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Coronary Artery Disease Risk Factors in Patients Undergoing Coronary Artery Bypass Graft Surgery

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Abstract

Introduction: Nowadays, with the advancement of technology and industrial life, the prevalence of heart diseases including coronary artery diseases has considerably increased. Coronary artery diseases are one of the most common and serious diseases that threaten human life.

Methods: The present study is a comparative-descriptive research. The statistical population were 188 patients admitted in surgery ward of Rasht medical centers to receive coronary artery bypass graft surgery in 2012. Data gathered by questionnaire individual information and risk factors of coronary artery disease, and analyzed by SPSS software.

Results: In this study in both youth and adults groups, 38.30% had smoking history and 42% had the positive family history of heart disease. According to Chi-square test, there was no significant difference among risk factors of smoking, hypertension, hyperglycemia, higher level of LDL, elevated triglycerides, and age of the participants (P> 0/05); while there was a significant difference between positive family history of heart disease and age (p<0.005), and also between heart disease history and age (p<0.005). The findings of the present study indicated that in young patients the highest percentage increase in laboratory risk factors and behavioral risk factors belonged to triglycerides (52. 4 %) and smoking (43%), respectively.

Conclusion: It is ultimately concluded that social misconceptions about the refusal of coronary artery heart disease risk factors at the youth age should be changed, and through taking necessary educational measures guide the society towards health promotion, lifestyle changes and modification of coronary artery disease including smoking and triglyceride level.

Keywords: Patients, Hospitals, Coronary Artery Disease, Coronary Artery Bypass

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1. Introduction

Nowadays, with the advancement of technology and industrial life, the prevalence of heart diseases including coronary artery disease has considerably increased. Coronary artery disease is one of the most prevalent and serious disease that threaten human life; in fact it is the third leading cause of death in the world after mortality due to accidents and cancers. In 1998, World Health Organization reported that at least 15 million mortality were attributed to coronary artery disease, accounting for 30 percent of all deaths worldwide. In Iran, coronary artery heart disease reached the highest mortality rate from 1994 to 1998. It is predicted that coronary artery disease will be the leading cause of death worldwide by 2020 [1-3].

Evidence indicates that coronary artery disease is the most prevalent cause of death in America and other western countries; the most common cause of ischemia that happens after coronary artery disease is atherosclerosis. It is worth mentioning that various methods of treatment including CABG are used to treat coronary artery disease or complete obstruction of the coronary arteries [4, 5].

The epidemiologic researches over the past 40 years have indicated that certain risk factors are involved in causing coronary artery disease. Some of these risk factors include age, gender, race, increased serum cholesterol, hypertension, diabetes, obesity, smoking, positive family history, sedentary life, stress, type A personality [6-8].

In most countries, the results of the studies have shown that prevention of coronary artery disease in youth age can reduce not only the mortality rate in older age but also the economic losses due to medical costs. As a matter of fact, timely recognition of coronary artery disease risk factors and determination of their prevalence lead to prevention and control of this disease; therefore, individuals are less subject to treatment procedures such as CABG and also incurred lower financial costs [9-11].

Since factors such as geographic location, lifestyle and culture may affect the incidence of coronary artery disease population, this study was performed on patients undergoing CABG in the medical centers of Rasht. It is hoped that the results of the present study lead to decrease the rate of mortality due to coroner artery disease and ultimately improve the health of the society.

2. Methods

The present study is a comparative-descriptive research. The statistical population consisted of 188 patients admitted in surgery ward of Rasht medical centers (public, private, social

security, and military) to receive the coronary artery bypass graft surgery in 2012. The samples were specified by the researcher through the available files of the patients in the hospitals. Data were gathered by individual information questioner and coronary artery disease risk factors, and analyzed by SPSS 16. In this study, descriptive statistics was used to describe the frequency distribution, mean and standard deviation; Chi-square test was used to compare the risk factors of coronary artery disease in young and old patients.

3. Results

The results of the study showed that family history of heart disease in young patients (8.50%) and in elderly patients (2.31); the rate of hypertension in young patients (4.42%) and in elder patients (8.46); hyperglycemia in young patients (2.75%) and in elder patients (4.69%); high LDL levels in young patients (7.38%) and in elder patients (6.30%); and increase in triglycerides in young patients (4.52%) and in elder patients (3.40%).

There was no significant difference among the risk factors of smoking, hypertension, hyperglycemia, LDL, HDL, triglyceride and increasing age (P>0.05).

According to Chi-square test, there was significant difference between the risk factors of positive family history of cardiovascular disease and age (P<0.05).

Table 1. Demographic variables of the participants

Variables		Number	Percentage
Gender	Male	132	70.2
	Female	56	29.8
Insurance	Insurance	14	7.5
	Patient	12	6.3
	Insurance and patient	162	86.3
Residence area	Urban	141	75
	Rural	47	25
Family history Positive heart disease	Yes	79	42
	No	100	53.2
History of smoking cigarette	Yes	72	38.3
	No	108	57.4
History of hypertension	High	82	43.6
	Normal	105	55.9
History of increase in triglyceride	High	91	48.4
	Normal	97	51.6
HDL level	High	1	0.5
	Normal	187	99.5
HDL level	High	76	35.6
	Normal	119	63.3
Hyperglycemia	High	138	72.3
	Normal	50	26.6
Type of blood group	A+	52	27.7
	B+	40	21.3
	AB+	12	6.4
	O+	58	30.8
	A-	9	4.8
	B-	1	0.5
	AB-	2	1.1
	O-	8	4.2
	Miss	6	3.2

Table 2. The comparison of coronary artery heart disease risk factors in two groups of youth and elder patients undergoing CABG

Indicator		Yes		No		Result and type of test
		No.	%	No.	%	
Smoking	Youth	52	42	69	57	P > 0/05
	Elder	20	33.9	39	66.1	
Positive family history heart disease	Youth	60	50.8	58	49.2	P < 0/05
	Elder	19	31.2	42	68.8	
Hypertension	Youth	53	42.4	72	57.6	P > 0/05
	Elder	29	46.8	33	53.2	
Hyperglycemia	Youth	95	75.2	31	24.8	P > 0/05
	Elder	43	69.4	19	30.6	
LDL	Youth	48	38.7	76	61.3	P > 0/05
	Elder	19	30.6	43	69.4	
HDL	Youth	1	0.8	125	99.2	P > 0/05
	Elder	0	0	62	100	
Triglyceride	Youth	66	52.4	60	47.6	P > 0/05
	Elder	25	40.3	37	59.7	

4. Discussion

The results of this study indicated that among laboratory risk factors, triglyceride had the highest percentage (52.4%) and among behavioral risk factors, smoking had the highest percentage (43%) in youth patients. Although age in comparison with positive family history had no effect on cardiovascular disease, the effect of other risk factors such as smoking, elevated triglycerides, hypertension and etc. on coronary artery heart disease at the youth age should not be underestimated. In a study, Sorrention [12] concluded that risk of coronary artery heart disease in men is higher than the one in women, therefore men receive more coronary artery bypass surgery (CABG) than women. Kwang chein [13] stated that the existence of industrial life and technology has increased the prevalence of cardiovascular disease including coronary artery heart disease. Therefore, it might be concluded that the urban are more than the rural in the danger of affliction to coronary artery heart disease due to industrial life and higher rate of predisposing factors of this disease. According to epidemiological studies and observations, Bronner [14] concluded that positive family history is a dangerous factor for cardiovascular disease. Additionally, researches and clinical findings have shown that increase in blood level of LDL is one of the major risk factors for coronary artery heart disease.

In a study, Harrison [15] indicated that arterial hypertension is a major public health problem in developed countries; in fact it is a prevalent disease without any symptom, but it is readily detectable and usually easily treatable. If it remains untreated, it often leads to fatal complications.

5. Conclusion

As a matter of fact although age in comparison with positive family history had no effect on cardiovascular disease, the effect of other risk factors such as smoking, elevated triglycerides, hypertension and etc. on coronary artery heart disease at the youth age should not be underestimated. Thus, in order to change the social misconceptions about the refusal of these risk factors at the youth age, the necessary educational measures should be adapted to guide the society towards health promotion, lifestyle changes and modification in coronary artery heart disease risk factors.

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Authors' Contribution

All authors were involved in the study design, data analysis, and result interpretation. All authors confirmed the final draft before submission.

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