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TREND IN RISK OF CORONARY ARTERY DISEASE (CAD) AMONG ADULTS IN AHVAZ CITY, IRAN

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ABSTRACT

The aim of this study was examine the trend in risk of coronary artery Disease (CAD) consider age-differencein the hospitals of Ahvaz Jundishapur University of medical Sciences. **Methods:** we had invited 317 patients in 2003 and 333 patients in 2012 with coronary artery disease (CAD) and candidates for angioplasty at hospitals of Ahvaz Jundishapur University of medical Sciences in Ahvaz city, Iran. Data has entered and analyzed by SPSS (version 21), and using descriptive statistic test. **Results:**The results of this study has shown that prevalence of risk factors except smoking almost has increase in female than male in 2003 as well as 2012, also the data has shown most of risk factors has come down except of diabetes. **Conclusion**: This data has shown that prevalence of diabetes in coronary artery Disease (CAD) patients has increased from 2003 to 2012, so it may require urgent decision making to national control program of non-communication disease in Iran.

Key word: Coronary Artery Disease, Risk factors, Trend, Iran.

INTRODUCTION

Cardiovascular disease has an enormous impact, and it has affected more than 30 million people by causing more than 17 million deaths[1]. Coronary Artery Disease CAD is one of the major public health problems in developed country as well as developing countries [2]. CAD is the most common form of cardiovascular disease with an estimated prevalence of

CAD in men is 6.9% and 6% among women (3). CAD is the major cause of morbidity and mortality and accounts for the most expensive costs in medical assistance in Iran [4]. Risk factors are the various elements associated with the onset of CAD. More than 300 risk factors can be linked to CAD. Seventy-five percent of all CADs are caused by risk factors, several of which can be prevented, treated or controlled. (5) The major risk factors of CAD are an elevated cholesterol level, hypertension, smoking, sedentary life style, obesity, and diabetes; and the risk increases with age (6-8). There is also evidence for a strong heritability of CAD (9,10). However, CAD is perceived primarily as a lifestyle disease, as both the incidence and negative outcome of CAD are associated with lifestyle factors such as physical inactivity, an unhealthy diet, and smoking (11-13).Among risk factors for coronary artery disease (CAD), diabetes mellitus (DM) is a major contributor, not only tothe development of CAD but also to outcome following various manifestations of the disease. In fact, increasinglevels of blood glucose, even below the level of established diabetes, serve as predictors of increased risk (14). Hypertension is a well-established risk factor for coronary artery disease and for congestive heart failure (15). Cigarette smoking may lead to doubles risk for coronary artery disease, 30% of which are attributed to the number of cigarettes smoked [16,17].

The aim of this study was examine the trend in risk of coronary artery Disease (CAD) considers age-difference in the hospitals of Ahvaz Jundishapur University of medical Sciences from 2003 till 2012.

METHODOLOGY

This Research was two cross-sectional studies. The first was performed on 317 patients had been admitted with diagnosis of coronary artery disease (CAD) and candidates for angioplasty at hospitals under Ahvaz Jundishapur University of medical Sciences, in Ahvaz city during 2003. The second was performed on 333 cases which had been admitted in same diagnosis as well same hospitals in 2012. This study was conducted to assess the prevalence of CAD risk factors utilizing the medical history, physical examination and laboratory tests to consider known risk factors. All patients after completing their informed consent, they were given an interview, physical examination and blood sample tests. Age for each patient was recognized by their identity card.

Blood samples were obtained for FBS and total cholesterol. FBS was assayed at the enzymatic methodology by glucose oxidize Kit; total cholesterol was assayed at the enzymatic methodology.The study protocol was approved by ethics committee of Ahvaz

Jundishapur University of Medical Sciences. All patients provided written informed consent.Prevalence of CAD risk factors was determined using descriptive statistics, and it was used to process the outcomes in tables and graph. All analysis was performed using SPSS version 21 statistical analysis software.

RESULTS

Among317 patients those had been admitted with diagnosis of coronary artery disease (CAD) and candidates for angioplasty at hospitals under Ahvaz Jundishapur University of medical Sciences in 2003 the most important risk factors were hypertension 41.9%, hyperlipidemia 39.4%, diabetes 23.34% and smoking 23% respectively. Out of all patents, 69.72% were male and 30.28% were female. During 2012 among 333 CAD patients which had candidates for angioplasty at hospitals under Ahvaz Jundishapur University of medical Sciences,59.2% was male and 40.8% was female. The most important risk factors were hypertension (HTN) 45.3%, hyperlipidemia 34.5%, diabetic 27.6% and smoking 19.6% respectively (figure1).

The results of this study has shown that prevalence of risk factors except smoking almost has increase in female than male in 2003 as well as 2012, the data also has shown that risk factors in female has come down from 2003 till 2012, but in male prevalence of some risk factors such as HTN and Diabetic has increased and rest of them has decreased from 2003 till 2012 (Table 1).

Prevalence of CAD risk factors in Patients consider age categorize from 2003 till 2012 has shown in table 2. Prevalence of HTN in patients less than 40 years old in 2003 was 28.6% and in 2012 was 35.70%, also this increase in prevalence of HTN has been seen in age category of 51-60 years old. Prevalence of diabetes in all age groups except age less than 40 years old has increased from 2003 to 2012. Trend of prevalence of hyperlipidemia and smoking has shown decreased from 2003 to 2012 (table 2).

Table 1: Prevalence of CAD risk factors between male and female in 2003 and 2012

	2003		2012	
	Male	Female	Male	Female
Hypertension	79 35.5%	54 56.3%	82 41.6%	69 50.7%
Diabetic	37 16.7%	42 42.7%	50 25.4%	42 30.9%
hyperlipidemia	78 35.3%	47 49%	59 29.9%	56 41.2%
Smoking	62 28.1%	11 11.5%	54 27.4%	12 8.9%

Table 2: Prevalence of CAD risk factors in Patients consider age categorize from 2003 till 2012

	2003				2012			
	HTN	DM	HLP	Smoking	HTN	DM	HLP	Smoking
40> ساله	28.60%	28.60%	50.00%	21.40%	35.70%	14.30%	21.40%	07.10%
41-50 ساله	36.30%	22.50%	39.20%	25.50%	24.70%	27.40%	37.00%	22.20%
51-60 ساله	44.70%	28.70%	36.20%	25.50%	55.00%	29.40%	35.80%	22.90%
61-70 ساله	44.30%	22.70%	40.90%	21.60%	44.10%	30.90%	38.30%	14.80%
71< ساله	57.90%	21.10%	42.10%	05.10%	57.10%	23.20%	26.80%	21.40%

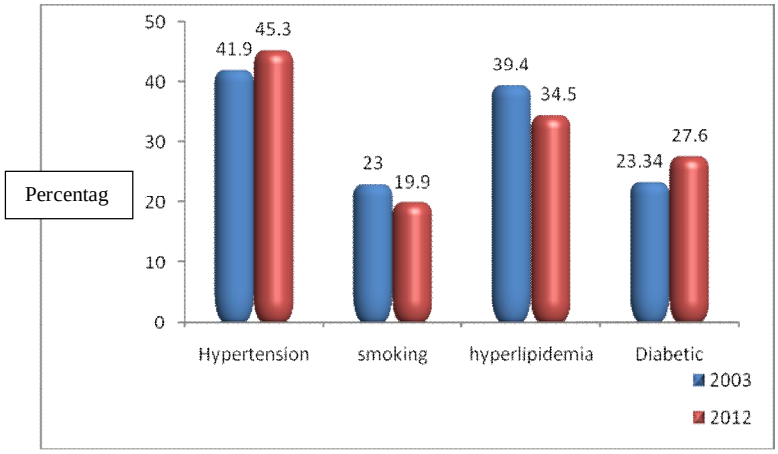

Figure1: Prevalence of CAD risk factors in Patients in 2003 and 2012

DISCUSSION

CAD risk factors will be occurring in bothsexes; however, there are some gender-specificdifferences in response. This study has found that trend in CAD risk factors (excluding cigarette smoking) were more frequent in female patients. Amongst the riskfactors which had found as more prevalent in femalesubjects, hypertension and hyperlipidemia hadthe highest prevalence than others from 2003 till 2012. This finding was in contrast with a meta-analysis study[18],which reportedthat the association between hypertensionand ischemic heart disease risk was only slightlystronger in women than men. Result hasshown that rate of hypertension in the Iraniangeneral population is approximately thesame in both sexes (17.6% in men vs. 17.1%. inwomen) [19]. In our study, 56.3% of female and 35.5% malein 2003 and 50.7% of female and 41.6% in 2012 withCAD were hypertensive, indicating thathypertension played a great role in the developmentof CAD in our patients in 2003 till 201. Why Iranianwomen with CAD are more prone to hypertension than male patents,but it

could be reason that it is in consequenceof differences in genetics, lifestyle, eating habits and less awareness about risk factors of hypertension.

In our study, hyperlipidemia was much more prevalent in females than in malessame as other study[20]; the trend of prevalence of hyperlipidemia was 35.3% in male and 49% in female in 2003 and was 29.9% and 41.2% in male and female in 2012. Khot reported that the prevalence of hyperlipidemia was 39.6% in women and 34.1% in men[21]. In the US study, 15.6% of men and 16.9% of women suffer from hypercholesterolemia [22] .This rate is 29.5% for men and 36.3% for women in Iran [19]. The Center for Disease Control reported that after the fifth decade of life, women have greater values of total cholesterol [23]. This different can be related to cultural and habitual differences, diets special fast foods and lifestyle.

In this study prevalence of diabetes has increased from 2003 till 2012. Ddiabetes was much more prevalent in femalesthan in males in 2003 as well 2012. Theprevious research reportingthat the rate of diabetes was almost alike in bothsexes in the general population of Iran (9.15% ofmen vs. 9.18% of women) [20], Diabetes can be assume as a potentrisk factor in our female patients.One of reason for high prevalence rate ofdiabetes amongst Iranian female CAD patients,might be genetic factors, which is the fact thatIranianwomen (like most other women in theMiddle East), especially at their older age, areless physically active and more overweight thanmen [24], Prevalence of smoking in CAD patient is less than other risk factors, and has decreased from 2003 to 2012, and in male is more than female. In Aghasadeghi research, the prevalence of smoking was 79.9%17 which is higher than the result of this study[25]. We found alower prevalence of smoking in both sexes. The low prevalence of smoking among women in our research may be due to our cultural and behavioural beliefs.

CONCLUSION

The study revealed that trend of CAD with risk factors as hypertension and hyperlipidemia has increased from 2003 till 2012. CAD risk factors (excluding cigarette smoking) weremore frequent in female than male patients. Hypertension was the most prevalent risk factors in female patients. However the implementation of a prevention programme isnecessary in Ahvaz city, Iran toreduce CAD risk factors. Therefore, with health programmes that educate the population and fight with risk factors, we will be able to decrease the prevalence of CAD and reduce morbidity due to coronary artery disease.

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