symptom, 312 persons (78%) in study group and 172 persons (43%) in control group. The number of participants, who answered that they did not know, were 24 persons (6%) in study group and 174 persons (43.5%) in control group. The other answers by both groups are shown in table V.

Responses or answers of the two groups were assessed as correct or incorrect. Every respondent received one point for each correct answer and they were compared with each other. The mean knowledge score of both groups is shown in Table VI.

The mean knowledge score of study group was 6.89 (range 0-14) out of a possible maximum of 15. The median knowledge score of control group was 2.82 (range 0-12) out of a possible maximum of 15. Figure 1 shows the knowledge score for both groups. In the univariate analysis factors significantly associated with knowledge include gender, residence (rural or urban), education (illiterate, university education or non university education), monthly income (< 300000 vs > 300000 toman), prior diabetes, hypertension and ischemic heart disease, family history of ischemic heart disease and hospital attended. Subjects were questioned regarding preventing practices against CAD.

Table-IV. Response of risk factors for coronary artery disease

What are the risk factors for CAD?	Response count (%) in study group	Response count (%) in control group
Do not know	23 (5.8)	150 (37.5)
Smoking	295 (73.8)	128 (32)
No exercise	176 (44)	124 (31)
Dietary fat	252 (63)	108 (27)
Stress	193 (48.3)	73 (18.3)
Hypertension	295 (73.8)	153 (38.3)
Diabetes	116 (29)	51 (12.8)
Age	15 (3.8)	2 (0.5)
Male gender	13 (3.3)	0 (0)
Family history	138 (34.5)	6 (1.5)
Obesity	125 (31.3)	59 (14.8)
Hypercholesterolemia	188 (47)	43 (10.8)
Overwork	31 (7.8)	8 (2)
Other	2 (0.5)	0 (0)

**multiple responses*

Table-V. Response to symptoms of CAD

What are the symptoms of CAD*	Response count (%) in study group	Response count (%) in control group
Do not know	24 (6)	174 (43.5)
Chest pain	312 (78)	172 (43)
Despnea	228 (57)	103 (25.8)
Sweating	147 (36.8)	23 (5.8)
Palpitation	101 (25.3)	109 (27.3)
Anxiety	43 (10.8)	10 (2.5)
Headache	22 (5.5)	0 (0)
Other	4 (1)	0 (0)

**multiple responses*

Preventive practices and attitudes towards CAD are shown in table VII.

DISCUSSION

Coronary artery disease is a major public health concern and accounts for more deaths than any other disease worldwide. The level of knowledge of risk factors for CAD varies among different populations. In Iran, ischemic heart disease is one of the top causes of death in people above 35 years old[6].

To the best of our knowledge, this is the first study of knowledge of risk factors for coronary artery disease and its determinants in population of Iran. Due to lack of similar studies in our country we designed our study similar to the study performed by Jafary FH et al. in Pakistan[4].

The participants of our study consisted persons from four hospitals Namazi, Shahid-Faghihi, Kowsar and Ghalbe Al-Zahra affiliated to Shiraz University of Medical Sciences of Iran.

There was not a great difference in knowledge score between subjects recruited from four different hospitals. But it was maximum in Kowsar (P-value = 0.032). It was nearly equal in Namazi and Shahid Faghihi hospitals. Kowsar hospital is a semiprivate hospital that care to a substantially rich, educated population compared to Namazi and Shahid-Faghihi hospitals those are government hospitals. Another reason for high score in Kowsar hospital may be that Kowsar hospital conducts public awareness classes and seminars. This may be contributing to higher knowledge scores in patient attendants recruited from that hospital. This potential association between educational seminars for the public knowledge deserves further investigation.

Our study demonstrates that 93.5% of participant in study group and 62.5% of participants in control group were able to recognize at least one risk factor for CAD, but only one person of the study group was nearly aware of all risk factors for CAD.

73.8 % of the participants of the study group and 38.3% of the control group identified hypertention as an

Table-VI. Factors associated with knowledge of coronary artery disease

Characteristics	Study group			Control group		
	N	Mean knowledge Score ± SD	P-value	N	Mean knowledge Score ± SD	P-value
Age++						
≤ 30	135	7.10±2.55		128	3.90±3	
31-60	236	6.95±3	0.157	214	263±2.84	0.004
> 60	29	5.86±3.84		58	1.21±1.41	
Sex						
Male	227	7.24±2.82	0.012	196	3.45±3	0.000
Female	173	6.48±3		204	2.22±2.5	
Marital Status						
Single++	98	7.08±2.56	0.876	83	3.63±2.92	0.002
Married	302	6.88±3		317	2.60±2.84	
Residence						
Urban	280	7.73±2.5	0.000	279	3.36±3	0.000
Rural	120	5±2.85		121	1.59±1.81	
Education						
Illiterate	35	4.92±3.55	0.000	46	1.20±1.82	0.000
University education	169	7.46±2.41		210	4.63±2.94	
Non university Education	196	7.07±2.92		144	2.31±2.57	
Monthly Income			0.000			
< 300000*	149	5.83±3		172	1.68±2.23	0.000
> 300000	251	7.59±2.7		228	3.55±3	
Prior Diabetes						
Yes	69	6.85±2.45	0.004	77	5.32±3	0.012
No	331	4.32±3.41		323	4.20±2.92	
Prior Hypertension						
Yes	101	5.94±3.52	0.001	63	4.75±3.4	0.010
No	299	4.05±2.42		337	2.96±3.02	
Prior IHD						
Yes	54	6.21±2.29	0.000	-	-	-
No	346	4.13±3.55				
Family hx IHD						
Yes	337	5.75±3.08	0.000	-	-	-
No	63	3.68±3.21				
Hospital						
Ghalb Al-Zahra	87	7.15±2.59				
Kowsar	83	7.65±2.82	0.032	-	-	-
Namazi	121	6.27±3.4				
Shahid - Faghihi	109	6.92±2.59				

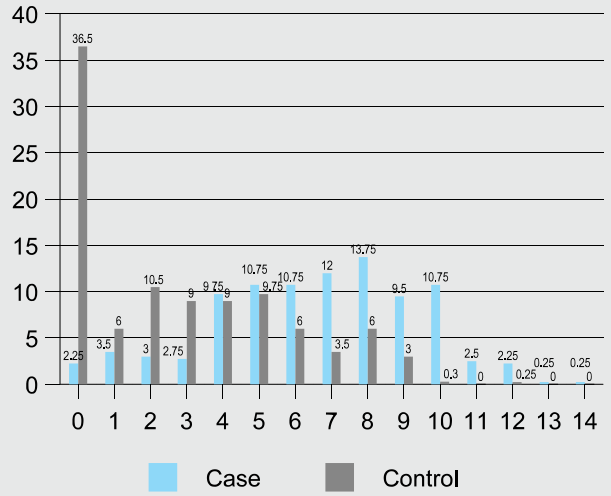
N=Number + in years ++includes separated and divorced IHD = Ischemic Heart Disease
**In toman (100000 tomans is equal to 100 US dollars)*

Table-VII. Preventive practices and attitude towards coronary artery disease

Question	Response count (%) in study group	Response count (%) in control group
Is CAD preventable?		
Yes	315 (78.7)	204 (51.0)
No	3 (0.8)	30 (7.5)
Do not know	82 (20.5)	166 (41.5)
Have you had your blood pressure checked		
Never have	58 (14.5)	54 (12.5)
Every 2 years	178 (44.5)	165 (41.3)
> 2 year intervals	164 (41)	181 (46.2)
Have you had your blood sugar checked?		
Never have	95 (23.8)	92 (23)
Have at least once	305 (76.2)	308 (77)
Have you had your cholesterol checked?		
Never have	99 (24.8)	78 (19.5)
Have at least once	301 (75.2)	322 (80.5)
Have you ever undertaken any preventive practices for CAD?		
None	25 (6.3)	142 (35.5)
Exercise	186 (46.5)	153 (38.3)
Dietary salt restriction	335 (83.8)	159 (39.8)
Dietary fat restriction	339 (84.8)	134 (33.5)
Weight control	84 (21)	100 (25)
Stress reduction	105 (26.3)	47 (11.8)
Medication	153 (38.3)	16 (4)
Reduced smoking	248 (62)	68 (17)
Other	2 (0.5)	0 (0)
If your family member develops CAD what would you do?*		
Nothing	30 (7.5)	96 (24)
Don not know	24 (6)	54 (13.5)
See a doctor	266 (66.5)	216 (54)
Change my diet	225 (56.3)	53 (13.3)
Start exercising	185 (46.3)	73 (18.3)
Stop exercising	198 (49.5)	54 (13.5)
Reduce stress	81 (20.3)	26 (6.5)
Other	0 (0)	0 (0)

**multiple responses*

Fig-1. Knowledge score for coronary artery disease



association with coronary artery disease, while in the study of Jafary FH et al. only 7.1% identified the association of hypertention with CAD[4]. So our participants had good knowledge about hypertention as a risk factor. Regard stress in our study is 48.3% in study group and 18.3% in control group (mean = 33.3%),while this number in Jafary FH et al. study is 43.4%[4]. This difference can be accepted on the basis of economic conditions of the participants of both countries. The number of our study participants that identified the association of male gender with CAD is nearly the same number in Jafary FH et al. study[4].

There was a good, positive and independent association between the level of education and a good level of knowledge of CAD. This is consistent with previous studies[4,5,7]. Individuals, who are better able to read, are more able to understand health massages that are conveyed through print media and / or visual media. This finding identifies the need for targeting illiterate individuals in Shiraz of Iran with educational programs that should be tailored to their level of understanding.

66% of the study group and 21% of the control group could correctly identify the coronary artery disease, while in study of Fahim H. Jafary could identify only 14%[4]. The participants of our study group and control group had better CAD knowledge.

Khan MS et al.[8] reported that 81% of the study participants were not aware of any symptoms of heart attack, while study of Fahim H Jafary[4] 29% of the study participants were not aware of any symptom of heart attack. But in our study this number was 6% in study group and 43.5% in control group. And the study by Tullmann DF et al[9] in California USA reported that more than 95% of men and women knew typical symptoms of AMI. It is nearly similar to our study group.

This is the first study that has attempted to assess the state of CAD knowledge in a diverse non patient population in southern of Iran; Shiraz and according to our results there is a big gap in knowledge about coronary artery disease and it's risk factors in our population. It means that more educational programs are needed to prevent the increasing rate of coronary artery disease.

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