

Comparative Study of Risk Factors Among the Male and Female Patients with Acute Myocardial Infarction Admitted in CCU of Shahid Gangalal National Heart Centre

Raut R, * K.C. MB, * Sharma D, * Rajbhandari S, * Baidya SG, * Dhungana M, * Pradhan M, * Shrestha P, * Bajracharya M*

*Shahid Gangalal National Heart Centre

Corresponding Author: Dr. Roshan Raut,

Shahid Gangalal National Heart Centre, Bansbari, Kathmandu, Nepal, Tel: 00977-1-4371322, 00977-1-4371374,

Fax 00977-1-4371123

Abstract

The role of major cardiovascular risk factors in the development of coronary artery disease (CAD) is well established and is fairly similar in both sexes. However, CAD is markedly more common in male than in female, and this is due to more risk factors, especially smoking and dyslipidemia, in male. In this study, we aim to investigate the five major risk factors as defined by ACC-AHA namely, advancing age, smoking, hypertension, diabetes and dyslipidemia, in the MI patients admitted in CCU, SGNHC from Jan 1 to June 30th 2008 and to compare whether the association of those risk factors with CAD risk is similar in male and female. There were altogether 283 MI patients, Male 208 (73%) and Female 75 (27%). Advancing age was the most common comprising 85.2% followed by smoking 55.5%, Hypertension 48.1%, Dyslipidemia 47% and Diabetes 24.7%. Smoking, dyslipidemia and advancing age were significantly more common in male. Male patients have significantly more risk factors than female. There was trend towards the greater number of high total cholesterol and low HDL in male patients. Advancing age (Male 45 yrs, Female 55 yrs) is the commonest risk factor of CAD. Smoking and dyslipidemia (especially high total cholesterol and low HDL) are significantly more common in male which might have contributed markedly to the excess CAD risk in males.

Keywords : Risk factors, Acute myocardial Infarction

INTRODUCTION

The role of major cardiovascular risk factors in the development of coronary artery disease (CAD) is well established.¹ The "Statement for Healthcare Professionals From the American Heart Association and the American College of Cardiology"² states that the major and independent risk factors for CAD are cigarette smoking of any amount, elevated blood pressure, elevated serum total cholesterol and low density lipoprotein cholesterol (HDL-C), diabetes mellitus, and advancing age. The quantitative relationship between these risk factors and CAD risk has been elucidated by the Framingham Heart Study³ and other studies.

The role of major cardiovascular risk factors in the development of CAD is markedly more common in male than in female.⁴⁻⁶ Literature shows that CAD incidence is 3 times higher in male compared with female.⁷ Reasons for the sex difference in CAD risk are not fully understood. In the Prospective Follow Up Study of 14786 Middle-Aged Men and Women in Finland conducted by Pekka Jousilahti et. Al,⁷ about 45% of the excess CAD risk of men was associated with the sex differences in cardiovascular risk factors. The difference in the total cholesterol and HDL, and smoking rate, contributed markedly to the excess CAD risk of men. Thus, in our study, we aim to investigate the major risk factors in MI patients admitted in CCU and to compare whether the association of those risk factors with CAD risk is similar in male and female.

Although there are also some other CAD risk factors associated with increased risk for CAD, their causative, independent, and quantitative contributions to CAD have not been well documented. So, we did not analyze those risk factors in our study.

OBJECTIVE

The objective of this study was to compare the association of the major risk factors with CAD risk in male and female.

Materials And Methods

All the MI patients (ST elevation MI and Non-ST elevation MI) admitted in CCU of Shahid Gangalal National Heart Centre from Jan 1 to June 30th 2008 were included in the study. Patients diagnosed as Unstable Angina were excluded from CCU as some of the low risk unstable angina might simply have had non-specific chest pain and not CAD.

Data Collection

Data regarding age, type of Mi, Cad risk factors and lipid profile were obtained from hospital registry.

Defining Cardiovascular risk factors:

Cardiovascular risk factors have been defined according to American College of Cardiology Key Data Elements and

Definitions for Measuring the Clinical Management and Outcomes of Patients with Acute Coronary Syndromes. 8

1. **Advancing age:** Male 45 yrs, Female 55 yrs
2. **Smoking:** History confirming cigarette smoking
3. **Dyslipidemia:** History of dyslipidemia diagnosed and/or treated by a physician. Or meets the criteria of National Cholesterol Education Program Criteria:
 - a. Total cholesterol greater than 200 mg/dl (5.18mmol/l); or
 - b. Low-density lipoprotein (LDL) greater than or equal to 130 mg/dl (3.37mmol/l); or
 - c. High density lipoprotein (HDL) less than 40 mg/dl (1.04mmol/l).
4. **Hypertension:** Hypertension as documented by:
 - a. History of hypertension diagnosed and treated with medication, diet, and/or exercise
 - b. Blood pressure greater than 140 mmHg systolic or 90mmHg diastolic on at least 2 occasions
 - c. Current use of antihypertensive pharmacological therapy
5. **Diabetes:** History of diabetes, regardless of duration of disease, need for antidiabetic agents, or a fasting blood sugar greater than 7 mmol/l or 126 mg/dl.

RESULTS

There were altogether 283 MI patients, Male 208 (73%) and Female 75 (27%). Mean age of male patients was 59.4yrs and female was 64.8yrs. on the basis of prevalence of risk factors, advancing age was the most common comprising 85.2% followed by smoking 55.5%, Hypertension 48.1%, Dyslipidemia 47% and Diabetes 24.7% (Table 1)

Table 1: Demographic features of MI patients

Total Cholesterol	4.3 mg/dl
Triglyceride	1.63 mg/dl
HDL	1.0 mg/dl
LDL	2.5 mg/dl
High TG	36.4%
Low HDL	32.2%
High TC	19.1%
High LDL	16.3%
Advanced age	85.2%
Smoking	55.5%
Hypertension	48.1%
Dyslipidemia	47%
Diabetes	24.7%

2. Comparison of CAD risk factors in Male and Female

Smoking, dyslipidemia and advancing age were significantly more common in male (Table 2). Male patients have significantly more risk factors than female (table 3).

Table 2. Comparison of CAD risk factors

	Male (%)	Female (%)	P value
Advanced Age	87.9	77.3	0.03
Smoking	61.5	38.6	0.001
Hypertension	46.1	53.3	0.34
Dyslipidemia	50.9	36.0	0.03
Diabetes	22.1	32.0	0.11

3. Comparison of Lipid profile:

Although there was no significant difference in the mean lipid profile level between male and female, Hypertriglyceridemia was significantly more common in male than female and there was trend towards the greater no. of high total cholesterol and low HDL in male patients (Table 4).

DISCUSSION

CAD risks were clearly associated with advancing age. Smoking, hypertension and dyslipidemia were

Table 3. comparison of risk factors burden.

Risk factors	Male(%)	Female(%)	P value
No	0.5	4.0	
One	9.6	16	
Two	33	33	<0.05
Three	37.5	33	
Four	16.3	12.0	

Table 4. Comparison of Lipid profile and type of dyslipidemia.

	Male(%)	Female(%)	P value
Total cholesterol (mg/dl)	4.4	4.2	NS
TG (mg/dl)	1.6	1.5	NS
HDL (mg/dl)	1.01	1.04	NS
LDL (mg/dl)	2.6	2.5	NS
High TC (%)	21.6	12	0.08
High TG (%)	40.3	25.3	0.025
Low HDL (%)	35.0	24.0	0.08
High LDL (%)	17	23	0.4

also very common in MI patients comprising 55%, 48% and 47% respectively, similar to previous study conducted in Nepalese population. 10,11 MI incidence was 3 times higher in male compared with female in our study (73%vs27%). This result is consistent with previous studies.⁷

Smoking and dyslipidemia, which are also the modifiable risk factors, 9 were significantly more common in male than female.^{4,7} there was significant greater number of CAD risk factors in male than female (Table 3). There was trend towards the greater number of male patients with high total

cholesterol and low HDL. Our this result is consistent with the various previous studies including the study conducted by Pekka Jousilahti et. Al.⁷ this difference in the dyslipidemia and smoking rate have contributed markedly to the excess CAD risk of men. As smoking and dyslipidemia are the modifiable risk factors, smoking cessation and controlling lipid levels would greatly help in decreasing CAD risk in male. In our study, hypertension and diabetes, a part of metabolic syndrome, were common in female than male but were not statistically significant probably due to small sample size. Apart from this, Hypertridemia, which is also a minor CAD risk factor, was more common in male than female.

Advancing age (Male 45 yrs, Female 55 yrs) is the commonest risk factor of CAD. Smoking and dyslipidemia (especially high total cholesterol and low HDL) are significantly more common in male which might have contributed markedly to the excess CAD risk of men.

CONCLUSION

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