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In Hospital Outcome of Patients with ST-T Changes in non ST- segment elevation myocardial infarction: A study in National Institute of Cardiovascular Diseases and Hospital, Dhaka, Bangladesh

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Abstract

Introduction: The myocardial infarction (MI) mortality has decreased markedly during recent decades, a decrease that has multiple causes. In spite of improvements, the incidence of acute MI has remained high and cardiovascular disease is still the leading cause of death, afflicting almost 50 % of both men and women.

Patients and methods A hospital-based cross-sectional study. It was done on one year duration (July 2016 – June 2017) in the coronary care unit of National Institute of Cardiovascular Diseases and Hospital, Dhaka, Bangladesh. Study population were patients attending at hospital having Non ST-elevation MI screened out by clinical examination and electro-cardiography (ECG) and biochemical marker (S. Troponin I). Considering the inclusion and exclusion criteria a total number of 115 patients presented with NSTEMI were included in the study

Results: The 115 Non ST Elevated patients were included in the study comprising 50 women and 65 men. The study population consisted of 51 patients (16 women, 35 men) aged under 35 years and 64 patients (34 women, 30 men) aged 50 years or older. The mean age of NSTEMI in study population is 52.45 years and the mean age of women in the study is 55.70 years and the mean age of men in the study is 49.49 years.

Conclusions: In the present study men represent a large population of patients with NSTEMI than women. Smoking is the most alarming risk factors in young male while diabetes and hypertension in young female. There are substantial differences in baseline characteristics between a male and a female population with NSTEMI. So that definite measures can be formulated to the patients properly of that gender specific group.

Keywords: Non-ST segment elevation myocardial infarction, Gender, ACS

1. Introduction

The myocardial infarction (MI) mortality has decreased markedly during recent decades, a decrease that has multiple causes. In spite of improvements, the incidence of acute MI has remained high and cardiovascular disease is still the leading cause of death, afflicting almost 50 % of both men and women. Coronary heart disease accounts for most of the cardiovascular events, and MI is the single most important contributor to the mortality and morbidity [1]. Historically, fewer women than men have been included in studies on coronary heart disease (CHD). Whether this is caused by lower incidence in women, especially at younger age, or actual exclusion of women from the trials have been debated [2]. The consequence is that evidence base for several treatments are fewer firms for women than for men. Lack of gender-specific knowledge has emerged as an important issue in the management of non ST-elevation acute coronary syndromes where some data have indicated a difference in benefit from a routine invasive strategy according to gender [3-6]. There are also reports that women have been managed less intensively, with worse outcome, compared to men. For example, women have less often received reperfusion therapy, early antithrombotic therapy and antiplatelet therapy at discharge [7, 8]. Moreover, men have more often been referred for coronary angiography. There are several important differences in background characteristics between a female and a male population with acute coronary syndromes (ACS); for example, females are older and have more co-morbid conditions [9]. Today, ACS is the leading cause of death in both gender of the western world and during the last two decades there has been an ongoing debate about women and ACS and whether women and men suffering from this syndrome differ in baseline characteristics, clinical presentation, treatment and outcome [10].

***Source*:** Google

Fig 1

2. Review of the literature

Early mortality among patients hospitalized with Associate in nursing acute MI has been systematically rumored to be higher among ladies than men. a crucial question has been whether or not ladies tend to be treated less smartly than men though current information from a handful of studies powerfully indicates that girls in most aspects profit the maximum amount as men from counseled therapies. In distinction to those studies, FRISC II and RITA three trials rumored worsening outcomes among ladies with ACS WHO were treated invasively. This finding has raised doubt on whether or not treatment in ladies and men ought to be similar11. Alternative studies work age-sex variations in short mortality on the far side the hospital keep support higher semipermanent mortality rates among ladies, significantly younger ladies, compared with men at same ages. During a study from 2001. Vaccarino *et al.* discovered that girls younger than sixty years old-time had the next morbidity than men and therefore the mortality risk for ladies compared with men shrunken with increasing age, to the purpose wherever ladies within the oldest age teams showed a lower two year morbidity than men of comparable age12, 13. Studies examination management and outcome in men and ladies area unit, for obvious reasons, not randomised why truthful comparisons have confidence applied mathematics strategies to regulate for discovered variations in background characteristics14, 15. to make your mind up whether or not it's gender in and of itself or alternative characteristics that account for discovered variations in management and outcome between the genders, giant study populations, with data on potential confounders, area unit required to perform correct changes to boost the individual management of NSTEMI patients it's vital to clarify if we have a tendency to, in real world clinical apply, treat ladies otherwise than men. it's additionally vital to guage if there are a unit variations in result of treatments between the genders, and if discovered variations area unit thanks to gender analyze.

3. Methodology

A hospital-based cross-sectional study. It was done on one year duration (July 2016 – June 2017) in the coronary care unit (CCU) of National Institute of Cardiovascular Diseases and Hospital, Dhaka, Bangladesh. Study population were patients attending at hospital having Non ST-elevation MI screened out by clinical examination and electro-cardiography (ECG) and biochemical marker (S. Troponin I). Considering the inclusion and exclusion criteria a total number of 115 patients presented with NSTEMI were included in the study. After collection all the data were checked and edited. Then data were entered into computer with the help of software SPSS for Windows programmed version 16. After frequency run, data were cleaned and frequencies were checked. An analysis plan were developed keeping in view with the objectives of the study.

4. Results

The study was 115 Non ST Elevated patients were included in the study comprising 50 women and 65 men. The study population consisted of 51 patients (16 women, 35 men) aged under 35 years and 64 patients (34 women, 30 men) aged 50 years or older. The mean age of NSTEMI in study population is 52.45 years and the mean age of women in the study is 55.70 years and the mean age of men in the study is 49.49 years. Most patients have no changes in ECG. Commonly ST depression and T wave inversion are significantly seen in women. Other ECG changes include atrial fibrillation, LBBB or RBBB pattern but all of these changes have no significance differences in relation to sex and diabetes than men, and they were significantly less frequently current smokers.

Table 1: Distribution of risk factors according to sex (n=115).

Risk factors	<35 years		p value	≥50 years		p value
	Male N=35	Female N=16		Male N=30	Female N=34	
HTN	12(34.3)	11(68.7)	0.02	15(50)	27(79.4)	0.01
DM	06(17.1)	09(56.2)	0.007	14(46.7)	11(32.4)	0.24
CKD	—	—	—	02(6.7)	02(5.9)	1.0
Dyslipidemia	12(34.3)	03(18.7)	0.33	05(16.7)	03(8.8)	0.45
Smoking	27(77.1)	01(6.3)	< 0.001	16(53.3)	05(14.7)	0.001
Family history of	07(20.0)	06(37.5)	0.18	04(13.3)	08(23.5)	0.29
coronary heart disease	-----	------	------	--------	--------	------

HTN – Hypertension, DM – Diabetes Mellitus, CKD – Chronic kidney disease.

Table 2: In hospital outcome according to distribution of gender (n=115).

Outcome		Sex	Total	p value
	Male (n=65)	Female (n=50)		
Persistent chest pain	16	23	39	0.030
Heart failure	2	3	5	0.035
Cardiogenic shock	2	3	5	0.34
Arrhythmia	1	1	2	0.043
Reinfarction	2	1	3	0.49
Major bleeding	2	1	3	0.49
CVD/Stroke/TIA	2	1	3	0.49
Death	2	1	3	0.49

CVD – cerebro-vascular disease, TIA – transient ischemic attack.

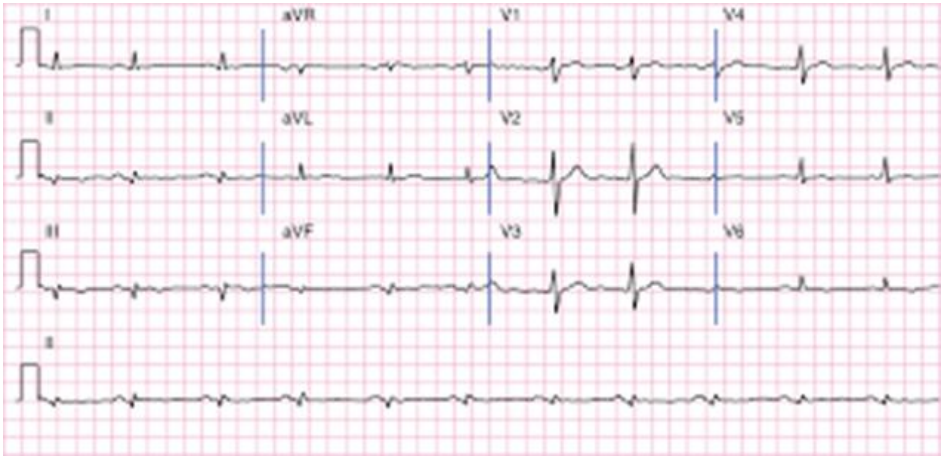

Fig 2: ST-Elevation Myocardial Infarction.

Older women > 50 years more often were hypertensive, while men more often had a history of smoking. Apart from smoking, the frequency of cardiovascular risk factors was similar in both female age groups, while the incidence of arterial hypertension, diabetes was higher in older than in younger men. Regarding in hospital outcome there is persistent chest pain in 23 (46%) women and 16 (24.6%) men heart failure is present in 3 (6%) women and 2 (3.1%). The differences in incidence of persistent chest pain and heart failure are statistically significant between the two genders.

5. Discussion

The debate on the reasons for the differences in mortality and morbidity between women and men with NSTEMI is still ongoing and no full agreement has been reached so far. Many researchers associate poorer outcomes in women with co-morbidities, clinical manifestation and adverse events.

In the present study, there were more men in the age group of <35 years, while in the older group the percentage of men and women were practically the same. Women tend to live longer and develop cardiovascular disease at a later age, which means that both in younger and older age groups women are older than men and they have additional risk factors. In the general population of patients with NSTEMI, there is a discrepancy in the prevalence of conventional risk factors (arterial hypertension, diabetes, dyslipidemia, smoking, obesity, prior MI) between sexes. Women <35 years tend to have hypertension, diabetes and family history of coronary heart diseases more often, while smoking and dyslipidemia are more frequent in men. The incidence of hypertension increases with age in both sexes. It seems that the frequency of diabetes mellitus is more in women than men of age < 50 years but it is reverse in age >50 years patients. There is no significant differences in women and men regarding chronic kidney disease (CKD), dyslipidemia and family history of coronary heart disease. A negative prognostic value of ST-segment depression and T-wave inversion in the index ECG is well established. In our study, there was significant difference in ST-segment depression and T -wave inversion between men and women <35 years age groups; however, atrial fibrillation was observed more frequently in older men >50 years. In this study we have found that women <35 years have significant echocardiographic changes. There were only significant wall motion abnormalities in case of inferior and lateral wall which was more in female patients. The mean ejection fraction was found more in men (EF=57.97%) than women (EF=55.48%). But it was not significant. Regarding diastolic dysfunction there was no significant difference in women and men. In our study we have found that women were more likely to be treated with beta-blockers, angiotensin converting enzyme inhibitor (ACEi) and diuretics which may reflect the higher rate of hypertension and heart failure. After age adjustment there was no difference between the gender in treatment with heparin/low molecular weight heparin (LMWH), statins, nitrates were used infrequently in both men and women in our data, but less often in women.

6. Complications

In our observation 24.6% men experienced persistent chest pain in comparison to 46% women and it was statistically significant. The incidence of heart failure increases with age and reaches 12.5% in patients younger than 65 years and 22% to 41% in patients over 65 years. In many registries,

and also in our study, no differences between young men and women were observed, while women had developed heart failure (6.0%) more than men (3.1%) and it is statistically significant. Another important finding was arrhythmia, statistically significant in men (20%) than women (8.0%). Other complications like cardiogenic shock, re-infarction, cerebro-vascular events were not found to differ significantly between the groups.

7. Mortality

In our study we've found that in hospital death occurred solely in two men (3.1%) and one ladies (2%) and also the distinction wasn't vital.

8. Conclusion

In the study men represent an outsized population of patients with NSTEMI than male and female. Smoking is that the most baleful risk factors in young male whereas polygenic disease and high blood pressure in young feminine. There square measure substantial variations in baseline characteristics between a male and a feminine population with NSTEMI. Women square measure older and additional seemingly to own a history of polygenic disease, high blood pressure and failure. Men square measure additional seemingly to own a history of NSTEMI. Female Square measure less seemingly to be admitted to coronary care units. Women receive additional diuretics, beta-blockers and Hypertension changing protein substance (ACEi) or Hypertension receptor blocker (ARB) in respect to men. Women show worse prognosis relating to failure and chronic pain. Risk factors identification, early designation and management square measure terribly crucial within the primary and secondary interference in young patient with CAD. Adoption and application of latest data relating to sex variations can hopefully cause improve outcomes.

9. Acknowledgement

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10. Conflict of interest

The Author no conflict of interest.

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