RESEARCH ARTICLE

A Study of Coronary Artery Disease in Postmenopausal Women at Tertiary Center in North India

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ABSTRACT

Introduction: Coronary artery disease (CAD) is one of the leading cause of morbidity and mortality in females, much more than breast cancer. Hormonal protection of premenopausal group is lost in postmenopausal age group and becomes similar to male counterparts. Traditional cardiac risk factors in women are similar to that in men but have different relative importance. Role of estrogen/progesterone, risks associated with oral contraceptives and controversial place of hormone replacement (HRT), requires special discussion. Women with CAD are more likely than men to present with angina rather than acute myocardial infarction (MI). Unstable angina is relatively common presentation. Atypical chest pain, microvascular angina are also more common in females. High rates of false positive treadmill test (TMT)/nuclear scans, atypical presentations, gender bias, psychosocial factors further compound the problem.

Materials and methods: Our study was conducted on 135 postmenopausal females over 2 years (2013–2015) attending cardiology outpatient department (OPD)/coronary care unit (CCU)/ward, L.P.S Institute of Cardiology, Kanpur, Uttar Pradesh, India.

Results and conclusion: Average age of patient was 64 ± 1.5 years. Chest pain was commonest presentation in 61.4% followed by dispend and palpitations. A total of 54.1% patients were in New York Heart Association (NYHA) class IV. Hypertension was most common risk factor, i.e., in 56.3% followed by dyslipidemia (45.9%), tobacco use (40.7%), obesity (31.9%) and diabetes in 23% cases. The most common electrocardiogram (ECG) finding on admission was T wave inversion (40%) followed by stress testing (ST) depression and normal ECG. Mean left ventricular fraction was 55.3 ± 11.3%. Unstable angina (38.5%) was the most common presentation followed by chronic stable angina (22.2%), ST elevated MI (20%) and non-ST elevated MI in 19.3% cases. 14.8% patients developed congestive heart failure (CHF) and died in hospital course.

Keywords: Postmenopausal period.

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INTRODUCTION

Coronary artery disease (CAD) is a leading cause of death in women as well as in men. Indian society with strong gender bias, for decades, has focused on CAD in men, as if females are immune to CAD.[1] Female CAD has been given stepmotherly treatment or was considered a pale copy of male CAD. Female CAD behaves in different way, so presentation risk factor profile, age, prognosis, psychosocial factors require separate study/focus on CAD in women.

Premenopausal women are somewhat protected from CAD by hormones. This advantage is lost in postmenopausal females and so incidence equals to male counterparts. Diabetes also hampers premenopausal age group protection. Although traditional risk factors are same as in males, but their relative importance is different in women.[2]

Gender bias, psychosocial factors, and delay in reporting to hospital further compounds the problem of dyslipidemia. Low high-density lipoprotein (HDL), elevated triglycerides (TGs), with raised low-density lipoprotein (LDL) are common in women. Use of oral contraceptive pills (OCP) and estrogen formulation further aggravates dyslipidemia. Issue of hormone replacement therapy (HRT) is still controversial and not recommended at present.[3,4] Diabetes completely eliminates the female advantage of CAD. American Heart Association considers diabetes[5] to be doubling the risk of CAD in females and also dramatically increases mortality of myocardial infarction (MI) in women. Noninsulin-dependent diabetes mellitus (NIDDM), obesity, along with insulin resistance (metabolic syndrome) are linked with high risk of CAD. Furthermore, diabetes mellitus (DM) causes decrease of HDL and increase TG and complex set of platelet abnormalities.

Hypertension greatly increases with age and females above 75 years are hypertensives in 80% cases. hypertension (HTN) is an independent risk factor in females and also along with DM, smoking, pills, obesity, and dyslipidemia.[6]

Smoking is a strong risk factor for females like males. Increased smoking in urban women along with OCP

increases thrombotic tendency and also leads to early menopause. Passive smoking in lower and higher social group is very prevalent. Tobacco use is very common. Smoking cessation appears to gradually eliminate excess risk in females, although it is harder to quit smoking in females than in males. Elevated fibrogen level, gender differences in platelet function, factor V Leiden mutation, etc., require detailed study as risk factors for CAD in females.[7]

Lack of exercise, especially in females, is more common and found to be linked with 4.7-fold increase risk of all-cause mortality in females and higher activity is associated with decreased relative risk for CAD (0.44) and stroke (0.51), independent of other vascular risk factors.[8] Importance of brisk walking/exercise in female was highlighted by Nurses' Health Study. Psychosocial factors, anxiety/depression, lack of social support are various facets of this problem. Inflammation appears to play an important role in CAD in women. In women's health study, C-reactive protein (CRP) was independent predictor for CAD.[5] Women with highest quartile of CRP had 5 to 7-fold increase in risk of cardiac/vascular events over 3 years period (other inflammatory markers were serum amyloid A, soluble intercellular adhesion molecule-I, interleukin 6).

Special mention must be made of OCP, which increases thrombotic risk with smoking and obesity. Risks and benefits associated with estrogen/progesterone were studied in Nurses' Health Study, which reported relative risk (RR) of 0.56 for MI/death in women currently using estrogen; 0.83 in everusers after adjustment for age and risk factors. In HRT, use of selective estrogen receptor modulators in females for CAD is controversial, and still not approved.[9]

Clinically, females present 5 to 10 years older than men at presentation. Angina/angina chest pain/syndrome X/USA are more common than MI at presentation. HTN, DM, and congestive heart failure (CHF) are more common in elderly females, along with left ventricular diastolic dysfunction, but less likely to have prior MI/coronary revascularization.

Vasospastic angina is also more common in females. Women with acute MI have similar angiographic findings as in males, suggesting that mechanism of MI does not vary by gender, although plaque is more fibrous/cellular in females. Electrocardiogram (ECG) shows relatively higher prevalence of repolarization ST-T abnormalities in females suspected of CAD than in males (32 vs 23%). Treadmill test (TMT) has higher false positive rates in females (38–67%) than in males (7–44%), but low false negative rates of 12 to 22% than in men (12–40%). Thallum scan in females is encountered with breast attenuation artifacts, which is decreased by technetium 99m sestambi.

Stress Echo also improves diagnostic accuracy. Female with CAD usually have single vessel disease (SVD), more increase in vascular/renal complications during angiography due to increase of age, diabetes, and smaller body age.

Women are less likely to be referred for cath studies than in males (34 vs 45%). Males/females who are revascularized fare similarly, but nonrevascularized females have poor prognosis than similarly untreated men. Women as compared with men are not on optimal medical management (less use of antiplatelets, beta-blocker, and angiotensin converting enzyme-1). GpIIb/IIIa are found to have better role in females than in males.

Percutaneous intervention studies found that in females, comorbidities are common like increased age, HTN, CHF, DM, dyslipidemia, and noncardiac ailments. Old age, small body size, more fragile vessels, increase of incidence of angina in previous studies were linked to relatively poor outcomes along with local complications, but now with improved devices, differences are hardly significant compared with males.

Women have 1.4 to 4.4 risk of mortality than males in coronary artery bypass graft (CABG). Women undergoing CABG are more likely to have preserved left ventricular ejection fraction (LVEF) and less likely to have multi vessels disease as females are less likely to receive left internal mammary artery graft to left anterior descending and less complete revascularization than men and suffer in postoperative period more from HF/perioperative MI and hemorrhage.[10]

MATERIALS AND METHODS

This was a prospective study conducted on the postmenopausal women patients admitted to the coronary care unit (CCU) or cardiology outpatient department (OPD) of L.P.S Institute of Cardiology, Kanpur between November 2013 and October 2015, with suspicion of CAD. In all the patients, history was obtained with special emphasis having been put on to find symptoms suggestive of CAD and menopause followed by detailed clinical examination. Random plasma glucose, fasting (F), and 2 hours postprandial (PP) blood sugar when required, fasting serum lipid, serum creatinine, blood urea were estimated. Twelve lead ECG, chest radiography, two-dimensional, M-mode, and color Doppler echocardiography were done. Qualitative cardiac enzymes (cardiac troponin) were assessed in selected patients presenting with symptoms according to the latest ACC/AHA guidelines. The patients were observed for cardiovascular complications like recurrent angina, refractory CHF, arrhythmia, hypotension, and the mortality. Statistical analysis was performed using Statistical Package for the Social Sciences (SPSS) version 10.0.

A Study of Coronary Artery Disease in Postmenopausal Women at Tertiary Center in North India

Table 1: Symptoms on admission

Symptoms	No. of subjects (n)	Percentage
Angina	82	61.4
Shortness of breath	54	40.0
Palpitations	33	32.0
Diaphoresis	22	16.2
Dizziness or syncope	9	6.0

Table 2: Presentation of CAD on admission

Coronary syndrome	No. of subjects	Percentage
STEMI	27	20.0
NSTEMI	26	19.3
Unstable angina	52	38.5
Stable angina	30	22.2
Total number	135	100

Table 3: New York Heart Association (NYHA) functional class at presentation

NYHA class	No. of patients (n)	Percentage
I	5	3.7
II	13	9.6
III	44	32.6
IV	73	54.1
Total	135	100.0

Table 4: Coronary risk factors

Characteristics	STEMI n (%)	NSTEMI n (%)	Unstable angina n (%)	Total n (%)
Hypertension	19 (51.4)	21 (58.3)	36 (58.0)	76 (56.3)
Diabetes mellitus	8 (22.0)	8 (22.0)	15 (24.0)	31 (23.0)
Tobacco smoking/ chewing	17 (46.0)	14 (39.0)	24 (38.7)	55 (40.7%)
Dyslipidemia	16 (43.1)	16 (44.4)	30 (48.4)	62 (45.9)
Obesity	12 (32.4)	12 (33.3)	19 (30.6)	43 (31.9)
Cerebrovascular disease	1 (2.7)	1 (2.7)	2 (3.2)	4 (3.0)

RESULTS

Over the study period of 2 years, 151 postmenopausal women suspected to be suffering from CAD were included in this study. However, 16 patients had to be excluded because of atypical pain (gastroesophageal reflux disease, acid peptic disease). So in total, 135 patients remained in the study. The mean age of the patients was 64 ± 1.5 years (45–65 years), with age distribution being 14.8% (n = 20) in 45 to 55 years, 33.3% (n = 45) in 56 to 60 years, and 52.0% (n = 70) above 60 years of age.

The presenting complaints at the time of admission were as shown in Table 1. Angina was the presenting complaint (61.4%, n = 82) followed by dyspnea (40.0%, n = 40), and palpitation was seen in 28% cases.

Unstable angina was the most common with 38.5% (n = 52) clinical diagnosis, followed by stress testing (ST) elevation MI (STEMI) 20.0%; n = 27) and non-ST elevation MI (NSTEMI) (19.3%; n = 26) (Table 2). Sixteen patients had atypical chest pain.

At the time of admission, 74 (55.2%) had New York Heart Association (NYHA) class IV symptoms, 45 (33.4%) had NYHA class III, 13 (9.8%) had NYHA class II, and 3.1% had in NYHA class I symptoms (Table 3).

Among the participants, 56% (n = 76) women were known hypertensive or detected to be hypertensive, 23% women (n = 31) were diabetic, 40.7% (n = 55) were smokers or were addicted to tobacco chewing; 30% (n = 43) were obese with mean body mass index (BMI) of 25.6 ± 4.4 kg/m^2 (Table 4). No patient in our study was on HRT. Dyslipidemia (increase TG, decrease HDL, and increase LDL) was seen in 43% in STEMI, 44.4% in NSTEMI, 48.4% in USA, and 45.9% in total overall group.

Fasting serum cholesterol was found to be $216 \pm 28.3\%$ (mean $\pm$ SD) with LDL-C, very-low-density lipoprotein (VLDL), HDL, and TGs being 135.8 ± 25.2 mg%, 32.4 ± 11.2 mg%, 40.4 ± 5.7 mg%, and 165.2 ± 52.3 mg% (mean $\pm$ SD) respectively.

The most common EGG findings at the time of admission were: T wave inversion 40% (n = 54), followed by ST depression (37%; n = 50) and 25% normal ECG-Electrocardiography(25%; n = 33) and ST elevation (27.4%; n = 37).

Moreover, 55% (n = 74) patients had good wall motion score index (WMSI) of 1%; 39% (n = 53) had WMSI between 1 and 2% while only small fraction 6% (n = 8) had poor WMSI of more than 2%. Mean WMSI was $1.6 \pm 00.7\%$ with a range between 1 and 3%. Most of the patients (72%, n = 97) had a LVEF above or equal to 50%; 28% (n = 38) had LVEF less than 50%. Among the latter, 42% (n = 16) had LVEF between 40 and 49%, while 32% (n = 12) had LVEF between 30 and 39%. None of the patient had LVEF below 30%. Mean LVEF was $55.3 + 11.3\%$ (mean $\pm$ SD), with range of 35 to 70%. Mitral regurgitation (ischemic MR) was present in about one-third (40%) of patient, with most of them having grade 1 MR, i.e., 21% (n = 28), while 12% (n = 16) had grade 2 MR and 7% (n = 10) of patient had MR of grade 3 severity. Diastolic dysfunction was observed in 55% (n = 74) of patients with most of them, 32% (n = 44), having only stage 11 diastolic dysfunction.

During hospital stay, recurrent angina was diagnosed in 8.9% (n = 12) and refractory angina in 6.7% (n = 9); 14.8% (n = 20) of the women had developed congestive heart failure; 3.7% (n = 5) patients developed arrhythmias out of whom 2 patients had nonsustained ventricular tachycardia; another developed frequent ventricular premature complexes and two developed sinus bradycardia which responded to atropine. Eight patients developed hypotension, i.e., systolic blood pressure less than 90, during the hospital course. There were 4 (3%) in-hospital deaths (due to LV failure).

The age of the patients who had in-hospital complications (Table 5) was 62.44 ± 8.10 years (mean $\pm$ SD), while those of the patients who had no in-hospital complications was 58.1 ± 9.5 years (mean $\pm$ SD). So, there was a significant difference in the age between the two groups ($p < 0.05$). Moreover, the total number of episodic pain 48 hours prior to admission in the patients with in-hospital complications was 3.45 ± 1.48 (mean $\pm$ SD), whereas it was 1.5 ± 1.12 (mean $\pm$ SD) in those without complications, thereby showing a significant difference between these two group ($p < 0.05$). In contrast, the T wave inversion was 1.19 ± 0.74 mm (mean $\pm$ SD) in 2.45 ± 1.12 leads (mean $\pm$ SD) in the patients with in-hospital complications and it was 1.13 ± 0.74 mm (mean $\pm$ SD) in 2.15 ± 1.35 (mean $\pm$ SD) leads in those without complications, so the difference was insignificant ($p < 0.05$). ST segment depression as 2.02 ± 1.48 mm (mean $\pm$ SD) in 2.52 ± 1.97 leads (mean $\pm$ SD) in the patients who developed in-hospital complications, while it was 128 ± 1.0 mm (mean $\pm$ SD) in 1.76 ± 1.53 leads (mean $\pm$ SD) in patients without complications. The difference between the two groups was found to be significant ($p < 0.05$).

Mean LVEF was found to be $49.76 \pm 8.4\%$ (mean $\pm$ SD) in the patients with complications, while it was $58.3 \pm 9.06\%$ (mean $\pm$ SD) (Table 5) in those without complications; the difference between the two groups was found to be significant ($p < 0.05$). The WMSI among the patients with and without in-hospital complications was not found to be significant ($p > 0.05$).

Values are mean $\pm$ SD; "t" is the value of Student's t test. p-value < 0.05 indicates significance.

Logistic regression analysis (Table 6) was done on all the 135 study subjects using the occurrence of in-hospital complications as the dependent variable and various clinical and echocardiographic parameters as independent variables. Age > 65 years ($p < 0.05$), hypertension ($p < 0.05$), diabetes mellitus ($p < 0.05$), dyslipidemia ($p < 0.05$), smoking or tobacco chewing ($p < 0.05$), prior MI ($p < 0.05$), CHF on admission ($p < 0.05$), presence of ST segment depression ($p < 0.05$) at the time of admission, and ST segment depression in > 5 leads ($p < 0.05$), all were found to be significantly associated with the occurrence of complications. There was no significant association between in-hospital complications cerebrovascular disease ($p > 0.05$), obesity ($p > 0.05$), hypotension ($p > 0.5$), or T wave inversion ($p > 0.05$).

DISCUSSION

The present study had been conducted in the L.P.S Institute of Cardiology, Kanpur from November 2013 to October 2015, on 135 postmenopausal women, who attended the cardiology OPD, medicine OPD, wards, or admitted in coronary care unit (CCU). The observed age in the study was 64 ± 11.5 years (mean $\pm$ SD). Decades of observational studies have verified excess coronary risk in men compared with premenopausal women. However, after menopause, coronary risk accelerates in woman[11] accounting for the higher age seen in our study. Sambasivam et al[12] reported similar results with the mean age of their cohort being 57.16 years. The maximum prevalence and incidence of coronary heart disease was 53.8 and 23 respectively, in the women of age more than 60 years. The prevalence of coronary heart disease in study by Chadha et al[13] was 71.6/1,000 women in the age group of 55 to 64 years. So our study is consistent with other studies,[14] which showed increasing prevalence and incidence of CAD with increasing age.

In the present study, the commonest presenting complaint was angina (83.4%) (Table 1). Similar results were also seen in MI triage and intervention project (MITI) in which nearly 90% of women with MI had chest pain as a feature of initial presentation. Similar finding is derived from Framingham data, in which the first presentation of symptomatic CAD is typically angina in women.[15]

Table 5: Complications during the hospital course

Complications	No. of patients (n)	Percentage
Congestive heart failure	20	14.8
Arrhythmia	5	3.7
Hypotension	8	5.9
Angina after admission		
(a) Refractory	9	6.7
(b) Recurrent	12	8.9
Death	4	3.0

Table 6: Clinical and echocardiographic predictors of in-hospital outcome using continuous variables

| | In-hospital complications | | | | |
Variables	Yes (n = 46)	No (n = 89)	Range	t	p-value
Age (years)	62.47 ± 8.10	58.1 ± 9.5	45–70	2.794	0.006
Episode of pain in last 48 hours for admission	3.45 ± 1.48	1.5 ± 1.12	0–6	1.813	0.000
T wave inversion (no. of leads)	2.45 ± 1.12	2.15 ± 1.35	0–12	1.28	0.202
T wave inversion (mm)	1.19 ± 0.74	1.13 ± 0.74	0–5	0.45	0.653
ST segment depression (mm)	2.02 ± 1.48	1.28 ± 1.03	0–5	3.029	0.003
ST segment depression (no. of leads)	2.52 ± 1.97	1.76 ± 1.53	0–12	2.273	0.026
LVEF%	49.76 ± 8.4	58.3 ± 9.06	30–80	5.346	0.000
WMSI%	1.82 ± 0.7	1.59 ± 0.75	1–3	0.148	0.087

Epigastric pain, palpitation, and vomiting were respectively present in 16.67, 32, and 28% patients at the initial presentation. Our results were in accordance with the results given by Goldberg et al[16] and Nishim et al.[17]

In our study, unstable angina (n = 52; 38.5%) was the most common syndrome at admission whereas chronic stable angina, STEMI, and NSTEMI were seen in 22.2% (n = 30), 20.0% (n = 27), and 19.3% (n = 26) respectively (Table 2). In Hochman et al[18] study, 63.4% had unstable angina, whereas 36.6% had NSTEMI and 27.2% had STEMI. Feinleib et al[19] also observed that 46% of the patients were females who were admitted to the hospital with unstable angina. The difference in our study could be attributed to a significant proportion of the patients having stable angina (22.2%; n = 30). In our study, 74 patients (55.2%) had NYHA class IV symptoms on admission; while only 5 patients (3.1%) were in NYHA class I (Table 3). Hochman et al[20] also reported the higher percentages of women having heart failure or history of heart failure at presentation, and it may also reflect diastolic dysfunction in women.

A large number of patients in our study had evidence of coronary risk factor (Table 4). In the present study, 40% of the subjects of STEMI, 58.3% subjects of NSTEMI, and 58.0% patients of unstable angina were hypertensive. Hochman et al[18] showed 54% of unstable angina subjects were hypertensives, and reported similar observations. In a study by Sambasivam et al,[12] systemic hypertension was present in 64.02% of postmenopausal females. In our study 23.0% of unstable angina patients were diabetic, whereas DM was present in 22.0% of subjects with STEMI and NSTEMI. Hochman et al[18] and Sambasivam

et al[12] also reported similar incidence of diabetes in the patients of STEMI and NSTEMI. In the present study, 46.0% of females were smokers (current or former) who had STEMI, while 38.7% who had unstable angina were smokers; 45.6% (n = 62) patients were dyslipidemic. Hochman et al[18] and Sambasivam et al[12] also noted similar risk factors.

Our study revealed (Tables 6 and 7), 33 patients (25%) with normal ECG, 54 (40%) showing T wave inversion, and ST segment depression in 50 (37%). Stress testing segment elevation was seen in 37 (27.4%) patients in our study group. Kanojia et al[21,22] reported admission ECG changes of myocardial ischemia in 46% patients. Data from OASIS 2 registry (1999) reported abnormal ECG in 87% of patients from USA. Bazinno et al[23] observed normal ECG in 5.8% patients, T wave changes in 34.4%, ST elevation in 15.8%, ST depression in 21.3%, and left bundle branch block or left ventricular hypertrophy in 12.7% of subjects. In our study, patients (19%) had ST segment depression in > 5 leads and this was independently associated with in-hospital complications (p < 0.05) as was the presence of ST segment depression (p < 0.05). T wave inversion showed no association (p > 0.05) with in-hospital complications, as was proven in previous studies. Cohen et al,[24] Langer et al,[25] Haines et al (1983), Zwaan et al (1988), and Bär et al (1992) had already reported that prognosis is worse in patients with ST segment depression on admission ECG and that T wave changes, although common, have no such prognostic value. Bazinno et al[23] further confirmed ST depression was significantly associated with in-hospital complications (p < 0.05) and that T wave inversion was not significant (p > 0.05) with regards to prognosis.[21-25]

Table 7: Clinical and echocardiographic predictors of in-hospital complications (logistic regression analysis using complications as dependent variable)

| Baseline characteristics | In-hospital complications | | | | 95% Confidence Interval | p-value |
| | Yes (n = 46) | | No (n = 89) | | | |
	n	%	n	%		
Age > 65 years	16	15	11	41	1.555–8.964	0.003
Hypertension	35	41.7	50	58.3	1.119–5.504	0.025
Diabetes mellitus	27	46.5	31	53.45	1.280–5.525	0.009
Tobacco chewing	23	33.8	45	66.2	0.480–1.992	0.045
Dyslipidemia	27	46.5	31	53.45	1.280–5.524	0.009
Obesity	12	33.3	24	66.67	0.426–2.114	0.913
Prior MI	35	66.03	18	33.97	5.35–29.53	0.000
Prior angina (>48 hours)	30	37.03	51	62.97	0.7–3.057	0.312
Cerebrovascular diseases	2	50	2	50	0.323–3.101	1.000
Postinfarction angina	3	37.5	5	62.5	0.267–5.137	0.833
Rest pain	34	33.66	67	66.34	0.412–2.103	0.862
CHF on admission	8	53.3	7	46.5	1.494–11.400	0.006
Hypotension on admission	8	61.5	5	38.5	1.085–11.524	0.036
ST segment depression present	28	50	28	50	1.613–7.118	0.001
ST segment depression > 5 leads	18	62	11	38	1.631–12.351	0.001
T wave inversion present	20	34.5	38	65.5	0.503–2.118	0.930

Table 8: Echocardiographic parameters

Sl. no.	Echocardiographic parameters	No. of patients (n)	Percentage
1	Wall Motion Score Index (WMSI) (%)		
	1%	74	55
	>1 to 2%	53	39
	>2%	8	6
2	Left ventricular ejection fraction		
	(a) LVEF > 50	97	72
	50–59	20	21
	60–69	60	62
	70–79	17	17
	(b) LVEF < 50	38	28
	30–39	12	32
	40–49	16	42
3	Mitral regurgitation	54	
	Grade 1	28	21
	Grade 2	16	12
	Grade 3	10	7
4	Diastolic dysfunction	74	55
	Stage 1	44	32
	Stage 2	18	13
	Stage 3	12	9

Echocardiography was done on all patients in our study within 48 hours of admission and it revealed that most of the patients (n = 97; 72%) had LVEF above 50% (i.e., normal), while 28% (n = 38) patients had LVEF below 50% (Table 8).[26] Mean LVEF was 49.76 ± 8.4% in patients with complications and 58.3 ± 9.06% in those without complications (Tables 6 and 7), showing a significant association with in-hospital complications (p < 0.05). Sixty-one patients (45%) had a wall motion abnormality on echocardiography, with the mean WMSI of 1.82 ± 0.7% in patients with complications and 1.59 ± 0.75% in those without complications (Table 6); however, association with in-hospital events was insignificant (p < 0.05).

Previous studies have also reported that women with acute MI have higher in-hospital and short-term mortality rates than do men.[27,28] Studies of women and men with unstable angina or infarction without ST elevation, however, have demonstrated similar outcomes, despite the fact that the women were older and had more coexisting conditions than the men. After adjustment for such differences, many studies have conducted that sex is not an independent predictor of mortality after acute MI.[29-31] However, some studies have reported a higher risk of death among women that was independent of baseline variables. The variation in results probably reflects the mixed populations studied, with differing percentages of patients with non-Q-wave and Q-wave infarction.

The following complications were observed in our study during the hospital course: 21 patients (15.6%) had ongoing angina after admission of whom 9 (6.7%) were labeled as having refractory angina and 12 (8.9%) having recurrent angina; hypotension in 8 (5.9%); and arrhythmia in 5 (3.5%) (in the form of nonsustained ventricular tachycardia in 1 patient, frequent ventricular premature beats in another patient, and sinus bradycardia in the third one), and a total of 4 deaths occurred (3%).

CONCLUSION

Coronary artery disease in the postmenopausal female is a great challenge to deal with unstable angina, which was the most common presentation. In-hospital complications were significantly associated with age, diabetes, prior MI, dyslipidemia, smoking, CHF on admission, and significant ST segment depression in more than 5 leads.

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