

Comparison of Clinical Presentation and Risk Factors Profile Between Pre-and Postmenopausal Women with Acute Coronary Syndrome

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Preface

- Cardiovascular diseases are the number one killer of women in both the developed and developing countries. Acute coronary syndrome (ACS) in women is the real challenge for clinical and interventional cardiologists.
- The ACS diagnosis and therapy in female are more difficult than in male. So it is essential to understand the natural history of disease.

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- Clinical presentation, disease characteristics, prognosis, and recurrence of coronary artery disease (CAD) are differing between premenopausal and postmenopausal women. However, due to the low incidence of CAD in premenopausal women, research on this particular population has not been sufficient
- Young women suffer less from heart disease due to the vascular protective action of estrogen which helps in preventing atherosclerosis.

Methods

❑ Study Design

The work was a descriptive cross sectional study. Data were collected from respondents only and conducted at the Department of Cardiology, National Heart Foundation Hospital and Research Institute, Mirpur , Dhaka , from December, 2021 to November, 2022. Pre- and postmenopausal woman with acute coronary syndrome admitted at NHFH&RI fulfilling exclusion and inclusion criteria were enrolled in this study.

Inclusion Criteria

- Premenopausal women with acute coronary syndrome
- Postmenopausal women with acute coronary syndrome.
- Give informed written consent

Exclusion Criteria

- Associated valvular heart diseases.
- Associated with congenital heart diseases.
- Associated cardiomyopathy.
- Patients with extremely severe concomitant diseases (Severe dementia, advanced malignancy).
- Unwilling to participate in the study.

Analysis

- The data collected from the respondents were analyzed. After completion of data collection, to maintain consistency, the data were checked and edited manually and verified before tabulation.
- The sampling technique was purposive as per the selection criteria. All data had been analyzed in SPSS 22 version.

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- The findings of the study were presented by frequency, percentage in tables and graphs.
- Means and standard deviation for continuous variables and frequency distribution for categorical variable were used to describe the characteristics of the total sample.
- Chi-square and student t tests were used to compare categorical data. Continuous data were summarized as mean $\pm$ standard deviation (SD). P-value <0.05 was considered statistically significant.

Study Design

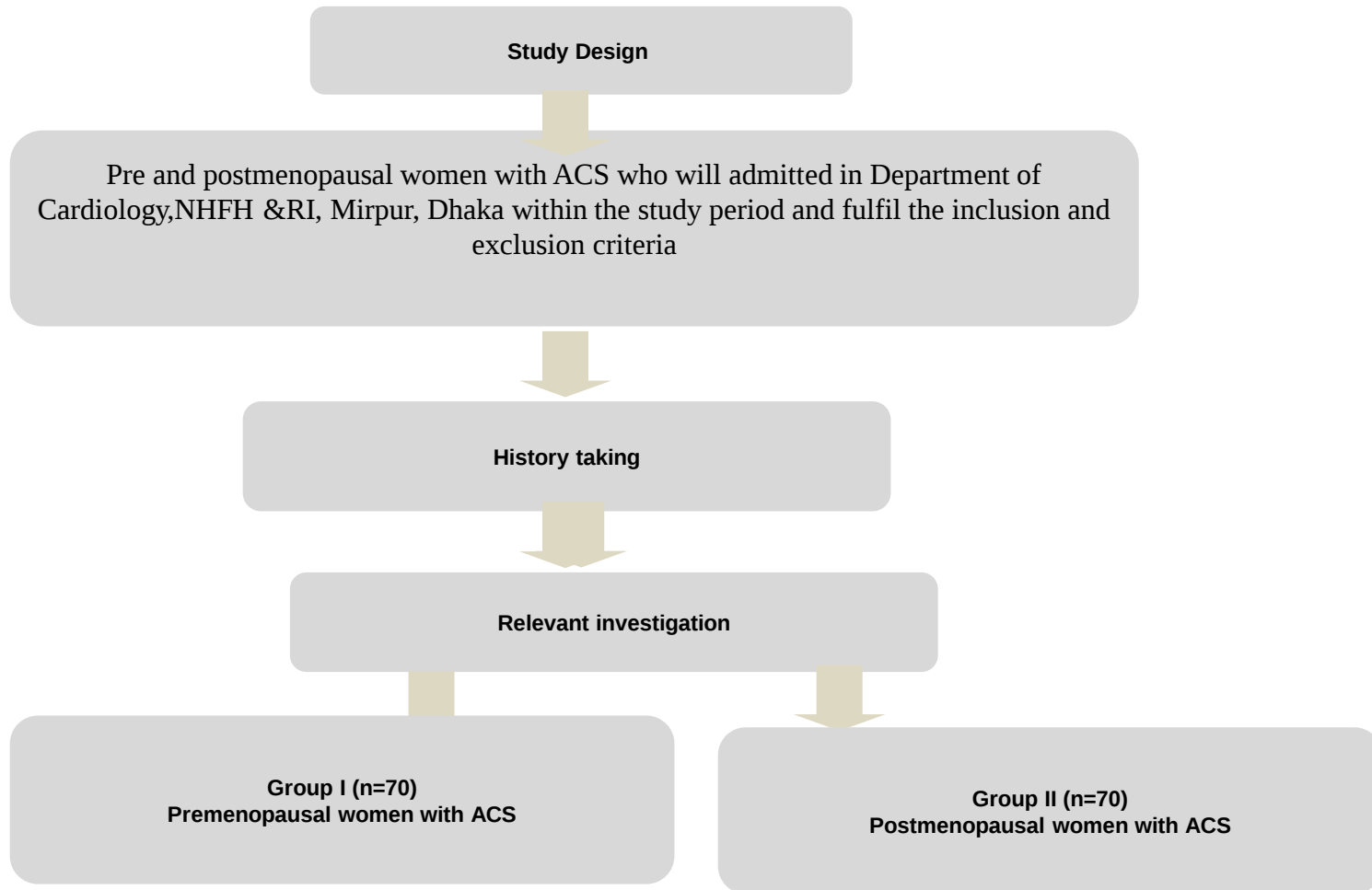
Pre and postmenopausal women with ACS who will be admitted in Department of Cardiology, NHFH & RI, Mirpur, Dhaka within the study period and fulfil the inclusion and exclusion criteria

History taking

Relevant investigation

Group I (n=70)
Premenopausal women with ACS

Group II (n=70)
Postmenopausal women with ACS



Results

Table I : Age distribution of the study populations (n=140)

Age (year)	Group I n(%)	Group II n(%)	p value*
≤ 35	12 (17.1)	0 (0.0)	
36-40	16 (22.9)	0 (0.0)	
41-45	32 (45.7)	3 (4.3)	
46-50	10 (14.3)	10 (14.3)	
51-55	0 (0.0)	20 (28.6)	
56-60	0 (0.0)	21 (30.0)	
>60	0 (0.0)	16 (22.9)	
Total	70 (100.0)	70 (100.0)	
Mean ± SD	41.53 ± 5.45	57.23 ± 7.45	0.001

Data are expressed as number (%), Figure within parenthesis indicates in percentage.

*Chi-square test was done to measure the level of significance

Table II : Distribution of BMI in the study populations (n=140)

BMI (kg/m²)	Group I n(%)	Group II n(%)	p value*
Under weight	0 (0.0)	1 (1.4)	0.316
Normal	18 (25.7)	14 (20)	0.421
Over weight	11 (15.7)	20 (28.6)	0.067
Obese	41 (58.6)	35 (50.0)	0.309
Total	70 (100.0)	70 (100.0)	
Mean $\pm$ SD	26.43 $\pm$ 4.28	25.70 $\pm$ 3.78	0.282

Data are expressed as number (%), Figure within parenthesis indicates in percentage.

*Chi-square test was done to measure the level of significance

Table III : Distribution of the patients according to risk factors (n=140)

Risk factors	Group I n(%)	Group II n(%)	p value*
HTN	52 (74.3)	58 (82.9)	0.217
DM	28 (40.0)	48 (68.6)	0.001
Dyslipidaemia	30 (42.9)	36 (51.4)	0.310
Family H/O			
premature CAD	35 (50.0)	23 (32.9)	0.017
OCP	38 (54.3)	0(0.0)	0.001
Smokeless tobacco	2 (2.9)	14 (20.0)	0.002
Smoking	0 (0.0)	0 (0.0)	

Data are expressed as number (%), Figure within parenthesis indicates in percentage.

*Chi-square test was done to measure the level of significance

Table IV : Clinical presentation of the study patients other then anginal pain (n=140)

Clinical presentations	Group I (n=70)	Group II (n=70)	p value
Shortness of breath	12 (17.1)	21 (30.0)	0.073
Atypical presentation	21 (30.0)	9 (12.9)	0.013

Data are expressed as number (%), Figure within parenthesis indicates in percentage.

*Chi-square test was done to measure the level of significance

Table V : Distribution of biochemical variable of study patients (n=140)

Lab investigation	Group I	Group II	p value*
FBS (mmol/l)	6.8 ± 2.4	7.3 ± 2.2	0.232
HbA1C (%)	6.8 ± 1.7	7.7 ± 2.0	0.008
S.Creatinine (mg/dl)	0.9 ± 0.1	1.1 ± 0.4	0.001
CKMB (U/L)	38.0 ± 39.6	42.3 ± 23.8	0.470
Troponin I (ng/ml)	7.7 ± 22.6	17.2 ± 59.7	0.225
TG (mg/dl)	127± 57.2	144.7± 68.9	0.118
HDL(mg/dl)	40.5± 10.2	35.3± 6.0	0.001
LDL (mg/dl)	105.1± 26.8	115± 38.4	0.066
TC (mg/dl)	156.4± 44.1	166.2± 57.3	0.258

Data are expressed as number (%), Figure within parenthesis indicates in percentage.

*Unpaired t test was done to measure the level of significance

Table VI : Distribution of the patients (n=140) by mean left ventricular ejection fraction

LVEF (%)	Group I n(%)	Group II n(%)	p value*
≤30	1 (1.4)	0 (0.0)	
31-44	7 (10.0)	16 (22.9)	
45-54	27 (38.6)	27 (38.6)	
>55	35 (50.0)	27 (38.6)	
Total	70 (100.0)	70 (100.0)	
Mean ± SD	53.74 ± 7.46 %	50.71 ± 8.38 %	0.026

Data are expressed as number (%), Figure within parenthesis indicates in percentage.

*Unpaired t test was done to measure the level of significance

Table VII : Clinical diagnosis of study population (n=140)

Clinical diagnosis	Group I n(%)	Group II n(%)	p value*
STEMI	8 (11.4)	14 (20.0)	0.164
NSTEMI	21 (30.0)	26 (37.1)	0.371
UA	41 (58.6)	30 (42.9)	0.063
Total	70 (100.0)	70 (100.0)	

Data are expressed as number (%), Figure within parenthesis indicates in percentage.

*Chi-square test was done to measure the level of significance

Limitations

1. It was a single centre study
2. The study was conducted at a public hospital in Dhaka city and the respondents of the research work were self-selected purposively, it cannot be assumed that this sample could be representative of the entire population of Bangladesh.
3. It may differ in different socio-demographic or cultural situation.
4. Grouping of the patient was done on the basis of menstrual history which may be not adequate

Conclusion

- Hypertension, diabetes mellitus, family history of premature CAD and dyslipidaemia were most common risk factors in both group.
- DM and smokeless tobacco were significantly more common in postmenopausal patients whereas family history of premature CAD and OCP intake were significantly common in premenopausal patients
- High index of suspicion is needed for diagnosis of ACS in premenopausal women as atypical presentation is more common in this group.

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