RESULTS AND DATA ANALYSIS

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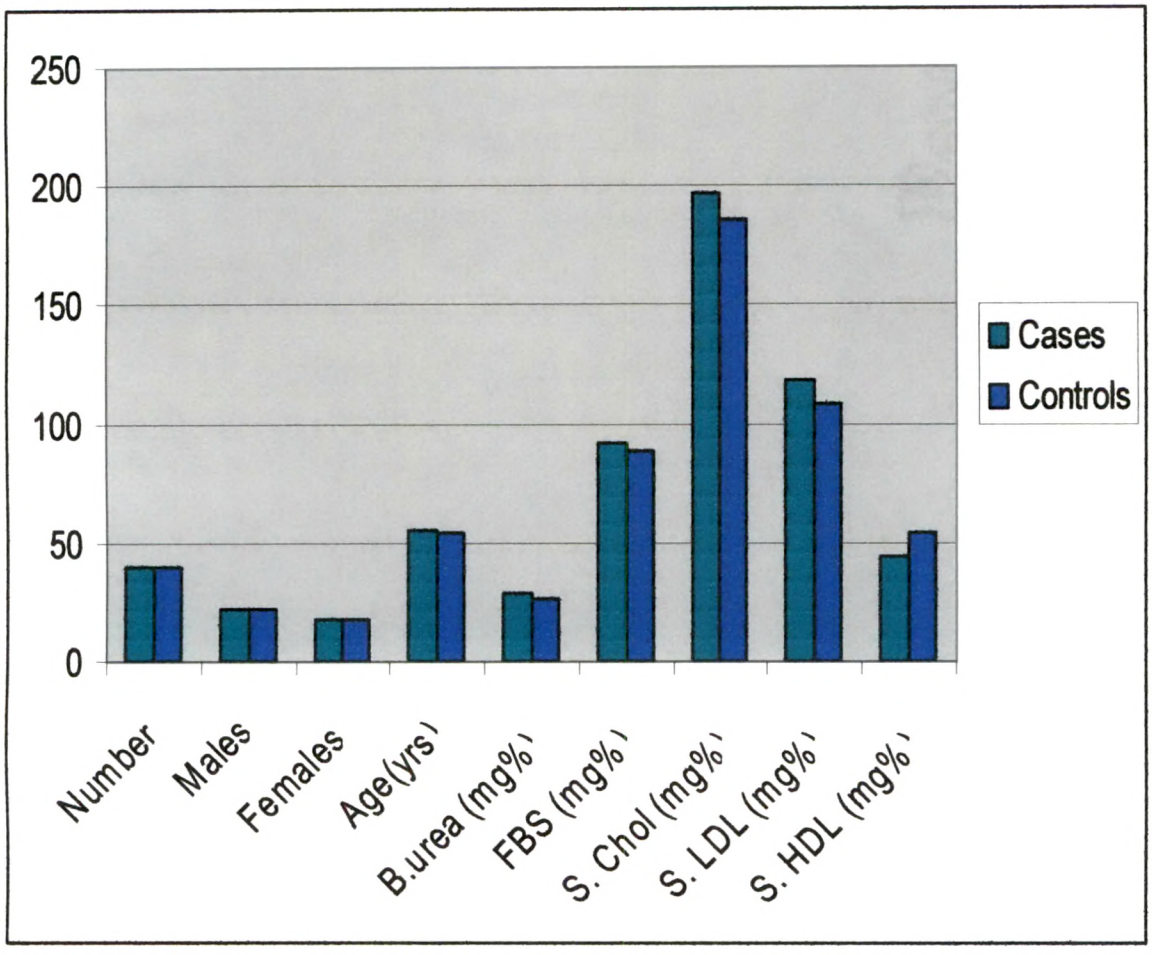
The study was carried out with 40 patients of hypertension and 40 healthy matched control subject.

Baseline characteristics

The control subjects were selected such that the following baseline parameters were comparable in both the group.

	Hypertensive	Control
Number of subjects	40	40
Males	22	22
Females	18	18
Mean age (yrs)	55.47±5.49	54.1±5.00
B.urea (mg%)	28.4 ± 6.21	26.6 ± 5.31
S. Creat (mg%)	0.78 ± 0.13	0.78 ± 0.18
FBS (mg%)	91.3 ± 8.71	88.557 ± 8.22
S. Chol (mg%)	196.55 ± 20.31	185.9 ± 33.63
* S. LDL Chol. (mg%)	118.1 ± 21.73	108 ± 17.1
* S. HDL Chol. (mg%)	44.55 ± 5.98	53.7 ± 7.5
Resting brachial artery diameter (mm)	3.68 ± 0.16	3.67 ± 0.15

Test used: Students test. P value for all the above parameter $P > 0.5$ (Not Significant) except *


250
200
150
100
50
0
Cases
Controls
Number
Males
Females
Age(yrs)
B.urea (mg%)
FBS (mg%)
S. Chol (mg%)
S. LDL (mg%)
S. HDL (mg%)

Comparision of blood pressure in the hypertensive & control groups

The mean systolic blood pressure in the two groups were as follows.

	Systolic Blood Pressure (Mean mmHg)
Hypertensives	141.55 ± 12.66
controls	115.05 ± 5.02

This showed a statistical significance with $p<0.0001$.

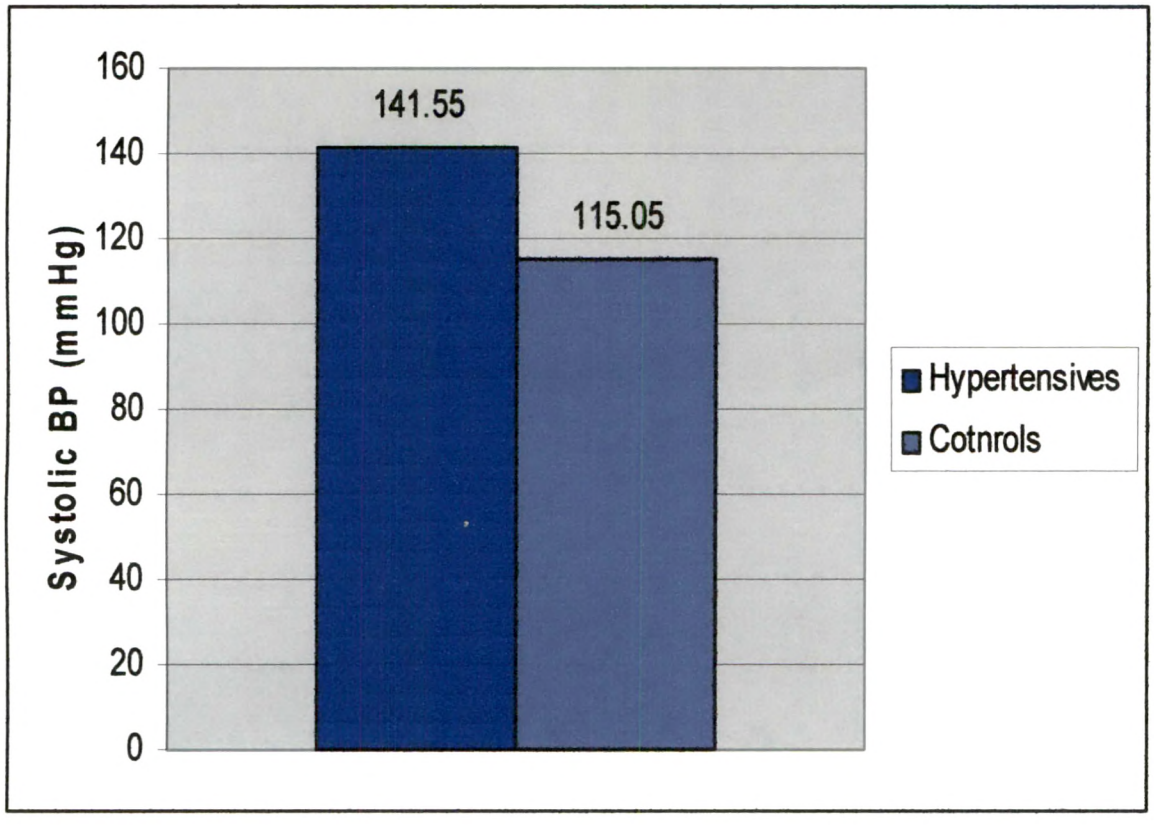
The mean diastolic blood pressure in the two groups were as follows.

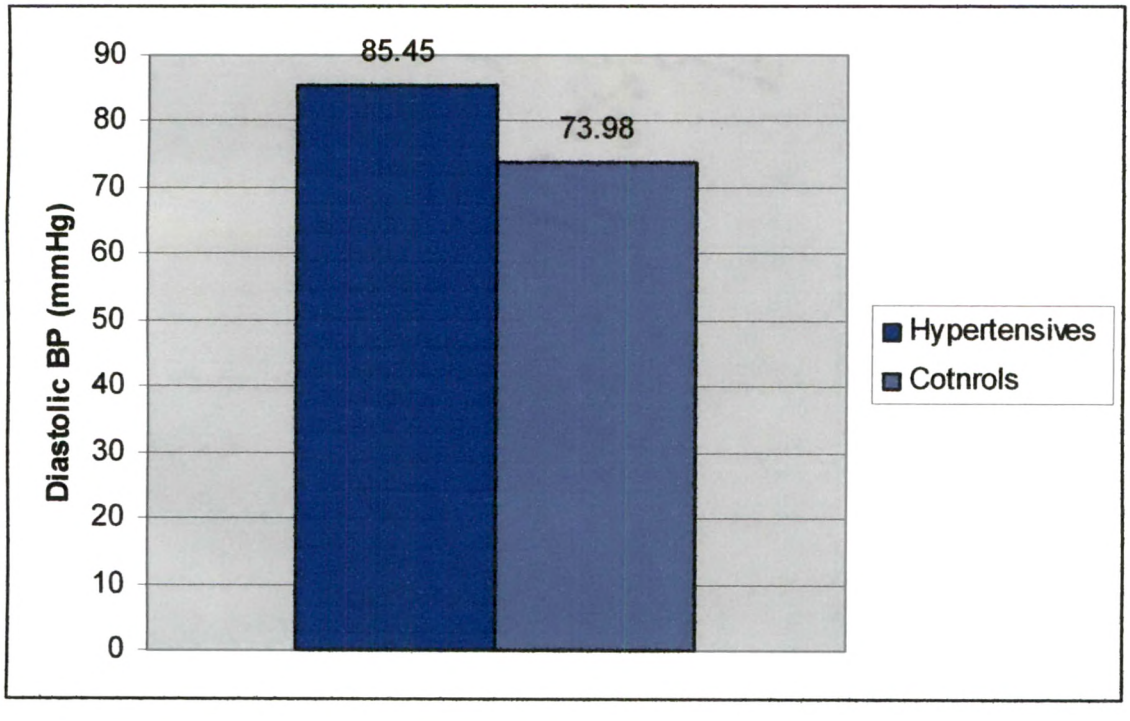
	Diastolic Blood Pressure (Mean mmHg)
Hypertensives	85.45 ± 7.12
controls	73.98 ± 4.81

This showed a statistical significance with $p<0.0001$.

Test used: Students t test

$P<0.0001$ very highly significant


160
140
120
100
80
60
40
20
0
Systolic BP (m m Hg)
141.55
115.05
Hypertensives
Cotnrols


90
80
70
60
50
40
30
20
10
0
Diastolic BP (mmHg)
85.45
73.98
Hypertensives
Cotnrols

Comparison of FMD % (Flow mediated dilatation) and GTN %(Post glyceryl trinitrate) between the study and control groups

Both these parameters, ie flow-mediated dilatation (FMD%) and glyceryl trinitrate mediated dilatation (GTN%) was statistically significant when the study and control groups were compared.

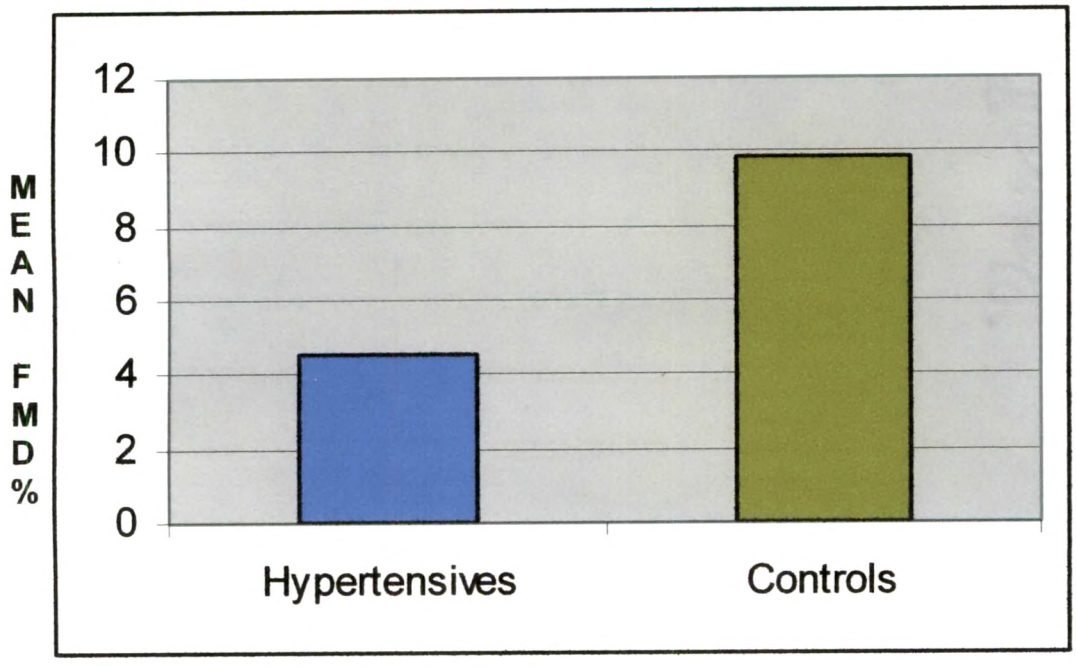
FMD% showed a significance of $P < 0.0001$

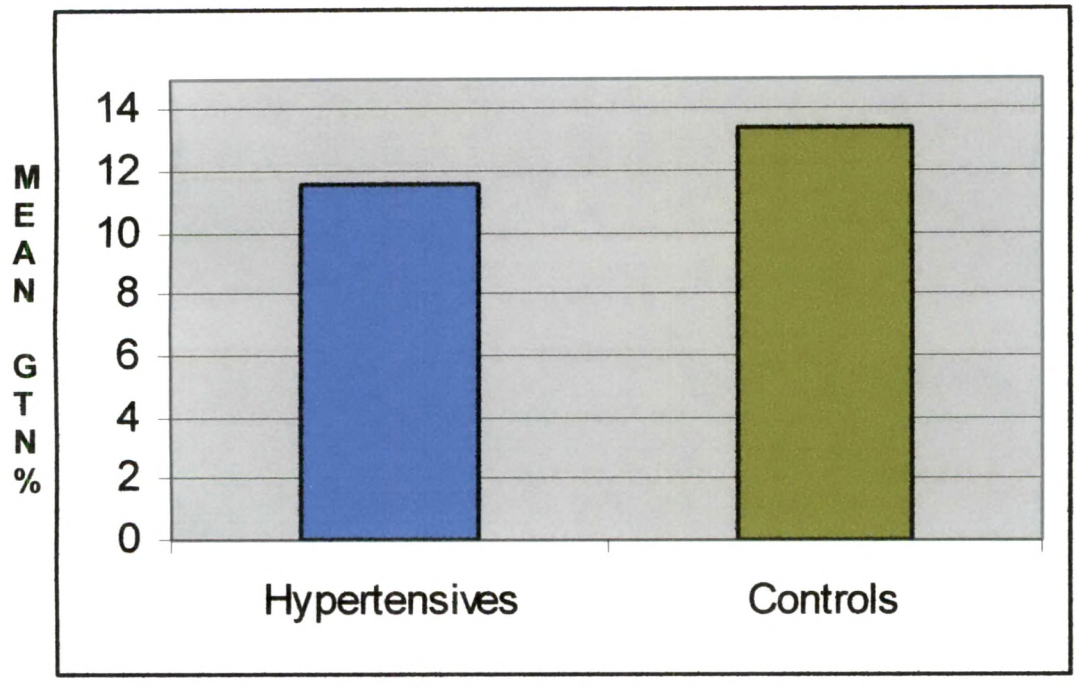
	Hypertensives	Controls
Mean FMD %	4.55 ± 2.00	9.82 ± 1.66

The GTN % showed a significance of $P<0.001$

	Hypertensives	Controls
Mean GTN %	11.58 ± 2.58	13.36 ± 1.95

Test used – students t test


MEAN FMD %
12
10
8
6
4
2
0
Hypertensives
Controls


MEAN GTN %
14
12
10
8
6
4
2
0
Hypertensives
Controls

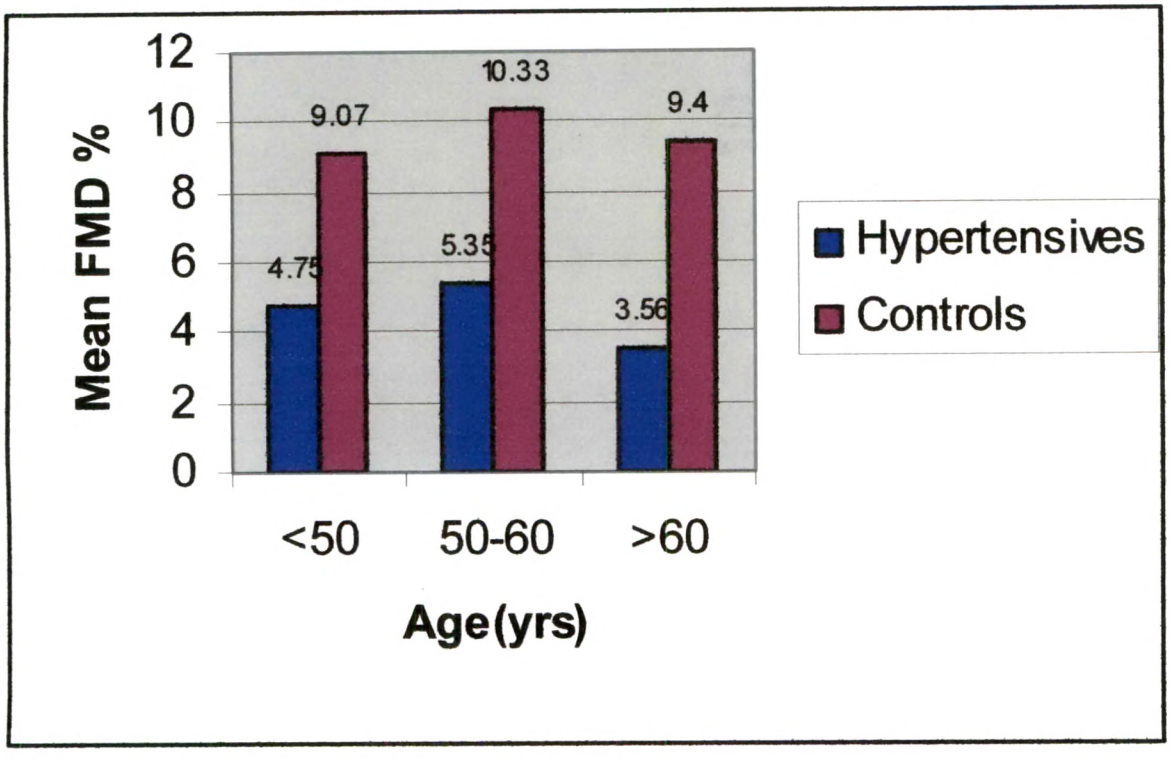
Comparison of FMD% in relation to age in the study and control group

The flow mediated dilatation was lower in all age groups in the study group when compared with the same age group in the control subjects. It showed a statistical significance at $P < 0.001$ in each age group

Age (yrs)	Cases Mean FMD%	Controls Mean FMD%
<50	(n =8) 4.75	(n=12) 9.07
50-60	(n=23) 5.35	(n=22) 10.33
> 60	(n=9) 3.56	(n=6) 9.4

Test used: Student t test

$P< 0.001$ - highly significant


12
10
8
6
4
2
0
Mean FMD %
9.07
10.33
9.4
4.75
5.35
3.56
<50
50-60
>60
Age(yrs)
Hypertensives
Controls

Comparison of flow mediated dilatation in relation to sex in the study and control groups

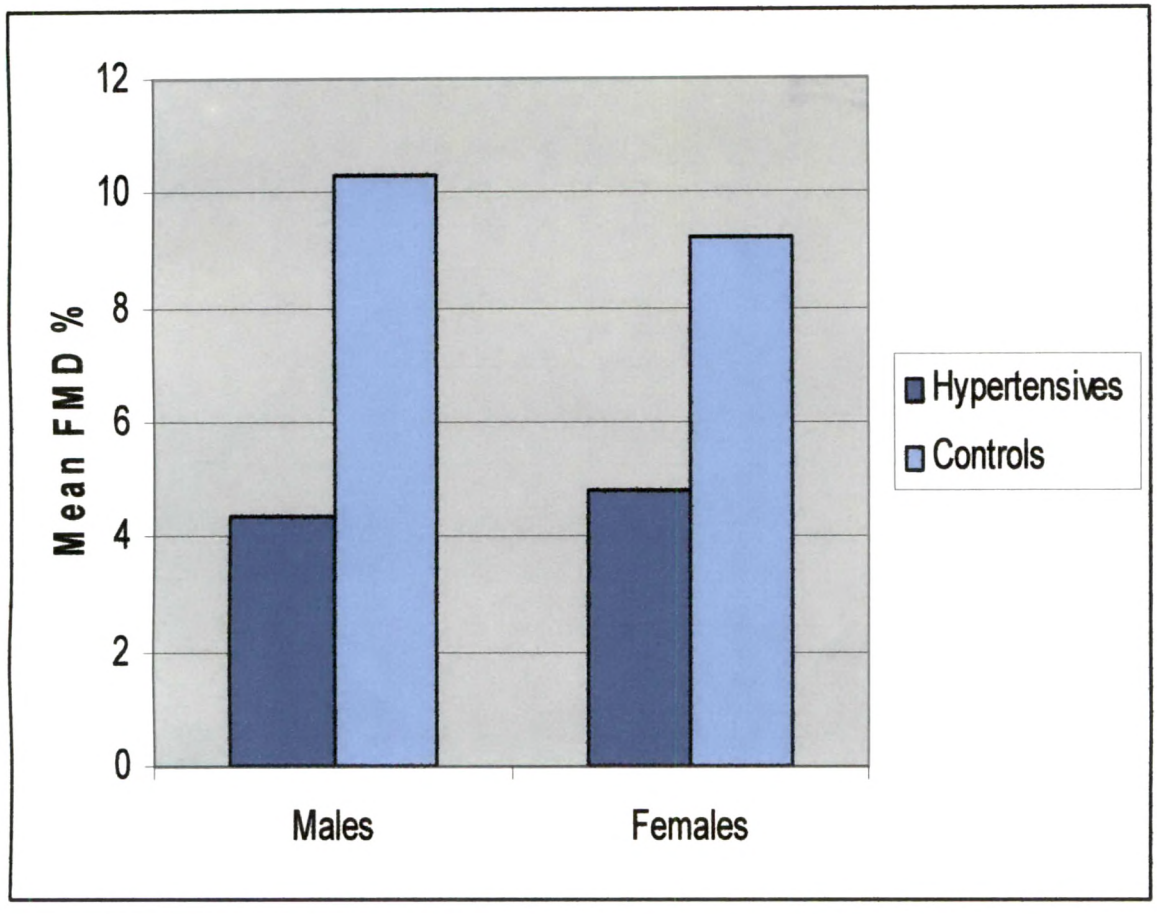
The difference in the FMD % was found to be statistically significant when the study and controls were compared as regards the two sex groups.

Sex	Cases (Mean FMD%)	Controls (Mean GTN%)
Males (n=22)	4.34	10.29
Females (n=18)	4.82	9.23

The statistical significance was $P < 0.001$

Test used : Students t test

However, no statistical significance was found when the males and females in the hypertensive group were compared.


12
10
8
6
4
2
0
Mean FMD %
Males
Females
Hypertensives
Controls

Comparision of FMD% and GTN% in relation to the duration of hypertension

The study population was divided into two groups. Those with duration of hypertension less than 10 yrs and those with duration more than 10 yrs.

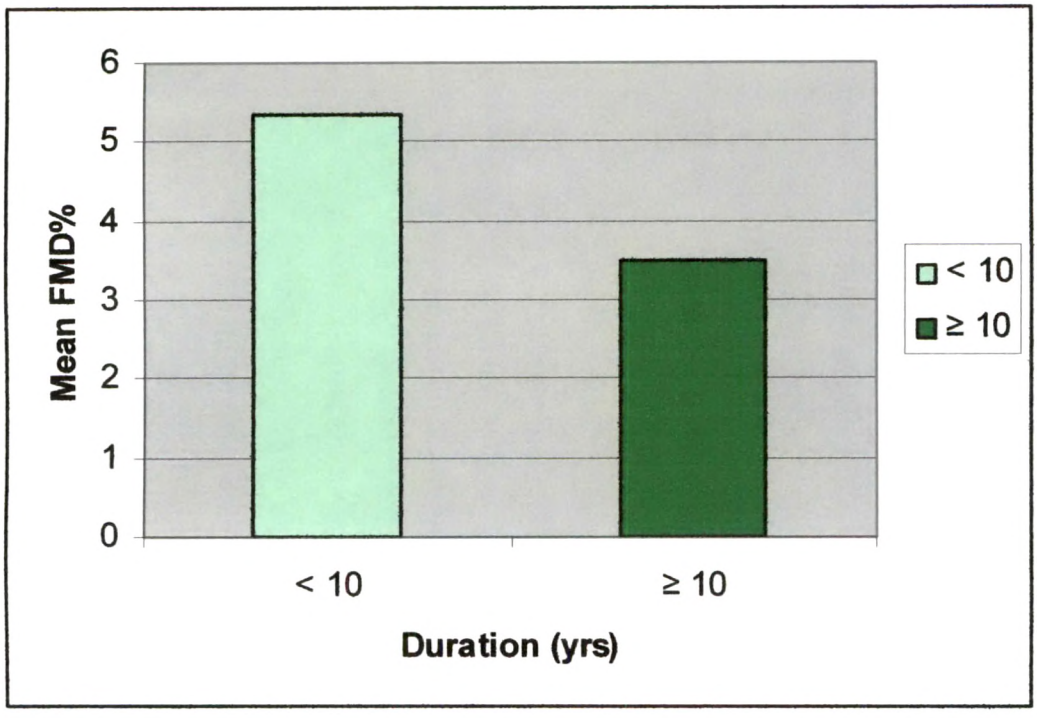
On comparing the flow mediated dilatation in the two groups, a statistical significance was oebtained with $p< 0.05$

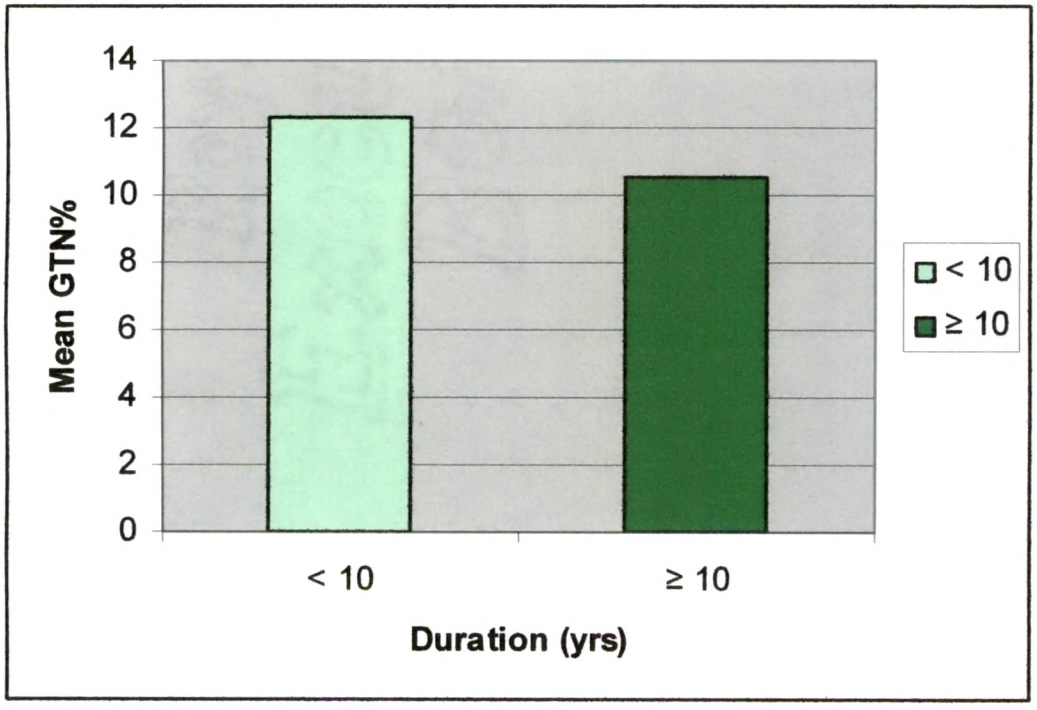
Duration (yrs)	Mean FMD %	P
<10 (n = 23)	5.33	< 0.05
≥10 (n = 17)	3.51	

Similarly, on comparing the GTN% in the two groups, a statistical significance was obtained with $p <0.05$

Duration (yrs)	Mean GTN %	P
<10 (n = 23)	12.28	< 0.05
≥10 (n = 17)	10.57	

Test used : Student t test $p <0.05$ significant.


Mean FMD%
6
5
4
3
2
1
0
< 10
≥ 10
Duration (yrs)
< 10
≥ 10


Mean GTN%
14
12
10
8
6
4
2
0
< 10
≥ 10
Duration (yrs)
< 10
≥ 10

Comparison of FMD% and GTN% in relation to serum total cholesterol in the study group

The study population was divided into 2 groups. Those with S. Total cholesterol ≤ 200 mg % and those with >200 mg %

On comparing the flow-mediated dilatation in the two groups, a statistically Significant difference was obtained in the FMD% with p <0.01.

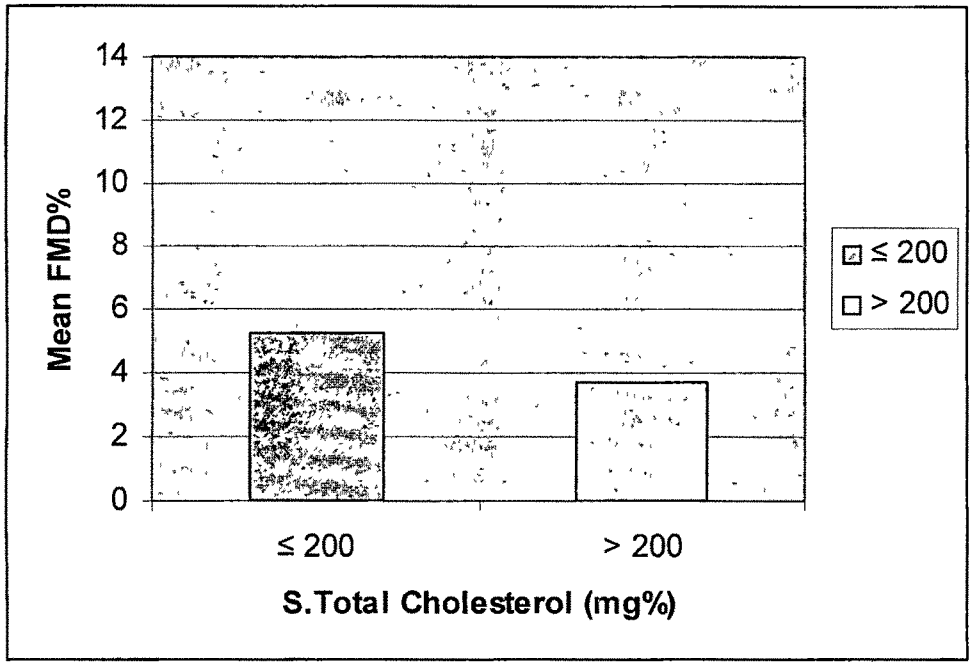
S. Total Cholesterol mg%	Mean FMD %	P
≤ 200 (n =23)	5.20	< 0.01
> 200 (n = 17)	3.68	

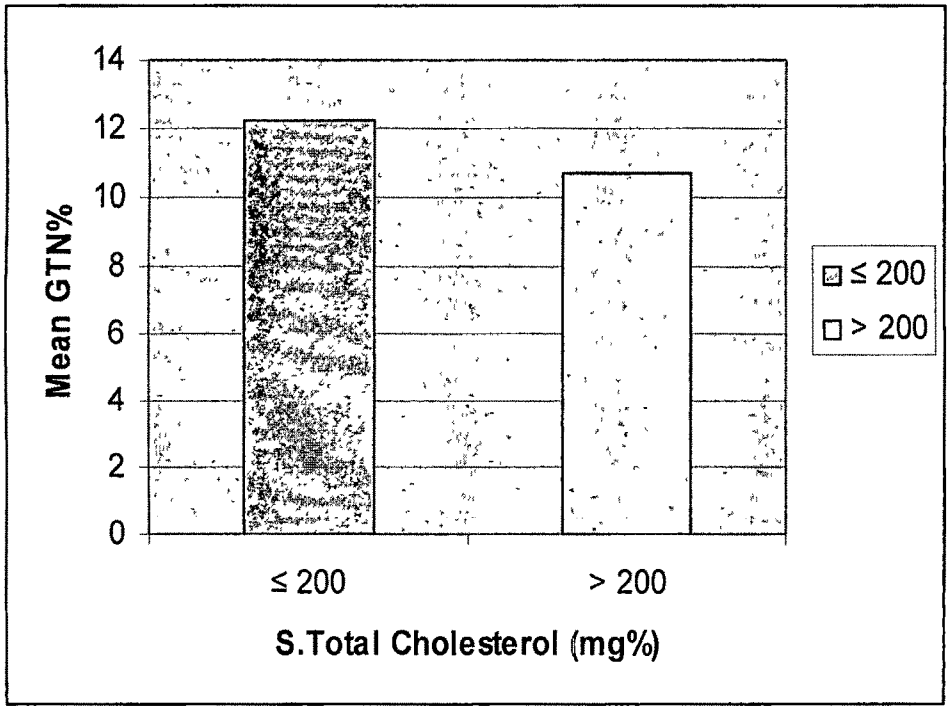
On comparing the GTN% in the two groups a similarly statistical significance was obtained with p < 0.01

S. Total Cholesterol mg%	Mean GTN %	P
≤ 200	12.2	< 0.01
> 200	10.72	

Test used : Students t test

P<0.01 – significant


14
12
10
8
6
4
2
0
Mean FMD%
≤ 200
> 200
≤ 200
> 200
S.Total Cholesterol (mg%)


14
12
10
8
6
4
2
0
Mean GTN%
≤ 200
> 200
≤ 200
> 200
S.Total Cholesterol (mg%)

Comparison of FMD% and GTN% in relation to serum LDL cholesterol in the study group

The study population was divided into two groups. Those with serum LDL cholesterol ≤ 130 mg% and those with > 130 mg%

On comparing the flow-mediated dilatation in the two groups, a statistical significance was obtained with p <0.05.

S. LDL Cholesterol mg%	Mean FMD %	P
≤ 130	5.62	< 0.05
> 130	3.69	

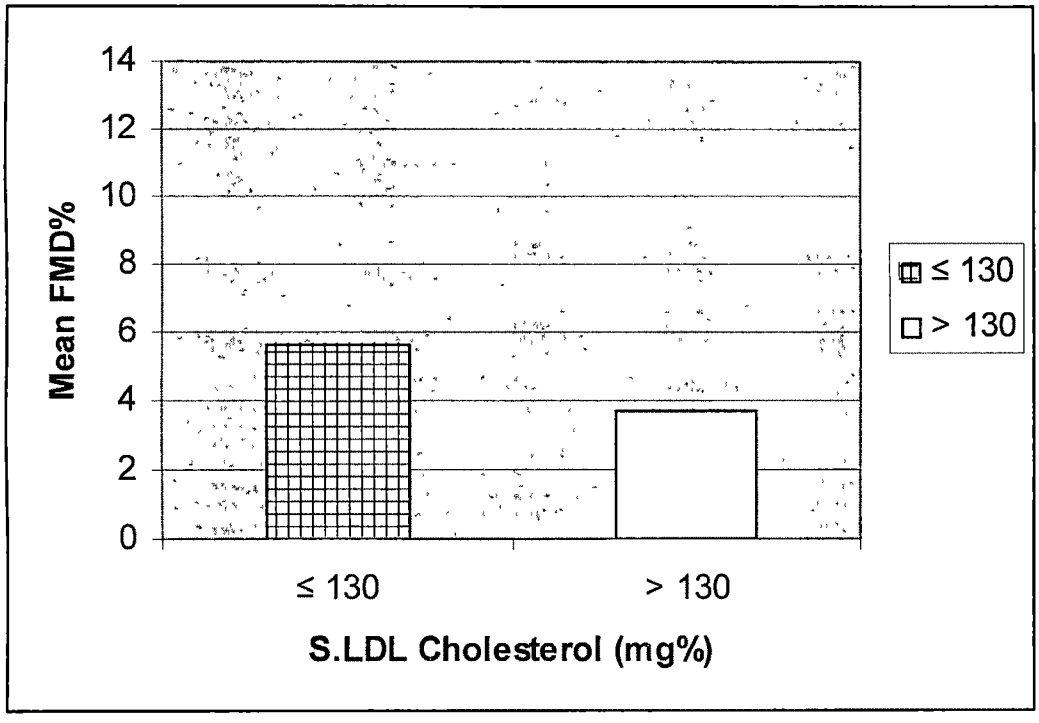
However, on comparing the GTN% in the two groups, no statistical significance was obtained.

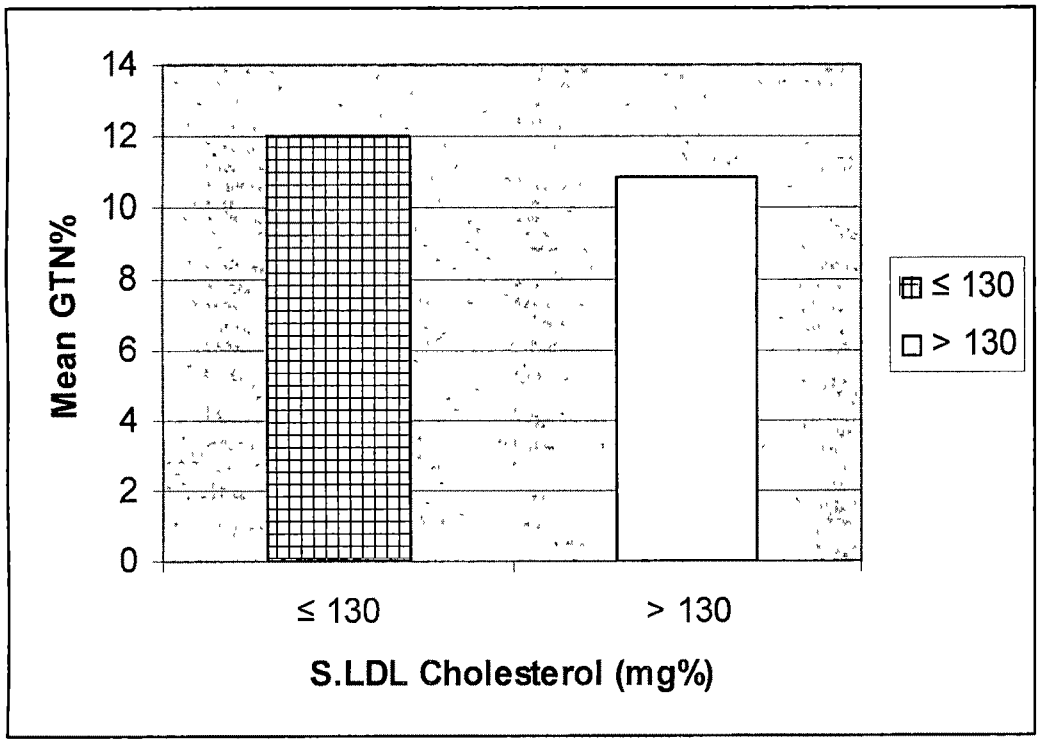
S. LDL Cholesterol mg%	Mean GTN %	P
≤ 130	11.97	> 0.05
> 130	10.86	

Test used : Students t test

P < 0.05 significant

P > 0.05 not significant


14
12
10
8
6
4
2
0
Mean FMD%
≤ 130
> 130
≤ 130
> 130
S.LDL Cholesterol (mg%)


14
12
10
8
6
4
2
0
Mean GTN%
≤ 130
> 130
≤ 130
> 130
S.LDL Cholesterol (mg%)

Comparison of FMD % FMD% and GTN% in relation to serum Triglycericle levels in the study groups.

The study population was divided into two groups. Those with S. triglycerides ≤ 150 mg% and those with > 150 mg%.

On comparing the flow-mediated dilation in the two groups, a statistically significant difference was obtained in the FMD% with $p < 0.01$

Serum triglyceride	Mean FMD %	P
(n =22) ≤ 150	5.57	< 0.01
(n = 18) > 150	3.73	

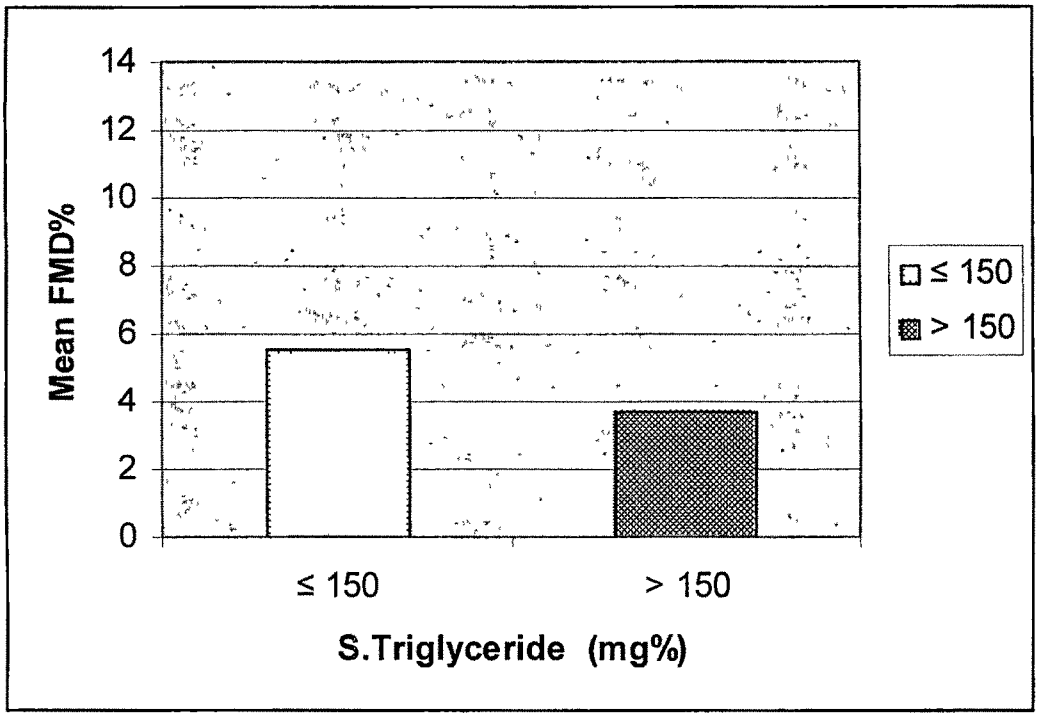
However, on comparing the GTN% in the two groups, no statistical significance was obtained.

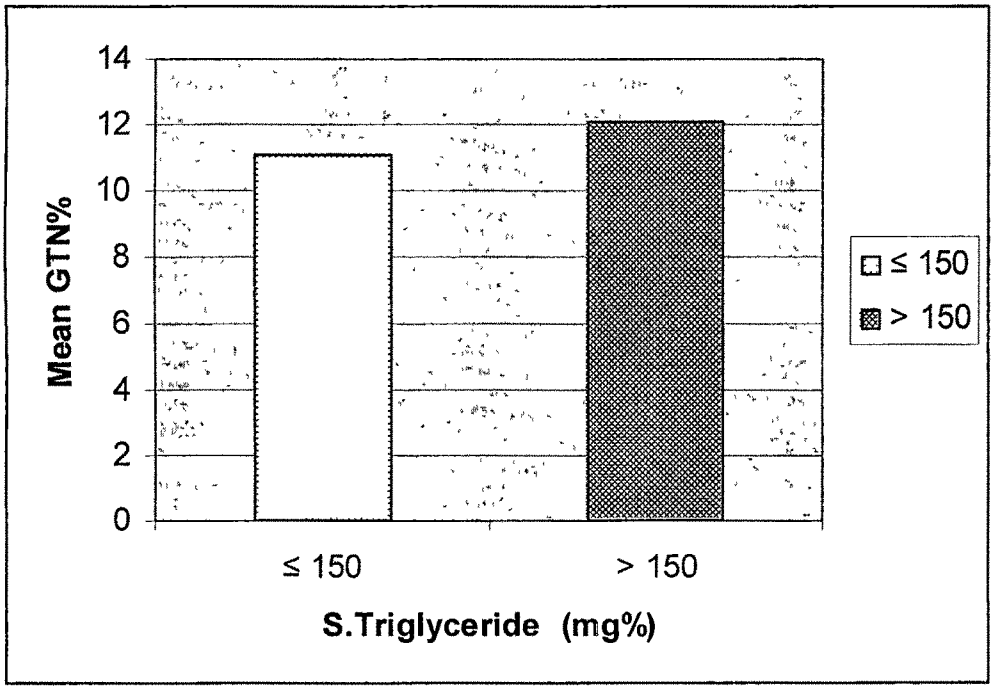
Scrum triglyceride	Mean GTN %	P
n =22 ≤ 150	11.07	> 0.05
n = 18 > 150	12.04	

Test used : Students t test

P < 0.01 significant

P > 0.05 not significant


14
12
10
8
6
4
2
0
Mean FMD%
≤ 150
> 150
S.Triglyceride (mg%)
≤ 150
> 150


14
12
10
8
6
4
2
0
Mean GTN%
≤ 150
> 150
S.Triglyceride (mg%)
≤ 150
> 150

Comparison of FMD % and GTN% in relation to serum HDL cholesterol in the study groups.

The study population was divided into two groups. Those with HDL < 45 mg% and those with ≥ 45 mg%.

On comparing the flow-mediated dilation in the two groups, a statistically significant difference was obtained in the FMD% with $p < 0.001$

S.HDL – cholesterol	Mean FMD %	P
(n =21) ≥ 45	5.59	< 0.01
(n = 19) < 45	3.41	

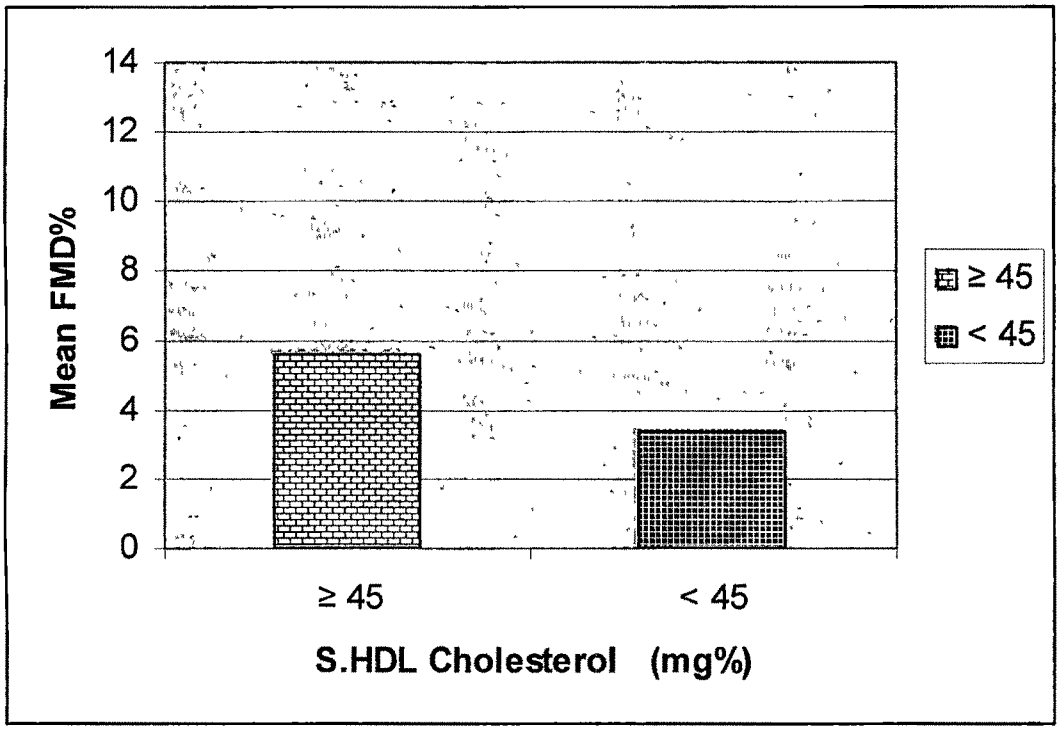
However, on comparing the GTN% in the two groups, no statistical significance was obtained.

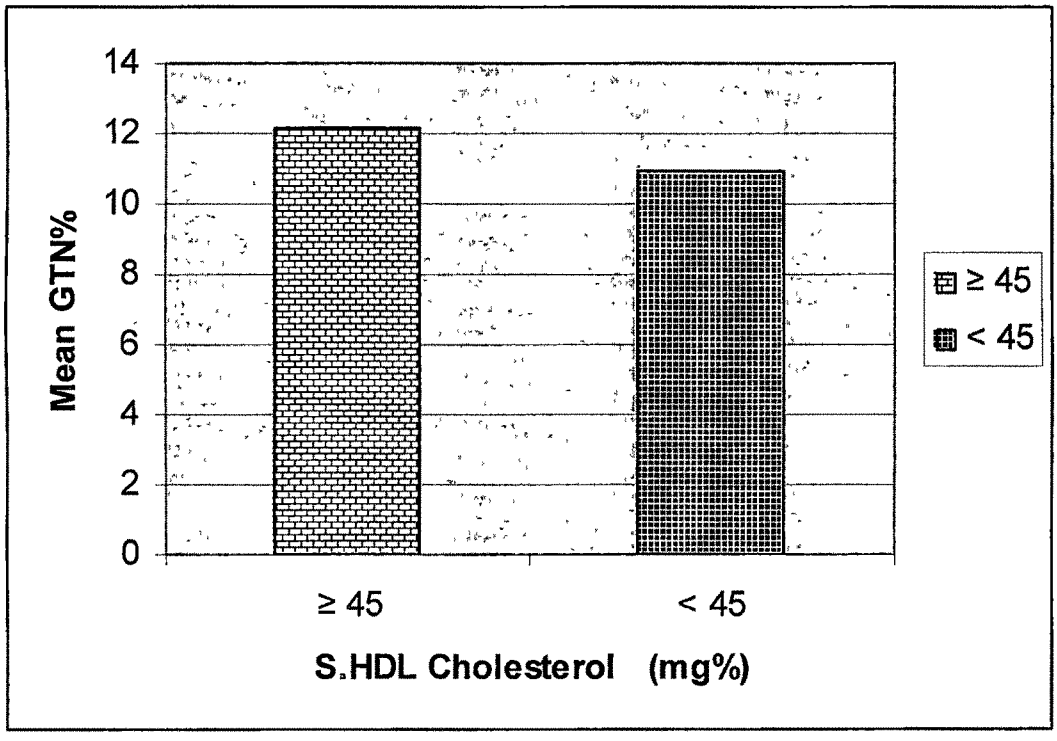
S.HDL – cholesterol mg%	Mean GTN %	P
(n =21) ≥ 45	12.14	> 0.05
(n = 19) < 45	10.96	

Test used : Students t test

P < 0.001 highly significant

P > 0.05 not significant


14
12
10
8
6
4
2
0
Mean FMD%
≥ 45
< 45
≥ 45
< 45
S.HDL Cholesterol (mg%)


14
12
10
8
6
4
2
0
Mean GTN%
≥ 45
< 45
≥ 45
< 45
S.HDL Cholesterol (mg%)

Comparison of FMD % and GTN% in relation to presence of left ventricular hypertrophy (LVH) on ECG.

The study population was divided into two groups. Those with left ventricular hypertrophy (LVH) on ECG and those without it.

On comparing the flow-mediated dilation in the two groups, statistical significant difference was obtained $p < 0.001$

left ventricular hypertrophy	Mean FMD %	P
n =12 present	3.64	< 0.001
n = 28 absent	5.05	

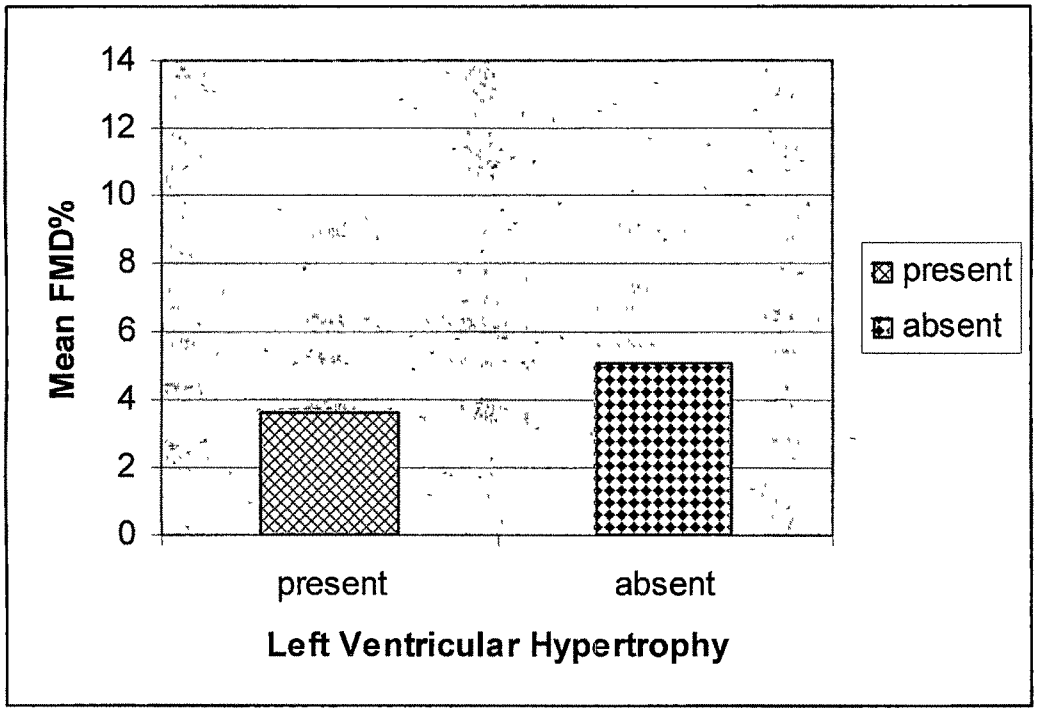
However, on comparing the GTN% in the two groups, no statistical significance was obtained.

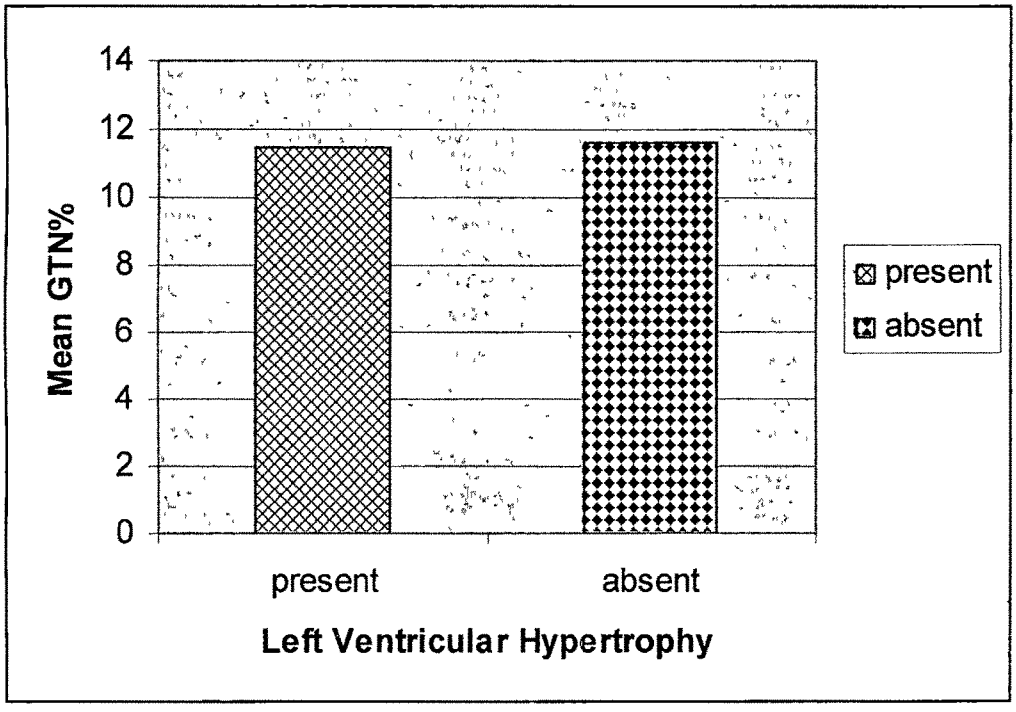
left ventricular hypertrophy	Mean GTN%	P
n =12 present	11.45	> 0.05
n = 28 absent	11.60	

Test used : Students t test

$P < 0.001$ highly significant

$P > 0.05$ not significant


14
12
10
8
6
4
2
0
Mean FMD%
present
absent
present
absent
Left Ventricular Hypertrophy


14
12
10
8
6
4
2
0
Mean GTN%
present
absent
present
absent
Left Ventricular Hypertrophy

Comparison of FMD % and GTN% in relation retinopathy in the study group.

The study population was divided into two those having hypertensive retinopathy, and those not having it.

On comparing the flow-mediated dilation in the two groups, no statistical significant difference was obtained with $p > 0.0.5$

retinopathy	Mean FMD %	P
(n = 9) present	3.68	> 0.05
(n = 31) absent	4.81	

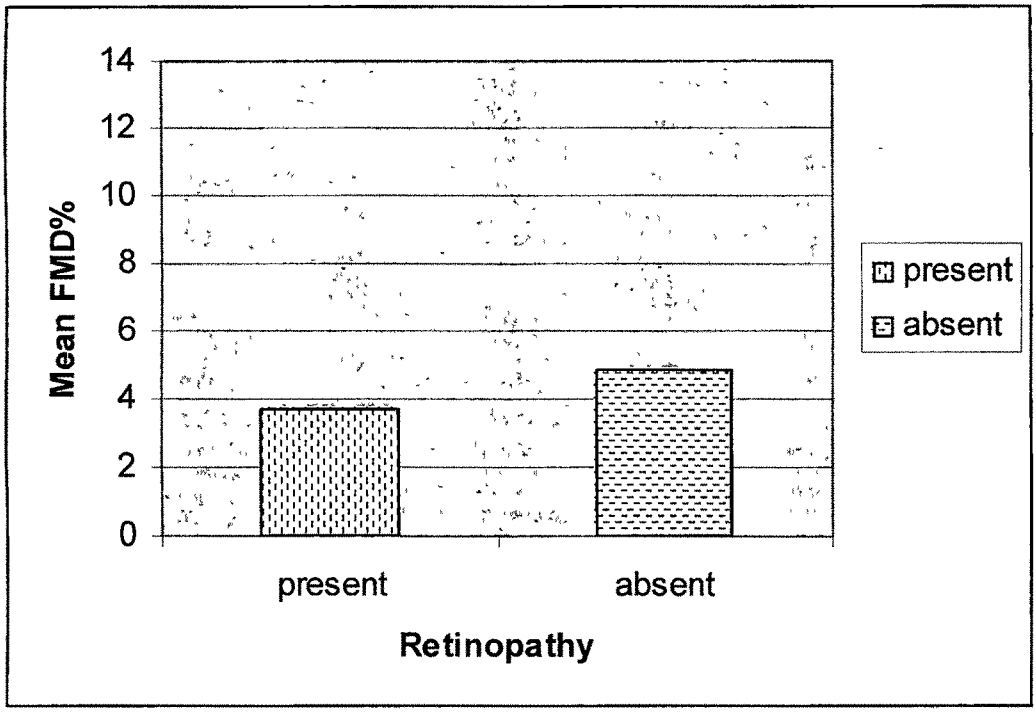
Similarly, on comparing the GTN% in the two groups, no statistical significance was obtained with $p > 0.05$.

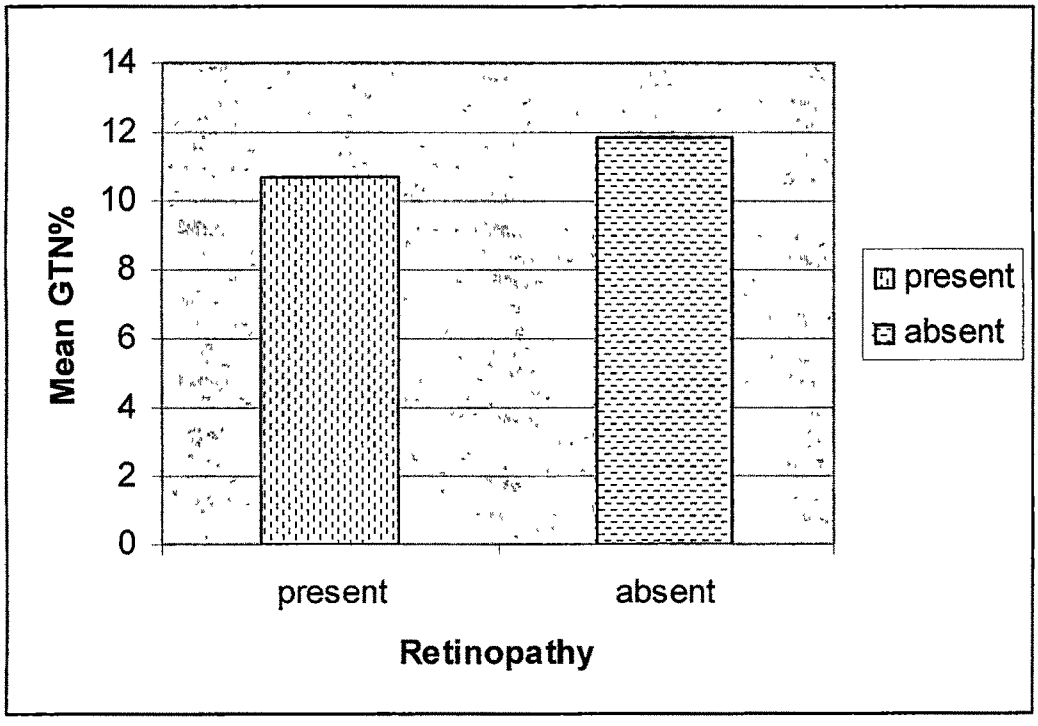
retinopathy	Mean GTN %	P
n = 9 present	10.67	> 0.05
n = 31 absent	11.84	

Test used : Students t test

$P < 0.01$ significant

$P > 0.05$ not significant


14
12
10
8
6
4
2
0
Mean FMD%
present
absent
Retinopathy
present
absent


14
12
10
8
6
4
2
0
Mean GTN%
present
absent
Retinopathy
present
absent