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## Original Article

# Clinical profile and 30-day outcome of women with acute coronary syndrome as a first manifestation of ischemic heart disease: A single-center observational study



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## ABSTRACT

**Background:** Gender disparity, with respect to women receiving less medical therapy, undergoing fewer invasive procedures, and experiencing worse outcome than men, has been noted in various observational and randomized trials, though guidelines on acute coronary syndrome (ACS) are gender-neutral. Indian data with focus on women with ACS are lacking. **Aim:** This study was undertaken to give us an insight on the clinical presentation, risk factors, and in-hospital outcome of ACS in women and at 30 days.

**Materials and methods:** 133 successive cases of women presenting with ACS, who met the inclusion criteria between 2012 and 2014, were included. Cases were grouped into ST elevation myocardial infarction (STEMI), non ST elevation myocardial infarction (NSTEMI), and unstable angina (UA).

**Results and conclusion:** The mean age was  $64.4 \pm 11$  years. The mean BMI was  $23.64 \pm 3.23$  kg/m<sup>2</sup>. Diabetes was present in 58.3% in NSTEMI, 65.1% in STEMI, and 57.1% in UA group. Hypertension was found in 75% of NSTEMI, 60.2% of STEMI, and 71.4% of UA group. Severe MR was found in 11.1% of NSTEMI and 3.6% of STEMI patients. 8.3% of NSTEMI and 15.7% of STEMI patients presented in Killips class IV. Single vessel disease was most commonly found across the spectrum of ACS. 68.7% patients in STEMI group underwent primary angioplasty. 5.6% of NSTEMI and 7.2% in STEMI group had contrast-induced nephropathy (CIN). All deaths were noted in STEMI group with eight in-hospital deaths and three during 30-day

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**Abbreviations:** ACS, acute coronary syndrome; AWMI, anterior wall myocardial infarction; COPD, chronic obstructive pulmonary disease; CAD, coronary artery disease; CAG, coronary angiogram; CKD, chronic kidney disease; DM, diabetes mellitus; LDL, low density cholesterol; HDL, high density cholesterol; IABP, intra aortic balloon counter pulsation; IWMI, inferior wall myocardial infarction; MR, mitral regurgitation; MACE, major adverse cardiovascular events; NSTEMI, non ST elevation myocardial infarction; POBA, plain old balloon angioplasty; PAMI, primary angioplasty; PCI, percutaneous coronary intervention; PWMI, posterior wall myocardial infarction; STEMI, ST elevation myocardial infarction; TPI, temporary pacemaker; TVD, triple vessel disease; UA, unstable angina; VLDL, very low density cholesterol; VT, ventricular tachycardia; VF, ventricular fibrillation.

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follow-up period. Killips class III and IV and higher grace score (>150) were predictors of in-hospital mortality. Chronic kidney disease, ischemic mitral regurgitation, LV clot, and in-hospital cardiac arrest were associated with higher risk.

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## 1. Introduction

Cardiovascular disease has emerged as a major health burden in developing countries. Significant differences in the prevalence of coronary artery disease (CAD) exist with respect to gender, age, and ethnicity. It is predicted that more than half the worldwide cardiovascular disease risk burden will be borne by the Indian subcontinent in the next decade, according to a recent epidemiological study.<sup>1</sup> In 2003, the prevalence of CAD in India was estimated to be 3–4% in rural areas and 8–10% in urban areas (six-fold higher compared with 40 years ago). At any given age, the prevalence of CAD is greater in men than in women. Nonetheless, many recent reports concluded that women with CAD have a worse prognosis than men with this disease. The type of ischemic event shows gender-specific differences. Most clinical trials have enrolled primarily men, and the results have generally been extrapolated to women.

A randomized substudy of the OASIS 5 trial (Organization to Assess Strategies in Acute Ischemic Syndromes) and an accompanying meta-analysis of prior studies of percutaneous coronary intervention (PCI) in women presenting with an acute coronary syndrome (ACS) suggest that women do worse with an early invasive strategy. They have been reported to undergo cardiac catheterization and consequently revascularization procedures less often than men.<sup>2</sup> There have been conflicting results when analyzed by gender in randomized and registry studies of primary PCI for ST elevation myocardial infarction (STEMI). Although large trials including women's health initiative and the women's ischemia syndrome evaluation have shed light on clinical characteristics, diagnosis, and outcome in women, they are largely western studies. In a study undertaken in Kerala at a tertiary center, women with STEMI had higher mortality rates than males with STEMI.<sup>3</sup> In Kerala ACS registry,<sup>4</sup> the largest ACS data till date in the Indian scenario involving 25,748 patients over 2 years and across 125 centers had 22.6% women, and CREATE registry<sup>5</sup> showed that 23.6% of ACS were women.

## 2. Materials and methods

This was an observational study with 30-day follow-up, conducted at Fortis Hospital, Cunningham Road, Bangalore. It aimed to provide information on the risk factors and treatment outcome in natural settings. The subjects were female patients, who were presenting for the first time with a diagnosis of ACS, at our hospital. Once the patients met the inclusion and exclusion criteria as defined, they were enrolled in the study after signing the informed consent. Women whose age is greater than 18 years and diagnosed with ACS

were included. Age less than 18 years, prior heart failure, prior ischemic heart disease, and those unwilling to participate in the study or sign the informed consent were excluded. STEMI, non ST elevation myocardial infarction (NSTEMI), and unstable angina (UA) were diagnosed following current guidelines.

Data collection was done in two phases – in hospital and 30-day telephonic follow-up. The in-hospital survey was performed when the patient presented with ACS for the first time. The postdischarge survey was done at 30 days. The data were collected from the patients and recorded in a prepared Case Report Form (CRF). Demographic details, medical history, information on diet, substance use, and hospitalization details were collected.

### 2.1. Statistical analysis

Analysis of data was done using Statistical Package for Social Sciences (SPSS) software version 15. The descriptive results are displayed as subgroups of STEMI, NSTEMI, and UA. All the numerical data are presented as mean  $\pm$  standard deviations. All the categorical data are presented as frequency and percentages. The results are presented in tables and graphs. Multivariate logistic regression analysis was done to assess the odds of variables affecting the in-hospital mortality.

## 3. Results

133 subjects were enrolled into the study after meeting the inclusion criteria. The recruitment period was from May 2011 to December 2013. The subjects were followed up for a period of 30 days. There were 11 patients who died during the study period. Most patients belonged to 61–70 years stratified age group across all ACS subtypes. The mean age was  $64.4 \pm 11$  years. The mean BMI was  $23.64 \pm 3.23$  kg/m<sup>2</sup>.

16.7% presented within 4 h after symptom onset and 58.3% presented more than 12 h after symptom onset in the NSTEMI group; 18.1% patients in STEMI group presented within 4 h of symptom onset and 38.6% after 12 h. 64.3% patients in UA group presented 12 h after symptom onset.

Most patients presented with typical chest discomfort in all 3 subgroups. 1 patient in NSTEMI and 6 patients in STEMI group presented with syncope.

38.9% in NSTEMI, 36.1% in STEMI, and 21.4% in UA group received premeditation with antiplatelets before reaching the hospital. 6% in STEMI group received thrombolysis at the point of first medical contact.

Echocardiography revealed moderate mitral regurgitation (MR) in 5.6% of NSTEMI and 6% of STEMI patients. Severe MR was found in 11.1% of NSTEMI and 3.6% of STEMI patients.

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