

## CORONARY ARTERY DISEASE IN ELDERLY PATIENTS

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*The prevalence of coronary artery disease (CAD) and its associated morbidity and mortality increase as age advances. Our study was aimed at analyzing the demographics, risk factors, presentation and mortality of CAD among geriatric patients admitted at Sir Ganga Ram Hospital, Lahore, Pakistan. A total of 200 patients, aged 60 years and above, admitted consecutively to various departments were included in the study. CAD was present in 81(40.5%) patients, 45 (55.5%) females and 36 (45.5%) males. Following risk factors were found in the CAD patients: hypertension in 59(89.8%), diabetes mellitus in 36(58.1%), dyslipidemia in 4(5%), cardiac failure in 21(25.9%) stable angina in 15(18.5%) 9(11.2%) had unstable angina; 32 (39.5%) suffered from acute myocardial infarction, symptomatic in 17(21%) and silent in 15(18.5%). Seven (53.9%) patients who died were suffering from CAD. We concluded that carrying a high index of suspicion in the elderly, even in asymptomatic patients, with early identification and treatment of risk factors might improve the prognosis of CAD in this age group.*

### INTRODUCTION

Human aging, from an anatomical and physiological point of view, is characterized by a progressive constriction of the homeostatic reserve of every organ system of the body, one of them being the cardiovascular system. The morbidity and mortality associated with coronary artery disease (CAD) increases progressively with age. Not only is it lethal, but also the resulting disability may be prominent, depending on the severity and duration of illness. More successful recognition and treatment of cardiovascular risk factors and disease can decrease age-adjusted cardiovascular mortality.<sup>1</sup> Our study at Sir Ganga Ram Hospital was designed to examine the demographics, risk factors, mode of presentation and mortality of CAD in elderly patients admitted to a teaching hospital, and to assess how these items vary with advancing age.

### MATERIAL AND METHODS

The study was an observational analysis of 200 cases admitted consecutively to various departments of Sir Ganga Ram Hospital, Lahore, a

750 bedded teaching hospital located in the center of the city.

The age criteria for patients recruited for the study was taken as 60 years and above, i.e. our present retirement age. Informed consent was taken from those included in the group. Patients with clinical features were labeled as suffering from CAD only when confirmed with electrocardiography, cardiac enzymes and / or stress testing. With meticulous interviewing, examination and careful review of relevant investigations, the data was entered in a proforma designed for the subject patients. Finally the compiled results were subjected to analysis through the SPSS package.

### RESULTS

Out of the 200 patients included in the study, 81(40.5%) suffered from CAD. Patients fell in the age range of 60-100 years (mean 68.3 years). They were categorized into the subgroups:

- (a) 60-69 years: 48(39.4%) patients
- (b) 70-79 years: 20 (35.7%) patients.
- (c) > 80 years: 13 (59%) patients.

Among 81 patients with CAD, 45(55.5%) were females, and 36(44.5%) males.

The risk factors studied included hypertension, diabetes mellitus, dyslipidamia, smoking and cardiac failure (see Table I).

**Table 1:** Prevalence of risk factors in the study group

	Chronic CAD	Stable angina	Unstable angina	Acute MI-symptomatic	Acute MI-silent
Sex: Female	16	8	3	8	10
Sex: Male	9	7	6	9	5
Diabetes Mellitus	8	7	3	10	8
Hypertension	3	8	7	12	5
Dyslipidaemia	-	-	-	2	2
Smoking	4	4	2	4	1
Cardiac failure	1	3	3	12	2

The patients were divided into two groups according to their mode of presentation (see also Graph I):

(a) Those in whom CAD was already present and not the reason for admission: included 25(31%) patients.

(b) Those who either presented with an acute attack or developed it during hospital stay:

(i) Stable angina: in 15 (18.5%)

(ii) Unstable angina: in 9(11.2%)

(iii) Acute symptomatic myocardial infarction (MI): in 17(21%)

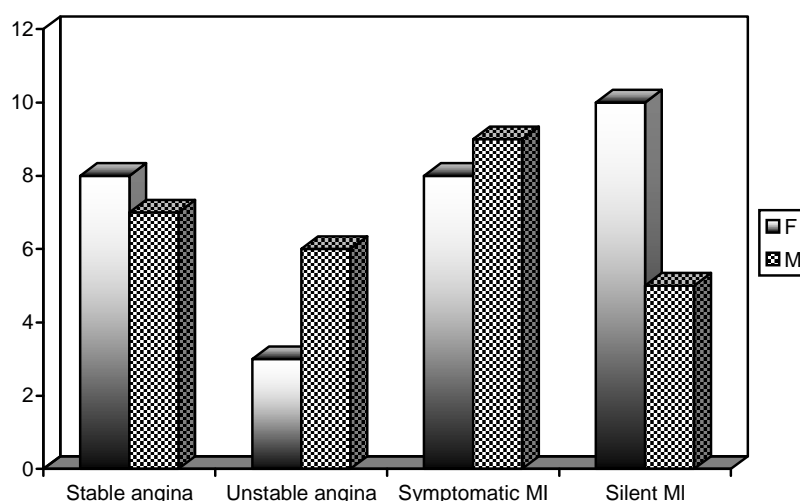
(iv) Silent MI: in 15(18.5%)

Thus a total of 32(39.5%) had MI; this was hence the commonest disorder.

Thirteen patients from the study group died during hospital stay; 7(53.9%) out of these suffered from CAD.

## DISCUSSION

The past 100 years have seen substantial increases in life expectancy at birth.<sup>2</sup> The proportion of elderly persons that constitute populations



**Graph 1:** Mode of Presentation

worldwide is increasing.<sup>3</sup> Cardio-vascular disease has reached epidemic proportion among older people, age alone being a major risk factor. Framingham Heart Study shows a marked increase in CAD as the age advances.<sup>4</sup> The present revealed similar results. A total of 81(40.5%) elderly patients were suffering from CAD. Forty eight (39%) fell in the age range of 60-69 years and 13(59%) in the age group of more than 80 years.

The analysis of the study group revealed 45(55.5%) females, and 36(44.5%) males. The predominance of females increased from 50% in 60-69 years age group, to 55% in 70-79 years group, being maximum i.e. 76% in >80 years old.

These observations support other studies, which have demonstrated that beyond 70 years, women are at a higher risk of developing CAD, i.e. 35% than males who are at a 24% risk.<sup>5</sup>

The elderly with coronary syndromes have been seen to possess a different risk factor profile than their younger counterparts, in that they are more often females, and often have a history of diabetes mellitus, hypertension, prior history of CAD and congestive heart failure. In addition, smoking and family history are less significant factors.<sup>6</sup>

One of the dominant risk factor observed in our study was diabetes mellitus (DM). Statistics have shown that prevalence of DM increases with age, associated with an increase in predisposition to CAD.<sup>7,8</sup> The presence of DM alone doubles the risk of CAD in the elderly.<sup>9</sup> Our study demonstrated that 62(31%) of total geriatric patients were diabetic; out of these 36(58.1%) had CAD, while 31(81.5%) of those suffering from CAD also had other complications of DM, including nephropathy, retinopathy, neuropathy and peripheral vascular disease.

Hypertension is not only common in old age, but also one of the most controllable risk factors, its prevalence increases with age.<sup>10</sup> In our study, a total of 59(29.5%) were hypertensives; isolated systolic hypertension was present in 50(89.8%) of these patients. Among these, 35(59.3%) had CAD. These observations are in direct agreement with those of the Framingham Study, that demonstrated that isolated systolic hypertension can be an independent risk factor for cardiovascular morbidity.<sup>11</sup>

The link between elevated cholesterol and the risk of CAD in the elderly has been strongly established over the past 2 decades; more stress is being laid than previously on the ratio of total to high density lipoprotein cholesterol and raised triglyceride levels as strong predictors of CAD.<sup>12,13</sup> Recent clinical trials have conclusively shown that the treatment of dyslipidemia decreases the incidence of CAD in the elderly as well.<sup>14</sup> An interesting observation in our study was that only 4(2%) of the total geriatric cases had dyslipidaemia, but all 4 suffered from acute MI, and out of these, 2 died.

Congestive cardiac failure (CCF) is an important factor predisposing to CAD, especially in the elderly.<sup>6</sup> We observed 21(25.9%) of CAD

patients to have CCF, whether CCF was responsible for the precipitation of CAD or vice versa could not be established.

Smoking has been observed to be less dominant as an independent risk factor in the elderly as compare to their younger counterparts.<sup>6</sup> We found that, on the whole, 34(17%) of the geriatric patients were current smokers; among these 15(18.5%) developed CAD.

Acute ischaemic syndromes are common initial presentation of well-advanced CAD.<sup>15</sup> With increasing age, the prevalence of significant CAD without symptoms, i.e. silent CAD, rises; for patients older than 80, only 20% have clinical evidence of the disease.<sup>16</sup> In our study, MI (in 39.5%) was the commonest presentation; in 15(18.5%), MI was discovered incidentally on ECG. Another important observation was that the prevalence of silent MI rose from 16.1% in 60-69 years age group to 46.2% in age group >80, hence supporting the above mentioned studies.

CAD has been established to be the commonest cause of death in the elderly.<sup>17</sup> GUSTO-I Study (Global Utilization of Streptokinase for Occluded Coronary Arteries Study) demonstrated an increased prevalence of acute MI and its mortality with age.<sup>18</sup> We observed similar results in our study; out of a total of 13 who died, 7(53.9%) were suffering from CAD, 3(43%) had an MI.

It is recommended that more stress should be laid on studying the diseases that carry high morbidity and mortality in the elderly members of our community. High index of suspicion for CAD should be held in patients belonging to this age group, keeping in mind the silent &/or atypical presentation. Early recognition of risk factors for CAD should be carried out so as to prevent the progression of disease process. Risk factors, once identified, should be subjected to early treatment, that may improve the prognosis of the disease.

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