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Original Article

Angiographic prevalence and pattern of coronary artery disease in women

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ABSTRACT

Background: There are not many studies describing the prevalence and pattern of “coronary artery disease” (CAD) in women undergoing “coronary angiography” (CAG). Hence, uncertainty thrives with regard to the angiographic prevalence and pattern of CAD in women. **Objective:** Our objective was to study the prevalence and pattern of CAD among women undergoing CAG.

Methods: Data of 500 women who underwent CAG for suspected CAD over 3 years were retrospectively analyzed. They were classified into young group (age < 55 years) and elderly group (age ≥ 55 years). Angiographic profile of “left main disease” (LMD) was also studied. **Results:** There was greater prevalence of obstructive CAD especially double vessel disease and triple vessel disease in elderly group while normal coronaries were more prevalent in young group. There was equal distribution of non-significant lesions and intermediate lesions between the two groups. The prevalence of LMD is 3.4%, obstructive CAD is 45.4%, and multivessel disease is 28%. The prevalence of LMD and multivessel disease is 31.4%. The pattern of involvement of coronary arteries was same between the two groups; left anterior descending artery is the most commonly affected vessel. Chronic total occlusion mostly involved right coronary artery. Bifurcation lesion involving distal left main coronary artery is the most prevalent pattern of LMD.

Conclusion: There has been a change with regard to clinical presentation and onset of risk factors for CAD at young age, but the load of atherosclerotic burden and pattern of involvement of coronary arteries have not changed in women.

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1. Introduction

Globally, there has been a substantial rise in the proportion of women undergoing “coronary angiography” (CAG) over the last few years. The reasons for this evolutionary change may be multifactorial. As a preliminary step in the process of

discerning these changes, the clinical and angiographic profiles of women undergoing CAG must be understood. There are not many studies describing the prevalence and pattern of “coronary artery disease” (CAD) in women undergoing CAG. Hence, uncertainty thrives with regard to the angiographic prevalence and pattern of CAD in women. Stenosis of “left main coronary artery” (LMCA) is a relatively uncommon but

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significant cause of increased morbidity and mortality among patients with CAD. The magnitude of problem imposed by “left main disease” (LMD), though well established in men, has not been explored in women. Moreover the strategy of stent deployment (provisional side branch stenting strategy or two stent strategy) in the interventions of LMCA depends on the pattern of CAD. Hence, a study about angiographic prevalence and pattern of CAD especially LMD in women will definitely open up new avenues for the better understanding of the strategy for percutaneous coronary intervention.

It is well established that the prevalence of CAD is lesser in women compared to men.^{1,2} Among women who routinely undergo CAG prior to radiofrequency ablation, the angiographically determined prevalence of “single vessel disease” (SVD), “double vessel disease” (DVD) and “triple vessel disease” (TVD) are 2.5%, 1.3% and 0% respectively.¹ CAD in women less than 45 years of age does not differ from other patients.³ Significant CAD is seen in 55% of women with more than two risk factors.³ Study done by Dave et al among Indian women undergoing coronary angiography showed greater proportion of TVD (39.6%) than DVD (12.9%) or SVD (15.8%). In the light of these studies, we intended to study about the angiographic prevalence and pattern of CAD in women.

2. Aim

Our objective was to study the prevalence and pattern of CAD in women undergoing CAG.

3. Materials & Methods

The data of women suspected to have CAD and underwent CAG over a period of 3 years were retrospectively analyzed. The

discharge summaries, coronary angiograms and angiogram reports were studied to get information about clinical and angiographic profiles of these women. They were classified into “young group” (age < 55 years) and “elderly group” (age ≥ 55 years). In this study, obstructive CAD was defined as at least 50% stenosis of luminal diameter of LMCA or at least 70% stenosis of luminal diameter of at least one of the major epicardial coronary arteries. Non-significant lesion was defined as less than 30% stenosis of luminal diameter of any epicardial artery. Intermediate lesion was defined as 30–50% stenosis of luminal diameter of LMCA, or 30–70% stenosis of luminal diameter of one of the major epicardial arteries. Depending on the number of major epicardial arteries involved, they are classified as SVD, DVD and TVD. LMD was defined as at least 50% stenosis of luminal diameter of LMCA. The prevalence and pattern of CAD in these women were analyzed. The angiographic profile of subset of women with LMD was also studied. All statistical analyses were performed using SPSS17 software. A *p*-value < 0.05 was considered statistically significant.

4. Results

In all 500 women underwent CAG during the study period. The clinical profile of these women is mentioned in Table 1. There were 257 women in the young group and 243 women in the elderly group (*p* = 0.41). The mean age was 47.0 ± 5.1 years and 60.8 ± 4.9 years for young women and elderly women respectively (*p* < 0.0001). There were more hypertensives in elderly group than young group (159 vs. 142, *p* = 0.02). There were no differences with respect to diabetes, obesity and dyslipidemia between two groups. Left ventricle (LV) dysfunction (67 vs. 44, *p* = 0.005) and especially moderate LV dysfunction (21 vs. 10, *p* = 0.04) was more prevalent in elderly women than young women. Though presentation following

Table 1 – Clinical profile of women undergoing coronary angiogram.

Parameter	Total women (n = 500)	Young women (n = 257)	Elderly women (n = 243)	<i>p</i> value
Age	53.7 ± 8.5	47.0 ± 5.1	60.8 ± 4.9	<0.0001*
Obesity	146	70	76	0.33 [#]
Hypertension	301	142	159	0.02 [#]
Diabetes	205	95	110	0.07 [#]
Dyslipidemia	126	58	68	0.18 [#]
Post-menopausal	436	195	241	<0.0001 [#]
Presenting feature				
Typical angina	238	134	104	0.04 [#]
Acute coronary syndrome	214	107	107	0.65 [#]
STEMI	102	48	54	0.37 [#]
NSTEMI	28	16	12	0.56 [#]
USA	85	43	42	0.90 [#]
Echo				
Normal	389	213	176	0.005 [#]
LV dysfunction	111	44	67	0.005 [#]
Mild	71	29	42	0.07 [#]
Moderate	31	10	21	0.04 [#]
Severe	9	5	4	1.0 [#]
Treadmill				
Positive	75	39	36	1.0 [#]

Note: *Students' unpaired T test; [#]Fisher's Exact Test; STEMI: ST elevation myocardial infarction; NSTEMI: non-ST elevation myocardial infarction; USA: unstable angina; LV: left ventricle.

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