

# A Comparative Study of Coronary Angiographic Data between Diabetics and Non-Diabetics

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## Objective

To analyse and compare coronary anatomy and left ventricular function in patients with and without diabetes.

## Material and Methods

A retrospective study of 594 coronary angiograms performed during the period of January 1994 – October 1994 was done. A comparison of coronary angiographic profile with regard to severity and number of vessels involved and left ventricular function in diabetics and non-diabetics was made.

## Results

Of the 594 patients who had coronary angiogram, 187 had diabetes and 407 were non-diabetics. Significant triple vessel disease was present in 38% of the diabetics and 22.6% of non-diabetics ( $P < 0.0001$ ) (Table 1).

**Table 1**  
**Distribution of Vascular Diseases in coronary angiographies (n=594)**

	Patients with Diabetes	Patients without Diabetes
Total No. of Pts	187 (31.4%)	407 (68.5%)
SVD	29 (15.7%)	99 (24.3%)
DVD	45 (24.5%)	80 (19.6%)
TVD	71 (38.0%)	92 (22.6%)
Insignificant Disease	39 (20.8%)	126 (30.9%)
LMCA	03 (01.6%)	10 (0.25%)

27.5% of the patients with single vessel disease had LV dysfunction ( $P < 0.001$ ) in the diabetic group, whereas only 21.2% of the non-diabetic group had significant LV dysfunction (Table 2).

**Table 2**  
**Percent of patients having Single Vessel Disease and LV dysfunction**

Single vessel disease	LV dysfunction
With DM	29 (08 (27.5%))
Without DM	99 (21 (21.2%))

In the diabetic group, 71 patients had triple vessel disease, of which 59% had vessels suitable for CABG's and 40.8% were advised medical management as their coronary anatomy was not found to be suitable for coronary bypass grafting and 5.6% had severe diffuse small vessel disease. In the non-diabetic group, 92 patients had triple vessel disease, of which 66.3% had vessels suitable for CABG's and only 33.6% were advised medical management and this group did not have any patients with severe diffuse small vessel disease (Table 3).

**Table 3**

## Triple Vessel Disease Management Implications

	With Diabetes	Without Diabetes
Total	71	92
Medical Management	29 (40.8%)	31 (33.6%)
Surgical	42 (59.0%)	61 (66.3%)
Severe Diffuse Disease	04 (05.6%)	Nil

## Discussion

The data from this study indicates that the evidence of extensive triple vessel disease is more in patients with diabetes. These findings are consistent with earlier studies from the Western countries (Table 4).

**Table 4**  
**Comparison of Vascular Diseases between Diabetics and Non-Diabetics**

	Men		Women	
	DM n=110	Non-DM n=746	DM n=38	Non-DM n=177
Age	58±9	55±10	61±11	60±11
LVEF	48±13	51±12	51±11	52±12
MVD	65	46	63	41
Vessel Patency	72	69	69	75

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The amount of LV dysfunction associated with single vessel disease is more in patients with diabetes as compared to non-diabetics. This is probably due to the diffuse microvascular disease associated with diabetes. Four out of 71 patients had severe distal diffuse disease and were considered high risk for CABG's.

### **Conclusion**

Incidence of extensive triple vessel disease with probable diffuse disease is more in patients with diabetes. The extent of left ventricular dysfunction associated with single vessel disease is more in diabetics. Percentage of patients having severe triple vessel disease not suitable for CABG's, is more in diabetics.

Diabetes mellitus forms one of the major independent risk factors for coronary artery disease. As compared to Europeans, diabetics from Asia have significant increase in the incidence of coronary artery disease as compared to non-diabetics [1]. Framingham study done over a period of three decades showed that diabetes is an independent risk factor for coronary artery disease [2]. National Health and Nutrition Examination Survey has shown that age-adjusted death rate for diabetics, in both men and women, is more than in non-diabetics [6]. Diabetics evidence a more complicated course than non-diabetics with greater incidence of post-infarct angina, infarct extension and heart failure [3,4]. Coronary artery disease with multiple vessel involvement is more common in patients with diabetes and they also have a greater incidence of diffuse disease [5].

This study suffers from a few important limitations. The study was a retrospective analysis; a large prospective study would obviously be desirable. Additionally, we have not analysed concomitant cardiovascular risk factors.

### **REFERENCES**

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