

## LEFT MAIN DISEASE — PATIENT PROFILE

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### Background:

Left main coronary artery (LMCA) disease is a potentially lethal disease that can be effectively treated if it is recognized early. The aim of our study was to define the demography of patients with left main disease among those undergoing angiography at our center.

### Methods:

The profile of 180 patients, who were found to have left main disease out of a total of 1111 consecutive patients undergoing coronary angiography, was studied retrospectively. Obstructive left main disease was defined as  $\geq 50\%$  diameter stenosis on angiogram. All patients having atheromatous involvement of left main coronary artery from plaques to total occlusion were included.

### Results:

The overall incidence of left main disease was 16.2%, however, if only obstructive lesions were considered it was 4.5%. Mean age was 58.9 years. 41.6% (75) were smokers and 50% were hypertensive. Diabetes is prevalent in the majority of these patients, being 67.2%, but the incidence of obstructive disease is not increased. Obstructive left main disease is seen in 34.7% among male smokers against 21.6% in non smokers.

### Conclusion:

Left main disease appears to be related to increasing age. Diabetes is the commonest prevalent risk factor in this patient population. Among male smokers obstructive left main disease prevalence is higher than non smokers.

**Keywords:** Left main coronary disease, obstructive disease, non obstructive disease.

### INTRODUCTION

In the beginning of 20th century cardiovascular diseases accounted for less than 10% of diseases world wide, now it is predicted that by the year 2020 cardiovascular diseases will claim 25 million lives annually and will become world's number one cause of mortality and morbidity<sup>1,2,3</sup>.

Since the first clinical description of left main coronary artery disease by Herrick in 1912, numerous studies have shown that stenosis of the left main coronary artery is of critical prognostic importance<sup>4</sup>. Concomitant moderate obstructive left main (LM) disease is associated with future cardiac events and poor prognosis in patients undergoing percutaneous intervention (PCI). Obstructive disease of the left main coronary artery, angiographically defined as  $\geq 50\%$  diameter, is associated with long-term poor

prognosis while mild disease has a better prognosis<sup>5</sup>.

Angiographies of 384 patients who had coronary artery bypass surgery because of left main coronary artery (LMCA) obstruction during 1970-1989 were reviewed by analyzing the pathology, feasibility of surgical angioplasty and survival. Complete LMCA occlusion was found in 2%, proximal ostial stenosis in 9%, mid-shaft stenosis in 24%, circular stenosis in 25% and distal bifurcation stenosis in 40% of the patients. In patients who underwent CABG, it was found that early mortality was higher (4.7%) with left main obstructive disease than in those without (1.9%) it<sup>6</sup>.

Left main coronary artery disease carries a poor prognosis. The etiology of isolated and significant left main coronary artery disease is not well understood. Coronary atherosclerosis is one of the predominant causes of isolated and significant left main coronary artery disease (LMCA). There is a trend suggesting that ostial left main disease is more common in smokers and women<sup>7</sup>.

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It is a class I recommendation to perform revascularization in patients with asymptomatic ischemia or mild angina if he/she has significant left main disease and/ or left main disease equivalent i.e >70% stenosis of proximal LAD and Circumflex arteries<sup>8</sup>. Hence it is of utmost importance that we sought to identify those patients with left main disease actively in early stages of the disease.

**METHODS**

We studied angiographic data retrospectively of patients who visited department of cardiology Liaquat National Hospital and under-went angiography as an in-patient or out patient for usual indications. Written and informed consent was taken from all of them before the procedure. Brief history was taken and clinical examination was carried out and relevant investigations were checked before the procedure. Consultant cardiologists of the department performed the angiographic procedures. All patients with left main coronary artery disease ranging from mild plaque to total obstruction were included in the study.

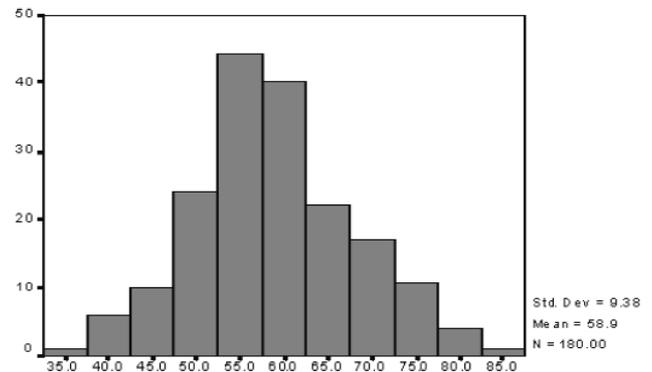
Out of 1111 patients, we found 180 patients with left main coronary artery disease, ranging from mild non-obstructive plaque to total occlusion. Obstructive disease of the left main coronary artery, angiographically was defined as  $\geq 50\%$  stenotic diameter. Patients with 50% or more stenosis were labeled as having obstructive left main disease while those with less than 50% stenosis were labeled as non obstructive left main disease. Risk factors like smoking, gender, hypertension and diabetes mellitus were included in demography.

**RESULTS**

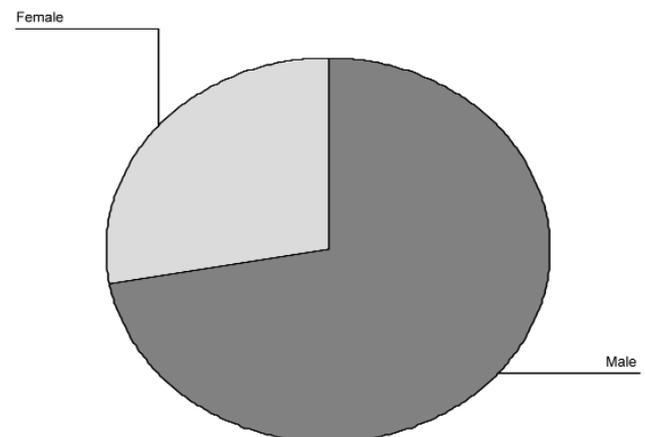
Out of 1111 patients 180 had left main coronary artery disease. Hence the incidence of left main disease was 16.2 %. Mean age of patients was 58.91 years (35-85 years). Of the 180 patients, 159 (88.3%) were over 50 years of age, while 21 (11.7% were below the age of 50. Maximum numbers of patients were between 50 to 60 years of age (Figure 1) (table 1).

There were 132 (73.3%) males and 48 (26.7%) females (Figure 2).

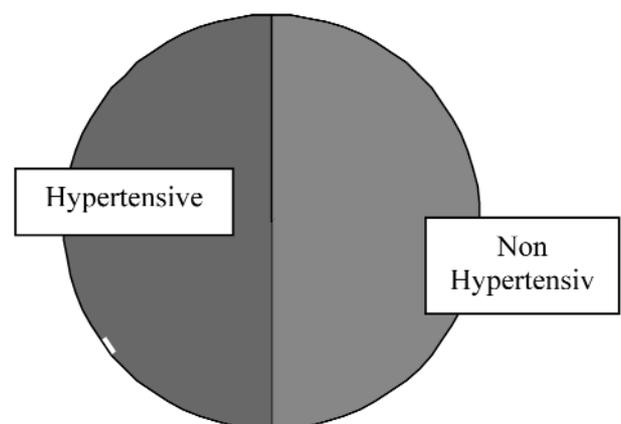
**Figure-1**  
**Age Distribution**



**Figure-2**  
**Gender Distribution**



**Figure-3**



Smokers were 72/132 (54.54%) among male patients while there were only 3/48 (6.25%) females.

Figure-4

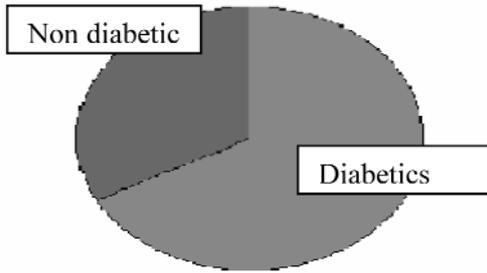


Figure-5

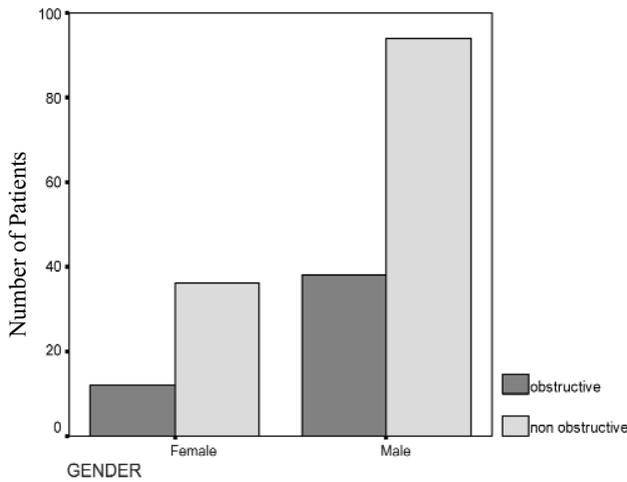


Table-1  
Age and Left Main Disease

Age	Number	Percentage
>50yrs	159/180	88.3%
<50yrs	21/180	11.7%

Table-2

	OBSTRUCTIVE	NON OBSTRUCTIVE	TOTAL
F	12	36	48
	25.0%	75.0%	100.0%
M	38	94	132
	28.8%	71.2%	100.0%
<b>Total</b>	<b>50</b>	<b>130</b>	<b>180</b>
	<b>27.8%</b>	<b>72.2%</b>	<b>100.0%</b>

Figure-6  
Smoker

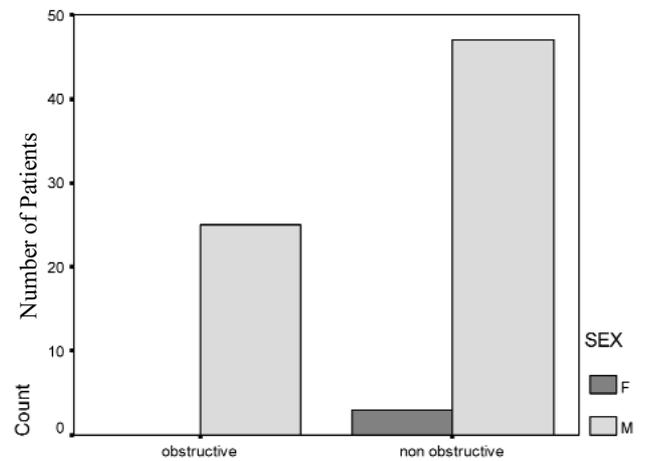
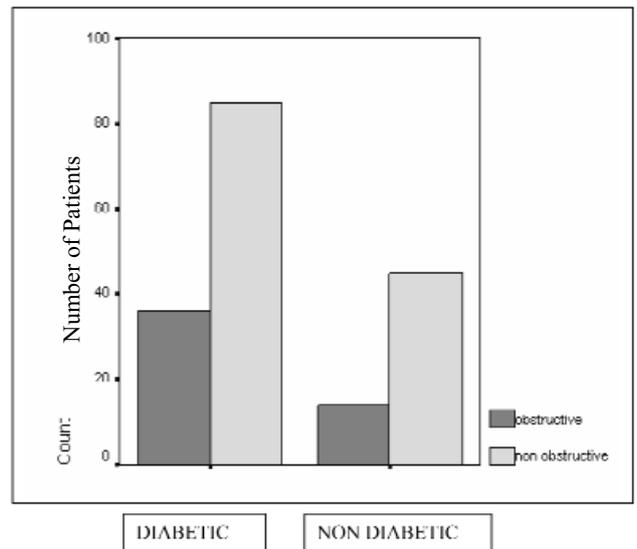


Figure-7



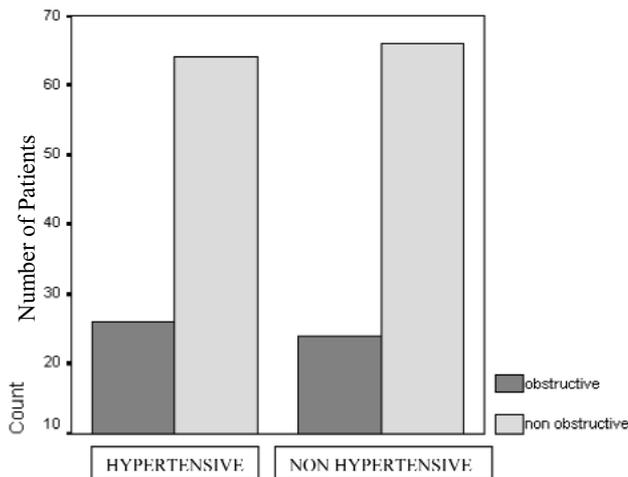
Hypertension was present in 90 (50%) and diabetes in 121 (67.2%) (Figures 3 and 4).

Among the males patients 38/132 (28.8%) had obstructive left main disease while 94/132 (71.2%) had non obstructive left main disease and among females 12/48 (25%) had obstructive left main disease and 36/48 (75%) had non obstructive left main disease. (Figure 5) (table 2).

Smoker males with obstructive left main disease were 25/72 (34.73%) while those with non obstructive left main disease were 47/72 (65.27%). Smoking among females was not common. Only 3 female were smokers and all of them had non obstructive left main

disease (Figure 6). Among the non smoker males 13/60 (21.6%) had obstructive left main disease while 47/60 (78.3%) had non obstructive disease. In non smoker females 12/45 (26.66%) had obstructive disease and 33/45 (73.33%) had non obstructive left main disease.

Figure-8



Diabetes was common in this patient population, being 67.2% (121/180), among these, 36 (29.8%) had obstructive left main disease while 85 (70.2%) had non obstructive left main disease (Fig. 7). Among the 90 hypertensive patients 26 (28.9%) had obstructive left main disease while 64 (71.1%) had non obstructive left main disease (Fig. 8).

**DISCUSSION**

Our data reflects a higher incidence of left main disease, which is 16.2%. The probable reason is the fact that we have included all patients even with visible plaques. In the study by Khalid S patients were selected with significant occlusive disease<sup>8</sup>. If patients with obstructive disease are considered then the incidence of obstructive left main coronary artery disease is almost identical in both studies.

The habit of smoking is relatively common among males in our society. In a recent study in Pakistan it was noted that it is more prevalent in males than in females and is one of the major risk factor<sup>9</sup>. In yet another study it was found that proportion of smokers who use Cigarette/Beedi were significantly higher in males while Chillum/Huqqa among the females<sup>10</sup>. In

our study female smokers was far less as compared to other studies. Smokers were 72/132 (54.54%) male patients while only 3/48 (6.25%) females. Our patient population is relatively more urbanised and is of better economic status, which may explain such a low prevalence of smoking among females.

Mahajan showed that diabetes is more commonly associated with distal isolated left main coronary artery lesion<sup>11</sup>. Diabetes mellitus was much common in our study as compared to hypertension. The diabetics tended to have more of non obstructive left main disease as compared to obstructive left main disease.

Since we have included both obstructive and non-obstructive lesions, the diseases was seen throughout the vessel. However, there was an overall tendency toward more obstructive lesions in the distal left main vessel. This was not increased in diabetic patients. Most of the published data suggest that approximately 40% of patients with coronary artery disease have diabetes. Clearly this patient population in our study shows a higher prevalence of diabetes (67.2%).

The bulk of our patients were over 50 years of age, most being between 55-60 years. This probably reflect overall patient population undergoing the procedure. More of the younger patients tended to be smokers. The older patients tended to have higher prevalence of Diabetes and hypertension as reflected by published data<sup>12</sup>.

**CONCLUSION**

There is an overall incidence of left main disease 16.2%, however, if only obstructive lesions are considered this come down to 4.5%. Hypertension and smoking appear to have no additional influence here. This seems to be a phenomenon of increasing age. Diabetes, clearly is more prevalent in these patients.

Obstructive left main disease is seen more frequently in smokers as against non smokers (34.7% vs 21.6%) in the male population. This is also high against the overall incidence of obstructive disease which is 27.8%.

Since this population is relatively more affluent then

the average Pakistani population the profile may differ in actuality. This may especially be so with regards to female smoking of Huqqa which is not uncommon in rural population and diabetes which may be related to affluence of the urbanised population.

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