Original Article

Evaluate the Gender Differences in Clinical Presentation of Patients with Acute Coronary Syndrome

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ABSTRACT

Objective: To examine the gender differences in clinical presentation of acute coronary syndrome in patients presenting to tertiary care hospital.

Study Design: Retrospective cohort study

Place & Duration of Study: This study was conducted at the Department of Cardiology, Bolan Medical Complex Hospital Quetta from January 2019 to June 2019.

Materials and Methods: One hundred and fifty patients of both genders with ages 20 to 80 years presented with acute coronary syndrome were enrolled in this study. Patients were divided according to gender. Clinical presentation, risk factors and severity of coronary artery disease were examined.

Results: There were 114 (76%) patients were males and 24% patients were females. Female patients were older than male 60.2±8.7 vs 58.8±9.5 years. STEMI was found in 68 (45.33%) patients, non-STEMI was found in 36 (24%) patients and unstable angina was found in 46 (30.67%) patients. In comparison of risk factors between male and females, we found male patients were significantly higher as compared to females (p=<0.05).

Conclusion: Female patients were older than males. Smoking, family history of CAD, hypertension were common risk factors and male patients were higher than females regarding risk factors.

Keywords: Acute coronary syndrome, Gender, Risk factors

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INTRODUCTION

Cardiovascular diseases are the leading cause of mortality and morbidity globally in both men and women.[1] Gender difference in acute coronary syndrome (ACS) presentation, diagnosis, management, and outcomes is commonly observed in cardiac health settings. Some data suggest that women have higher mortality rates than men, while other studies have failed to show gender as a contributory factor in the presentation and mortality in ACS patients.[2-4]

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In ACS patients, gender-related differences in presentation and outcomes have previously been reported[5,6] and besides observed disparities in baseline characteristics, associations between atypical symptoms including back pain, nausea and shortness of breath and female gender were identified.[7] Gender-related differences, however, are mainly based on the ACS patient population, and studies on unselected patients presenting to the emergency department with any signs and symptoms suggestive of ACS are scare, and have mostly been obtained in primary care or were restricted to chest pain syndromes.[8,9]

Prevalence of conventional risk factors like diabetes, hypertension, smoking, dyslipidemia and obesity accounts for about 85% to 90% of premature CAD patients.[10] Often young CAD patients have multiple coexisting risk factors contributing to the disease. Pakistani people belong to the South Asian population which has the highest known rate of coronary artery disease.[11] According to the careful estimates based on scientific studies nearly 100.000 individuals suffered from acute myocardial infarction (ANTI) in calendar year 2002. The relative risk of 6 developing CAD in Pakistani men is highest in early ages.[12]

The present study was conducted to examine the gender differences in clinical presentation of patients with acute coronary syndrome presenting to tertiary care hospital.

MATERIALS AND METHODS

This study was conducted at Department of Cardiology, Bolan Medical Complex Hospital Quetta from 1st January 2019 to 30th June 2019. A total of 150 patients of both genders with ages 20 to 80 years presented with acute coronary syndrome were enrolled. Patients detailed demographic including age, sex, BMI and presenting symptoms were recorded after taking written consent. Patients with valvular heart disease, congenital heart disease, congestive cardiac failure and patients with chronic renal failure were excluded. Patients were divided according to their gender. Frequency of ST elevation myocardial infarction, non-stemi and unstable angina was examined. Risk factors such as smoking, diabetes mellitus, hypertension, dyslipidemia, family history CAD and obesity were examined and compare the findings between both genders. Data was analyzed by SPSS 24. Chi-square test and student t' test was applied to comparison the clinical presentation symptoms and risk factors. P-value <0.05 was considered as significant.

RESULTS

One hundred and fourteen (76%) patients were males and 24% patients were females. The mean age of male patients was 58.8±9.5 years and female was 60.2±8.7 years. Females were older than males. There was a significant difference regarding body mass index (BMI) between male and female (26.23±6.15 vs 25.45±6.7). According to the presenting symptoms 25 (69.44%) females and 92 (80.70%) male patients had typical chest pain and atypical chest pain was observed in 11 (30.56%) female patients and 22 (19.30%) male patients with significant difference male to female regarding typical chest pain and female to male regarding atypical chest pain p-value <0.05. STEMI was found in 68 (45.33%) patients in which 18 were females and 50 were males, non-STEMI was found in 36 (24%) patients in which 7 were females and 29 were males and unstable angina was found in 46 (30.67%) patients in which 11 were females and 35 were males (Table 1).

According to the risk factors, 80 (53.33%) patients had family history of CAD in which 16 (44.44%) patients were females and 64 (56.14%) patients were males. 50 (33.33%) patients had smoking history in which 45 (39.47%) patients were males and 5 (13.89%) were females. Hypertension found in 25 (16.67%) patients in which 5 (13.89%) were females and 20 (17.54%) patients were males. Dylipidemia found in 23 (15.33%) patients in which 4 (11.11%) were females and 19 (16.67%) were males. Diabetes mellitus found in 20 (13.33%) patients in which 4 (11.11%) were females and 16 (14.03%) were males. Obesity found in 15 (10%) patients in which 2 (5.56%) were females and 13 (11.40%) were males. Some of patients had two or more risk factors. The overall rate of risk factors was higher in male patients as compared to females with p-value <0.05 (Table 2).

Table No. 1: Demographic information of the patients

Variable	Male (n=114)	Female (n=36)	P value
Age (years)	58.8±9.5	60.2±8.7	0.001
BMI	26.23±6.15	25.45±6.7	0.006
Presenting symptoms			
Typical chest pain	92 (80.70)	25 (69.44)	0.003
Atypical chest pain	22 (19.30)	11 (30.56)	0.029
Types of ACS			
STEMI	50 (43.86)	18 (50)	0.045
Non-STEMI	29 (25.43)	7 (19.44)	0.042
UA	35 (30.70)	11 (30.55)	N/S

Table No.2: Frequency of risk factors among male and females

Variable	Male (n=114)	Female (n=36)	P-value
Family history of CAD	64 (56.14%)	16 (44.44%)	0.024
Smoking	45 (39.47%)	5 (13.89%)	0.006
Hypertension	20 (17.54%)	5 (13.89%)	0.04
Dyslipidemia	19 (16.67%)	4 (11.11%)	0.048
Diabetes Melletus	16 (14.03%)	4 (11.11%)	0.12
Obesity	13 (11.40%)	2 (5.56%)	0.03

DISCUSSION

Acute coronary syndrome is one of the most common cardiac problems in all over the world with high rate of morbidity and mortality.[6] The present study was conducted to examine the gender differences in clinical presentation of patients with acute coronary syndrome. In this study majority of patients were males 76% as compared to females 24%. These results showed similarity to several studies regarding acute coronary syndrome in which male patients with ACS were predominant 70% to 85% as compared to females 15 to 35%.[5,13]

In present study the mean age of male patients was 58.8±9.5 years and female was 60.2±8.7 years. Females were older than males (p=<0.05). There was a significant difference regarding body mass index (BMI) between male and female (26.23±6.15 Vs 25.45±6.7; p=<0.05). A study conducted by Kherosh et al[14] reported that females were older than males (63 vs. 59

years; P < 0.001). A study conducted by Stahli et al[15] reported a significant difference regarding BMI between male and females with ACS (26.8 Vs 25.6; p=0.007).

In our study according to the presenting symptoms 25 (69.44%) females and 92 (80.70%) male patients had typical chest pain and atypical chest pain was observed in 11 (30.56%) female patients and 22 (19.30%) male patients with significant difference male to female regarding typical chest pain and female to male regarding atypical chest pain p-value <0.05. These results were similar to study by Khesroh et al.[14] In present study STEMI was found in 68 (45.33%) patients in which 18 were females and 50 were males, non-STEMI was found in 36 (24%) patients in which 7 were females and 29 were males and unstable angina was found in 46 (30.67%) patients in which 11 were females and 35 were males. We found that female patients had high rate of STEMI as compared to females p=0.045 and according to the non-STEMI male patients were high proportion as compared to females p=value 0.042. There was no significant difference found regarding unstable angina between males and females (p=>0.05). A study by Stahli et al[15] reported female patients presented more with atypical presentation (42.6% vs. 28.9%, respectively, P<0.003), more with unstable angina (72.3% vs. 50.4%, respectively, P<0.001), and less with ST-elevation myocardial infarction (18.9% vs. 40.8%, respectively, P<0.001).

In present study according to the risk factors, 80 (53.33%) patients had family history of CAD in which 16 (44.44%) patients were females and 64 (56.14%) patients were males. 50 (33.33%) patients had smoking history in which 45 (39.47%) patients were males and 5 (13.89%) were females. Hypertension found in 25 (16.67%) patients in which 5 (13.89%) were females and 20 (17.54%) patients were males. Dylipidemia found in 23 (15.33%) patients in which 4 (11.11%) were females and 19 (16.67%) were males. Diabetes mellitus found in 20 (13.33%) patients in which 4 (11.11%) were females and 16 (14.03%) were males. Obesity found in 15 (10%) patients in which 2 (5.56%) were females and 13 (11.40%) were males. Some of patients had two or more risk factors. The overall rate of risk factors was higher in male patients as compared to females with p-value <0.05. These results were comparable to many of previous studies.[16-18]

CONCLUSION

Acute coronary syndrome is a common heart problem in Pakistan and reported with high rate of mortality and morbidity. We concluded from this study that female patients were older than males. Smoking, family history of CAD, hypertension were common risk factors and male patients were higher than females regarding risk factors. We also observed that female patients had high rate of STEMI than females but in non-STEMI patients males were predominant. No significant difference found regarding unstable angina between male and females.

Author's Contribution:

Concept & Design of Study:	Fazal-ur-Rehman
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Data Analysis:	Riaz-ud-Din, Farhan Faisal, Farida Khudaidad
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Conflict of Interest: The study has no conflict of interest to declare by any author.

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