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Comparison of Risk Factors of CHD in the Men and Women with MI

E. Ilali and Z. Taraghi

Department of Medical Surgical, Faculty of Nursing Midwifery, Mazandaran Medical Science University,
Vesal Street-Nursing-Midwifery Faculty, Sari, Mazandaran, Iran

Abstract: The purpose of this study is comparison of risk factors of MI in hospitalized men and women patients in CCU. The CHD is the most important cause of mortality in the industry countries. Different environmental and race in each location can affect on frequency of risk factors of MI. In this cross sectional study, comparison was done between men and women who have involved in MI. The random sampling method was used Blood sugar, cholesterol and homocystein, LPa, BMI, family history, skin color, smoking and the amount of activity were assessed with variables such as age. The data was collected via questionnaire from September until March 2004-2005. Finally the data were analyzed with using t-test, Chi square and pearson correlation. In this research 169 patients who involved in MI (114 men and 55 women) have participated. The mean of age in the men was 55.4 and in the women was 61.02. All patients had risk factors. In the men, smoking (52.6%) and family history (41.1%) were the most common risk factors of MI. In the women, hyperlipidemia (66.4%), diabetes (62%) and hypertension (58.2%) were the most common risk factors of MI. The mean of BMI in the men was 25.9 ± 4.25 and in the women was 27.6 ± 4.71. The mean of LPa in the men was 59.2 ± 4.21 and in the women was 50.9 ± 4.25. the mean of homocystein in the men was 10.7 ± 7.67 and in the women was 8.9 ± 4.45. Diabetes, hyperlipidemia, hypertension and smoking had significant relationship with age and sex ($p<0.001$) and skin color, homocystein, LPa, job, personality type and mobility didn't have significant relationship with age and sex. In this study the most common risk factors of MI in the men were smoking and positive family history and in the women were known hyperlipidemia and diabetes.

Key words: Coronary Artery Disease (CAD), Coronary Heart Disease (CHD), Ischemic Heart Disease (IHD), Acute Coronary Syndrome (ACS), Body Mass Index (BMI), hypertension, hyperlipidemia, diabetes

INTRODUCTION

The CHD is the most important cause of mortality in industry countries. Approximately 42% of total mortalities is related to CHD. Every year 500,000 American die with MI (Milan, 2002; Dawn, 1998; Clochesy, 1996). In Iran acute MI is increasingly as a health problem and it's mortality was 37% in 1990 and increased 38% in 2000. 150,000 Iranian die with MI every year (Johari and Ghaffari, 1995). CAD is usually related with one or more known risk factors such as:

- Inevitable factors (age, sex, race, family history)
- Atherogenic factors (HTN, hyperlipidemia, diabetes)
- Life style (cigarette, immobility, obesity, tension, ocp consumption)
- Paraclinic signs (cardiovascular disorder prior to clinical manifestation consists of ECG changes, blood and histologic characteristics such as blood group A) (Asadinoghabi and Zolphaghari, 2002)

- Laboratory manifestation such as increased homocystein more than 12 mcg dL^{-1} and LPa more than 50 mg dL^{-1} (Baker and Debora, 1996)

Different environmental and race in each location can affect on frequency of risk factors of MI (Polanczyk and Riberio, 2009; Avezum et al., 2009). In the women CHD develop about 10 years 'later than men and the role of risk factors is different in these two groups (Anand et al., 2008).

Based on one study performed by chicago Heart Association; exposure to at least 1 clinically elevated major risk factor ranged from 87 to 100% (Greenland et al., 2003). The best way to control CAD, is to identify and modify more effective local risk factors (Jalali-khanabadi et al., 2006; Shekhar et al., 2006). cardiology nurses play a major role in counseling patients about life style and cardiovascular risk factors (Fair et al., 2009).

Corresponding Author: Z. Taraghi, Department of Medical Surgical, Faculty of Nursing Midwifery,
Mazandaran Medical Science University, Vesal Street-Nursing-Midwifery Faculty, Sari,
Mazandaran, Iran

The purpose of this study is assessment of risk factors of MI in hospitalized men and women in CCU in Sari. We hope the results of this study helps to determine priorities of prevention of cardiovascular disease based on gender.

MATERIALS AND METHODS

In this cross sectional study, 169 patients with MI have participated. They had hospitalized from September until March 2004-2005 in CCU units in Sari.

At first two educational hospitals were selected randomly and then total patients with diagnose of acute MI (for first time) entered in this study. In addition to interview with patients, weight and height, blood cholesterol, FBS, homocystein and LPa was measured. The data was collected via questionnaire. It's validity was confirmed with content value and it's reliability was assessed with pilot study in 20 patients with MI (r = 0.85).

Some characteristics such as age, sex, job, personality type, skin color, family history of cardiac disease, history of cigarette smoking, past history of hyperlipidemia, diabetes and hypertension and the amount of activity were also assessed.

For evaluating sugar and lipid Pars Azmoon kit (made in Iran) was used. Homocystein was assessed by using IBL kit (made in Germany) with CV 5% and LPa by using Diagnostic system (made in Germany) with CV 1.5%. Data were analyzed by using SPSS 11 software. The statistical tests included t student, χ^2 and pearson correlation.

RESULTS

This study was done on 169 patients with MI. One hundred and fourteen of them were men and 55 women. The mean of age in the men was 55.4±12.7 and in the women was 61.02±10.6.

41.1% of the men and 34% of the women had positive family history. Hypertension history was seen in 22.8% of the men and 58.2% of the women. HLP history was positive in 33.3% of the men and 66.7% of the women. 37.2% of the men and 62% of the women had diabetes history. 52.6% of the men and 1.8% of the women were smoker.

Regarding to personality type, 59.6% of the men and 69.1% of the women were A type that is emotional. The skin color of 57.4% of the men and 75.4% of the women was dark. 64.9% of the men and 76.4% of the women didn't suitable mobility. In the men, smoking (52.6%) and family history (41.1%) were the most common risk factors of MI. In the women, hyperlipidemia (66.4%), diabetes (62%) and hypertension (58.2%) were the most common risk factors

Table 1: Comparison some variables between men and women with MI

Variables	Men (No. = 114)		Women (No. = 55)	
	Mean	SD	Mean	SD
Age	55.4	12.7	61.02	10.6
BMI	25.9	4.25	27.6	4.71
Homocystein	10.7	7.67	8.9	4.45
LPa	59.2	4.21	50.9	4.25
FBS	144.4	67.9	183.8	88.5
Cholesterol	209.4	48.08	216.4	63.2

of MI. The mean of BMI in the men was 25.9±4.25 and in the women was 27.6±4.71. The mean of LPa in the men was 59.2±4.21 and in the women was 50.9±4.25. the mean of homocystein in the men was 10.7±7.67 and in the women was 8.9±4.45 (Table 1).

There was significant correlation between some risk factors and age and sex (p<0.001).

DISCUSSION

Etiology of MI is different and depending on geographic, cultural and health conditions in different places (Kabiri and Petrosian, 1993). In this study the most common risk factors of MI was evaluated in the men and women who had hospitalized in CCU units of Sari.

The mean of age in the women with MI was higher than the men (61.02 versus 55.4) that shows increasing chance of CAD in women after menopause and some believe it is related to change of lipid profile. Females also protect against coronary disease more than males, due to sexual hormones special estrogens (Kabiri and Petrocian, 1993; Goldittz *et al.*, 1987) In one study between MI patients having different ages in Egypt, serum HDL were significantly low in group 25-50 years old (Motawi *et al.*, 2001). In another study in Jordan, an adequate incidence of atherosclerotic CHD was only found in male subjects greater than 40 years of age (Mohammad Salahat *et al.*, 2002).

The results of this study showed that the most common risk factor of MI in the men was smoking (52.6%) that adjusted with two studies in virginia and Tehran (Dawn, 1998; Javadi and Aghajanian, 1998). Active cigarette smoking or exposed to it, increases CAD and in smokers, the age of involving of MI is lower than non-smokers. Therefore, persuading cigarette quitting, avoiding cigarette consumption in public and juvenile education, reduces this risk factor.

In this study, past cardiac disease history in the men was noticeable (41.4 versus 24%) that adjusted with one study in Orumieh. In their study, past family history in the women had been reported 28%. In another study, past family history in the men younger than 45, was also 39.8% (Haddad *et al.*, 2001). But based on one study in

America, family history of premature heart disease may be a more significant risk factor in women (Fair *et al.*, 2009). Such a family history may require targeted interventions to further reduce their risk and improve their lifestyle behaviors.

In present study, although the men have lower BMI comparison to women (25.9 versus 27.6) and lower average of age, were more susceptible to CAD. In two studies, BMI in the women was reported high (Dawn, 1998; Winklehy and Kraemer, 1998).

Obesity is serious risk factor in cardiovascular disease. Because obesity is associated with other metabolic disorders syndrome such as hyperinsulinemia, hypertriglyceridimia, hypertension and diabetes. Therefore using long programs for weight loss, by feeding regimen and increasing mobility is helpful. The results of Hakeem *et al.* (2008) study in Karachi also confirmed the role of adequacy of diet and highlights the need for further attention to assure balanced intake of foods from various food group.

The results of this study showed that diabetic women were more than diabetic men (62 versus 37.2%). In two other studies were also 38.5% diabetic (Kathleens, 2002). The role of diabetes in CAD is very important, as in Framingham study, diabetes increases chance of MI 150% in the women and 50% in the men (Framingham and Packer, 1987). Therefore, control and serious attention to diabetes is necessary.

The results of this study showed in the women, hyperlipidemia is more than the men. In one study 38% of patients had also hyperlipidemia but the percentage of the men have been more than the women (43 versus 9%) and doesn't adjust with our study (Ranjith and Verho, 2002). High cholesterol and LDL has mild relation with CAD specially in persons with more than 65 years old. But relation between low HDL and CAD is powerful (Denekee, 1999; Eaker and Castell, 1987; Essebag and Jacques, 2003). In one study in Iran, there were not any significant differences in HDL between case and control groups. But apoB100 was higher in patients than control. Lpa was also higher in patients than control but was not statistically significant. They concluded that high level of cholesterol and cholesterol- rich lipoproteins are more associated with CAD and LPa is more associated with CAD in women (Jalali-khanabadi *et al.*, 2006). But in this study there was not significant relationship between LPa and sex.

The results of this study showed in the men, the mean of LPa is more than the women that is similar one study in Yazd (Jalali, 1999). In their study, the mean of LPa was 41.5 mcg mL^{-1} that was more than control group meaningfully, but didn't relation to age and sex. In this study the mean of homocystein in the men and the women was 10.7 and 8.9, respectively. High LPa and homocystein causes erosion in the vessels and susceptible platelet aggregation and also interfere with plasminogen activity (Ehan *et al.*, 2002; Boushy *et al.*, 1995). In this study, homocystein and LPa levels didn't have significant relation with age and sex.

CONCLUSION

Etiology of MI is different and depending on geographic, cultural and health conditions in different places. In this study the most common risk factors of MI in the men were smoking and positive family history and in the women were known hyperlipidemia and diabetes.

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