RESULTS

Eighty patients(males and females) with unstable angina who were admitted to CCU at Benha University Hospital during the period from January 1999 to January 2000 were included in this study Their mean age was 50.6 ± 6.23 years which classified into

1- Group 1 Hyperlipedemic group:

which consisted of 40 patients with serum total cholesterol ≥ 201 mg /dl

2- Group 2 Non hyperlipidemic Group :

which consisted of 40 patients with serum total cholesterol < 201 mg/dl

Table (1) Clinical properties of the studied groups:

	Group 1	Group 2	Comparison
Range of age	40- 66	35 -62	
Mean of age	50.8	50.1	p> 0.05
Male sex	35	30	p> 0.05
Female sex	5	10	
Smokers	23	19	p>0.05
Non smoker	17	21	
Diabetic	11	3	p > 0.05
Non Diabetic	29	37	
Hypertensive	5	4	p.>0.05
Non Hypertensive	35	36	

This table shows the clinical properties of the studied groups it shows that there no significant differences between the two studied groups as regards Age, sex, smoking, history of hypertension and diabetes.

Table (2) : Comparison between the studied groups as regards serum lipids:

	Group 1 n= 40		Group2 n=40		Comparison	
	Mean	± SD	Mean	± SD	t	p
TC	304.58	35.87	169.1	24.55	19.71	*<0.001
TG	208.2	64.57	101.98	36.56	9.05	*<0.001
LDL	219.93	36.43	92.50	27.38	17.69	*<0.001
VLDL	40.68	12.82	20.63	7.31	8.59	*<0.001
HDL	34.53	5.77	55.23	14.15	8.38	*<0.001
TC/HDL	8.93	0.97	3.87	1.50	17.90	*<0.001

This table shows that there is a significant increase in all serum lipids in group 1 except serum HDL which increase siginfically in group 2 ($P < 0.001$ Significant)

Table (3) Comparison between the studied groups as regards CRP.

	Group 1 n= 40	Group 2 n= 40
Mean	***1.46***	***0.31***
± SD	***1.60***	***0.52***
t	***4.33***	
p	***<0.001****	

This table shows that there is a significant increase in serum C- reactive protein (CRP) in group 1 (P < 0.001 *Significant)

Table (4): Comparison between the studied groups as regards coronary analysis

	Group 1 n= 40		Group 2 n= 40		Comparison	
	No.	%	No.	%	x^2	p
No. of patients having lesion	33	82.5	16	40.0	15.22	<0.001*
Lesion >70%	33	82.5	13	32.5	20.46	<0.001*
Prox./Distal						
- Proximal	17	51.5	6	37.5		
- Distal	8	24.2	9	56.3	5.33	>0.05
- Combined.	8	12.2	1	6.3		
- Total lesion	33	100.0	16	100.0		
site						
- LAD	13	39.4	7	43.8		
- RC	5	15.2	3	18.8		
- Cx.	2	6.1	4	25.0		
LAD & RC.	4	12.1	0	0.0		
LAD & Cx.	3	9.1	0	0.0		
RC & Cx.	1	3.0	2	12.5		
LAD&RC&Cx	5	15.2	0	0.0		
Total lesion	33	100.0	16	100.0		

This table shows that there is a significant increase in the numbers of patients having lesions and a significant increase in the occurrence of a significant lesions (>70%) in group 1. Also it shows that there is no significant difference in the site of lesion(proximal or Distal) or site of the diseased artery (LAD, Cx or RC) between both groups.

Table (5): Comparison between the studied groups as regards coronary analysis

	Group 1		Group 2		Comparison	
	Mean	±SD	Mean	±SD	t	p
Severity	76.93	36.59	33.93	42.82	4.83	<0.001*
Collaterals	0.73	0.87	0.66	1.11	0.26	>0.05
TIMI flow	1.22	0.84	2.25	1.08	3.65	<0.001*
Score	8.80	6.42	2.65	4.54	4.95	<0.001*
EF %	48.49	12.30	60.80	9.46	4.26	<0.001*

This table shows that

1- There is significant increase in severity of lesion and coronary stenosis score in group 1.

2- There is significant decrease in TIMI flow in group 1 .

3- There is no significant difference between the two groups as regards collaterals

Table(6) :Correlation in all cases between serum lipids and severity and score:

	Severity of lesion	*coronary Score*	
TC	*0.201*	*0.189*	*Non significant*
TG	*0.122*	*0.109 NS*	*Non significant*
LDL	*0.234*	*0.225 NS*	*Non significant*
VLDL	*0.086*	*0.078 NS*	*Non significant*
HDL	*-0.225*	*-0.198 NS*	*Non significant*
TC/HDL	*0.585**	*0.502**	*Significant.*

This table shows that there is no significant correlation between all serum lipids , severity and scoring system in all patients except TC/HDL which is the only parameter showed significant correlation

Table (7):Correlation between serum lipids and Collaterals, TIMI flow ,No. of vessels and EF:

	Collaterals	*TIMI flow*	*No. of vessels*	*EF*
TC	*0.055*	*-0.092*	*0.118*	*-0.094*
TG	*0.021*	*-0.061*	*0.151*	*-0.091*
LDL	*0.079*	*-0.050*	*0.033*	*-0.105*
VLDL	*0.023*	*-0.019*	*0.029*	*-0.073*
HDL	*-0.0103*	*0.033*	*-0.028*	*0.062*
TC/HDL	*0.008*	*-0.370**	*0.561**	*-0.412*

This table shows that there is no significant correlation between serum lipids ,Collaterals , TIMI flow , Number of vessels and Ejection fraction except TC/HDL (* Significant)

Table (8) : Relation between type of lesion and lipids in group 1:

	Concentric n = 11		Eccentric n = 4		Combined n = 18		Comparison	
	Mean	± SD	Mean	± SD	Mean	± SD	F	P
TC	305.45	37.9	299.0	54.7	308.94	37.78	0.11	> 0.05
TG	208.91	72.98	153.75	70.13	219.87	50.78	1.88	> 0.05
LDL	218.81	36.85	225.0	43.76	220.61	42.31	0.03	> 0.05
VLDL	42.64	15.29	30.75	13.72	41.60	9.87	1.50	> 0.05
HDL	34.18	6.78	34.50	6.66	36.00	5.48	0.34	> 0.05
TC/HDL	9.09	1.14	8.69	0.49	8.66	0.89	0.74	> 0.05

This table shows that there is no significant correlation between the type of lesion (Concentric , Eccentric or combined)and serum lipids in group 1

Table (9) Relation between type of lesion and serum lipids in group 2:

	Concentric n = 8		Eccentric n = 4		Combined n = 4		Comparison	
	Mean	± SD	Mean	± SD	Mean	± SD	F	P
TC	185.00	18.69	169.50	20..24	181.50	16.52	0.94	> 0.05
TG	125.63	43.76	136.50	29.34	144.25	17.15	0.38	> 0.05
LDL	105.76	26.13	105.00	17.98	119.00	23.24	0.48	> 0.05
VLDL	25.13	8.71	27.00	6.00	28.50	3.79	0.31	> 0.05
HDL	38.36	8.88	28.75	4.92	36.25	4.50	2.49	> 0.05
TC/HDL	5.05	1.34	6.09	1.59	5.09	1.01	0.87	> 0.05

This table shows that there is no significant correlation between the type of lesion and serum lipids in group 2.

Table (10) : Relation between site of lesion and serum lipids in group 1:

	Proximal n = 17		Distal n = 4		Combined n = 4		Comparison	
	Mean	± SD	Mean	± SD	Mean	± SD	F	P
TC	305.88	40.02	291.50	22.18	323.13	45.77	1.38	> 0.05
TG	211.82	62.08	215.25	56.82	191.75	74.32	0.34	> 0.05
LDL	226.53	38.80	198.88	34.49	229.50	41.68	1.68	> 0.05
VLDL	42.47	12.77	41.38	11.73	36.00	12.95	0.74	> 0.05
HDL	35.76	6.81	33.38	5.10	35.88	4.91	0.49	> 0.05
TC/HDL	8.68	1.02	8.87	1.17	9.01	0.46	0.35	> 0.05

This table shows that there is no significant correlation between the site of lesion(proximal or Distal) and serum lipids in group 1.

Table (11) : Relation between site of lesion and serum lipids in group 2:

	Proximal n = 6		Distal n = 9		Combined n = 1		Comparison	
	Mean	± SD	Mean	± SD	Mean	± SD	F	P
TC	184.00	15.55	175.67	20.42	198.00	-	0.85	> 0.05
TG	135.17	31.66	128.89	39.00	155.00	-	0.25	> 0.05
LDL	108.33	17.17	105.56	25.61	142.00	-	1.16	> 0.05
VLDL	26.83	6.43	25.67	7.75	31.00	-	2.26	> 0.05
HDL	36.50	7.79	35.56	8.72	30.00	-	0.26	> 0.05
TC/HDL	5.23	1.18	5.24	1.51	6.60	-	0.45	> 0.05

This table shows that there is no significant correlation between the site of lesion and serum lipids in group 2.

Table (12): Evaluation of Total Cholesterol (TC) in prediction of presence of lesion:

Lesion / Level	Present		Absent		Total	
	No.	%	No.	%	No.	%
Elevated	33	67.3	7	22.6	40	50
Normal	16	32.7	24	77.7	40	50
Total	49	100.0	31	100.0	80	100.0

xxxxxxxx

X^2 = 15.22 $p < 0.001$* *Significant.

This table shows that TC can predict presence of lesion with :

Sensitivity = 67.3% *Specificity = 77.4 %*

Positive predictive values(PPV) = 82.5 % *Negative predictive values (NPV)= 60 %*

Accuracy = 71.3 %

Table (13): Evaluation of TC in prediction of significant lesion:

Lesion / Level	> 70 %		< 70 %		Total	
	No.	%	No.	%	No.	%
Elevated	33	71.7	7	20.6	40	50
Normal	13	28.3	27	79.4	40	50
Total	46	100.0	34	100.0	80	100.0

xxxxxxxx

X^2 = 20.46 $p < 0.001$* *Significant.

This table shows that TC can predict presence of a significant lesion (>70%) with:

Sensitivity = 71.7 % *Specificity = 79.4 %*

PPV = 82.5 % *NPV= 67.5%*

Accuracy = 75.5 %

Table (14): Evaluation of LDL in prediction of presence of lesion:

Lesion / Level	Present		Absent		Total	
	No.	%	No.	%	No.	%
Elevated	34	69.4	6	19.4	40	50
Normal	15	30.6	25	80.6	40	50
Total	49	100.0	31	100.0	80	100.0

xxxxxxxx

$X^2_{\ I} = 16.10$ $p < 0.001$* *Significant.

This table shows that LDL can predict presence of lesion with :

Sensitivity = 69.4 % Specificity = 80.6 %

PPV = 83.5 % NPV= 60.80% Accuracy = 72.1%

Table (15): Evaluation of LDL in prediction of significant lesion:

Lesion / Level	>70 %		< 70 %		Total	
	No.	%	No.	%	No.	%
Elevated	34	73.9	6	17.6	40	50
Normal	12	26.1	28	82.4	40	50
Total	46	100.0	34	100.0	80	100.0

xxxxxxxx

$X^2_{\ I} = 21.1$ $p < 0.001$* *Significant.

This table shows that LDL can predict presence of significant lesion with :

Sensitivity = 73.9 % Specificity = 82.4 %

PPV = 82.5% NPV= 67.5% Accuracy = 75.0 %

Table (16): Evaluation of HDL in prediction of the presence of lesion:

Lesion / Level	Present		Absent		Total	
	No.	%	No.	%	No.	%
Decreased	26	53.1	7	22.6	33	41.3
Normal	23	46.9	24	77.4	47	58.7
Total	49	100.0	31	100.0	80	100.0

xxxxxxxx

X^2_1= 7.28 $p < 0.01$* *Significant.

This table shows that HDL can predict presence of lesion with :

Sensitivity = 53.1 % *Specificity = 77.4 %*

PPV = 78.8 % *NPV= 51.1 %*

Accuracy = 62.5%

Table (17): Evaluation of HDL in prediction of significant lesion:

Lesion / Level	> 70%		< 70%		Total	
	No.	%	No.	%	No.	%
Decreased	25	54.3	8	23.5	33	41.3
Normal	21	45.7	26	76.5	47	58.7
Total	46	100.0	34	100.0	80	100.0

xxxxxxxx

X^2_1= 7.66 $p < 0.01$* *Significant.

This table shows that HDL can predict presence of significant lesion with :

Sensitivity = 54.3 % *Specificity = 76.5 %*

PPV = 75.8 % *NPV= 55.3 %*

Accuracy = 63.8 %

Table (18) :Evaluation of TC/HDL in prediction of presence of lesion:

Lesion / Level	Present		Absent		Total	
	No.	%	No.	%	No.	%
Elevated	36	73.5	8	25.8	44	55.0
Normal	13	26.5	23	74.2	36	45.0
Total	49	100.0	31	100.0	80	100.0

xxxxxxxx

X^2 = 17.43 $p < 0.001$* *Significant.

This table shows that TC/HDL can predict presence of lesion with :

Sensitivity = 73.5 % *Specificity = 74.2 %*

PPV = 81.8% *NPV= 63.9 %*

Accuracy = 73.8%

Table (19) :Evaluation of TC/HDL in prediction of significant lesion:

Lesion / Level	>70%		<70%		Total	
	No.	%	No.	%	No.	%
Elevated	36	78.3	8	23.5	44	55.0
Normal	10	21.7	26	76.5	36	45.0
Total	46	100.0	34	100.0	80	100.0

xxxxxxxx

X^2 = 23.66 $p < 0.001$* *Significant.

This table shows that TC/HDL can predict presence of significant lesion with :

Sensitivity = 78.3 % *Specificity = 76.5 %*

PPV = 82.9 % *NPV= 72.2 %*

Accuracy = 77.5%

Table (20) :Evaluation of CRP in prediction of presence of lesion:

Lesion / Level	Present		Absent		Total	
	No.	%	No.	%	No.	%
Elevated	37	75.5	10	32.3	47	58.8
Normal	12	24.5	21	67.7	33	41.2
Total	49	100.0	31	100.0	80	100.0

xxxxxxxx

X^2 = 14.66 $p < 0.001$* *Significant.

This table shows that CRP can predict presence of lesion with :

Sensitivity = 75.5 % Specificity = 67.7 %

PPV = 78.7% NPV= 63.9 %

Accuracy = 72.5%

Table (21) :Evaluation of CRP in prediction of significant lesion:

Lesion / Level	>70%		<70%		Total	
	No.	%	No.	%	No.	%
Elevated	35	76.1	12	35.3	47	58.8
Normal	11	23.9	22	64.7	33	41.2
Total	46	100.0	34	100.0	80	100.0

xxxxxxxx

X^2 = 13.42 $p < 0.001$* *Significant.

This table shows that CRP can predict presence of significant lesion with :

Sensitivity = 76.1 % Specificity = 64.7 %

PPV = 74.5 % NPV= 66.7 %

Accuracy = 71.3%

Table (22) :Evaluation of TC/HDL & CRP in prediction of presence of lesion:

Lesion / Level	Present		Absent		Total	
	No.	%	No.	%	No.	%
Combined	38	82.6	8	25.8	44	55.0
Not Combined	11	17.4	23	74.2	36	45.0
Total	49	100.0	31	100.0	80	100.0

xxxxxxxx

$X^2_1 = 22.43$ $p < 0.001$* *Significant.

This table shows that TC/HDL & CRP can predict presence of lesion with :

Sensitivity = 82.6 % *Specificity = 74.2 %*

Table (23) :Evaluation of TC/HDL & CRP in prediction of significant lesion:

Lesion / Level	>70%		<70%		Total	
	No.	%	No.	%	No.	%
Combined	41	83.6	3	8.8	44	55.0
Not Combined	5	16.7	31	91.2	36	45.0
Total	46	100.0	34	100.0	80	100.0

xxxxxxxx

$X^2_1 = 23.66$ $p < 0.001$* *Significant.

This table shows that TC /HDL & CRP can predict presence of significant lesion with :

Sensitivity = 83.6 % *Specificity = 91.2 %*

Figure (1)

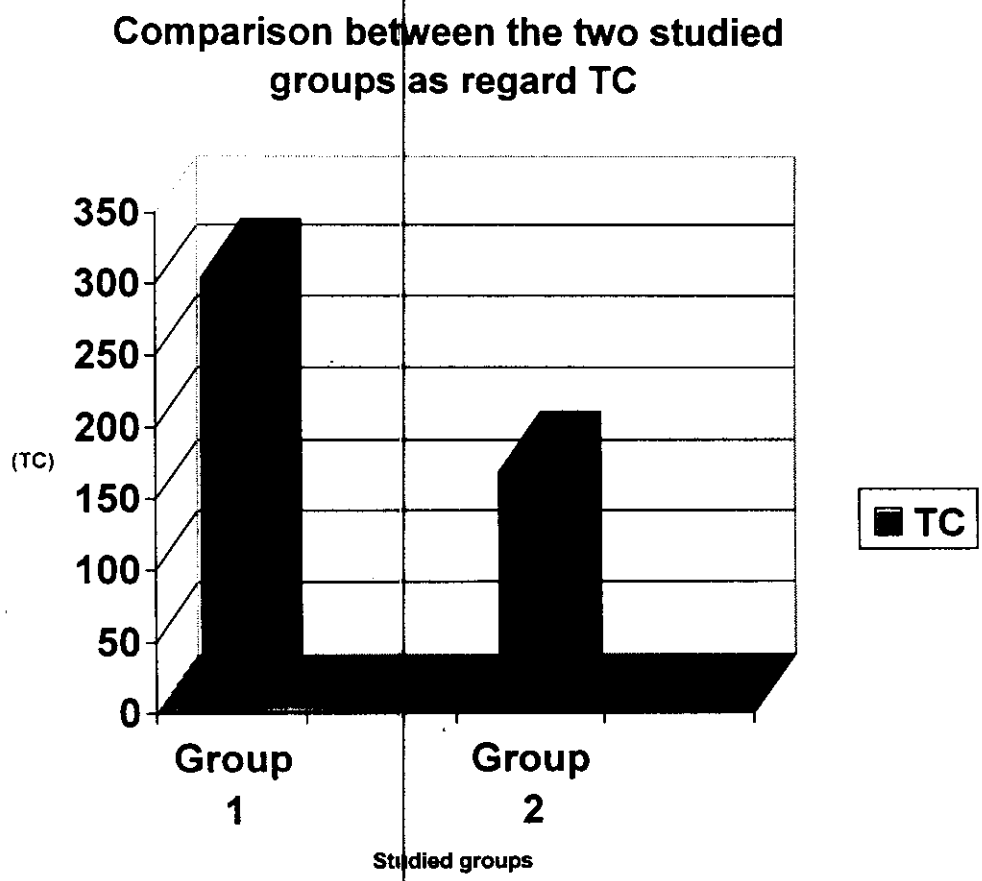
Comparison between the two studied groups as regard TC
350
300
250
200
150
100
50
0
(TC)
Group 1
Group 2
Studied groups
TC

Figure (2)

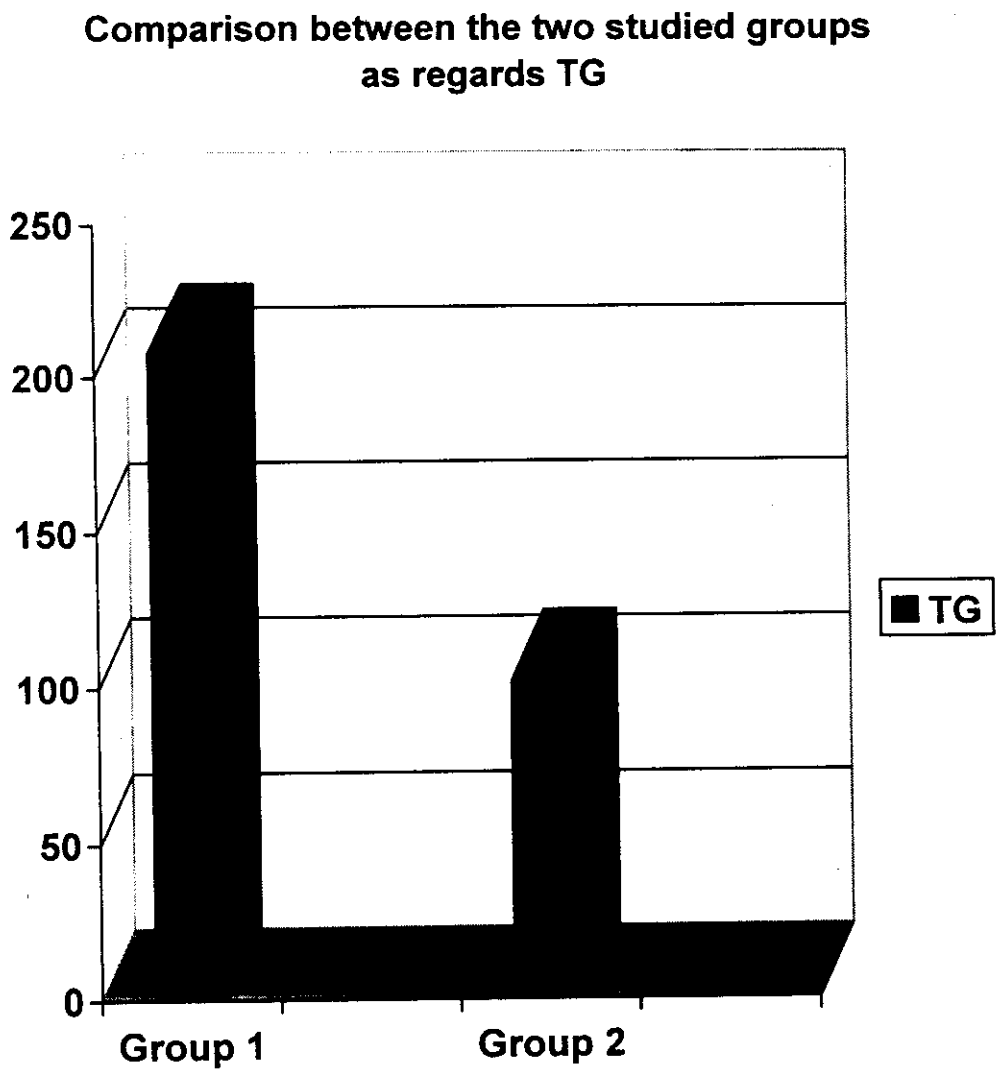
Comparison between the two studied groups as regards TG
250
200
150
100
50
0
Group 1
Group 2
TG

Figure (3)

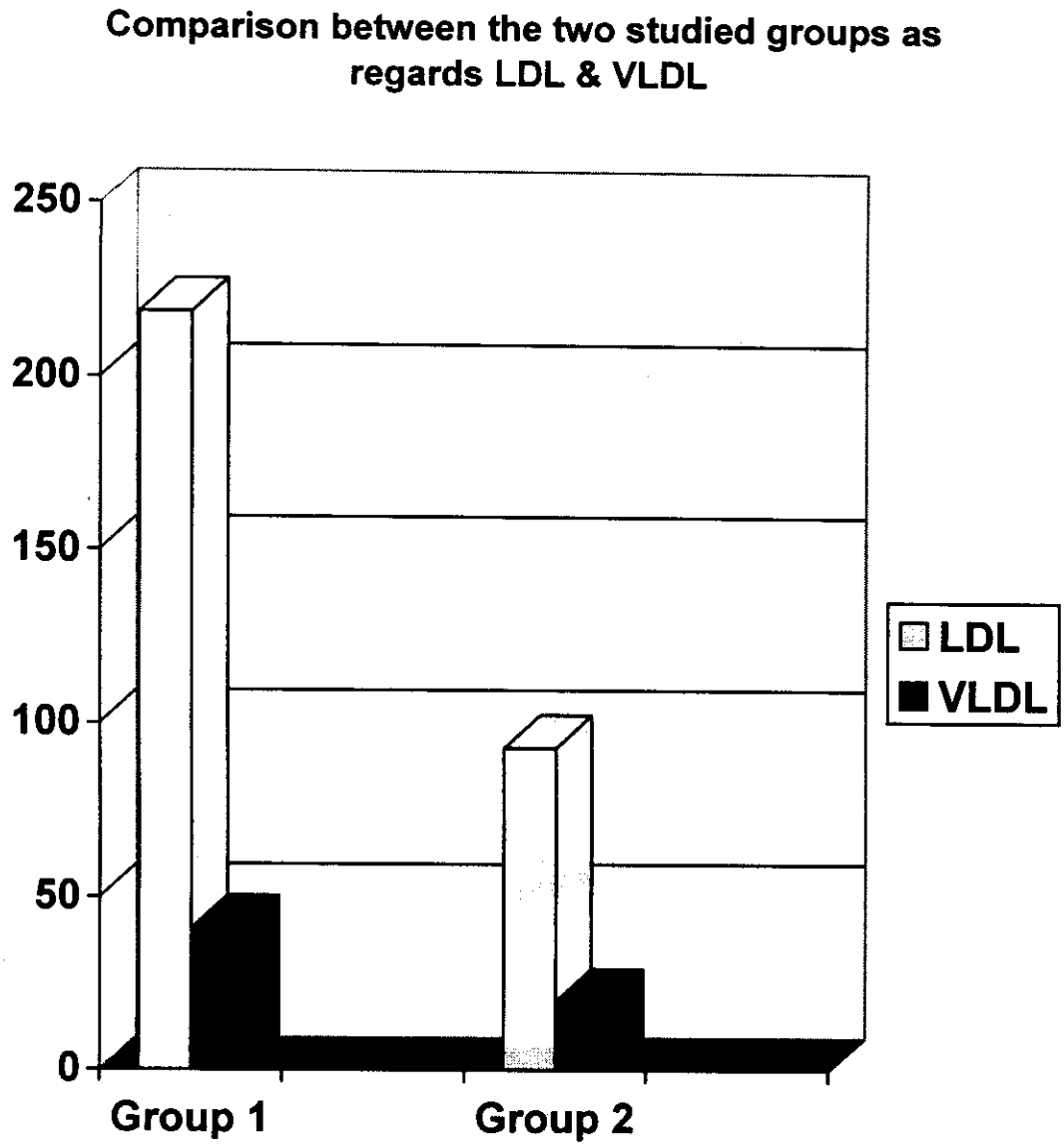
Comparison between the two studied groups as regards LDL & VLDL
250
200
150
100
50
0
Group 1
Group 2
LDL
VLDL

Figure (4)

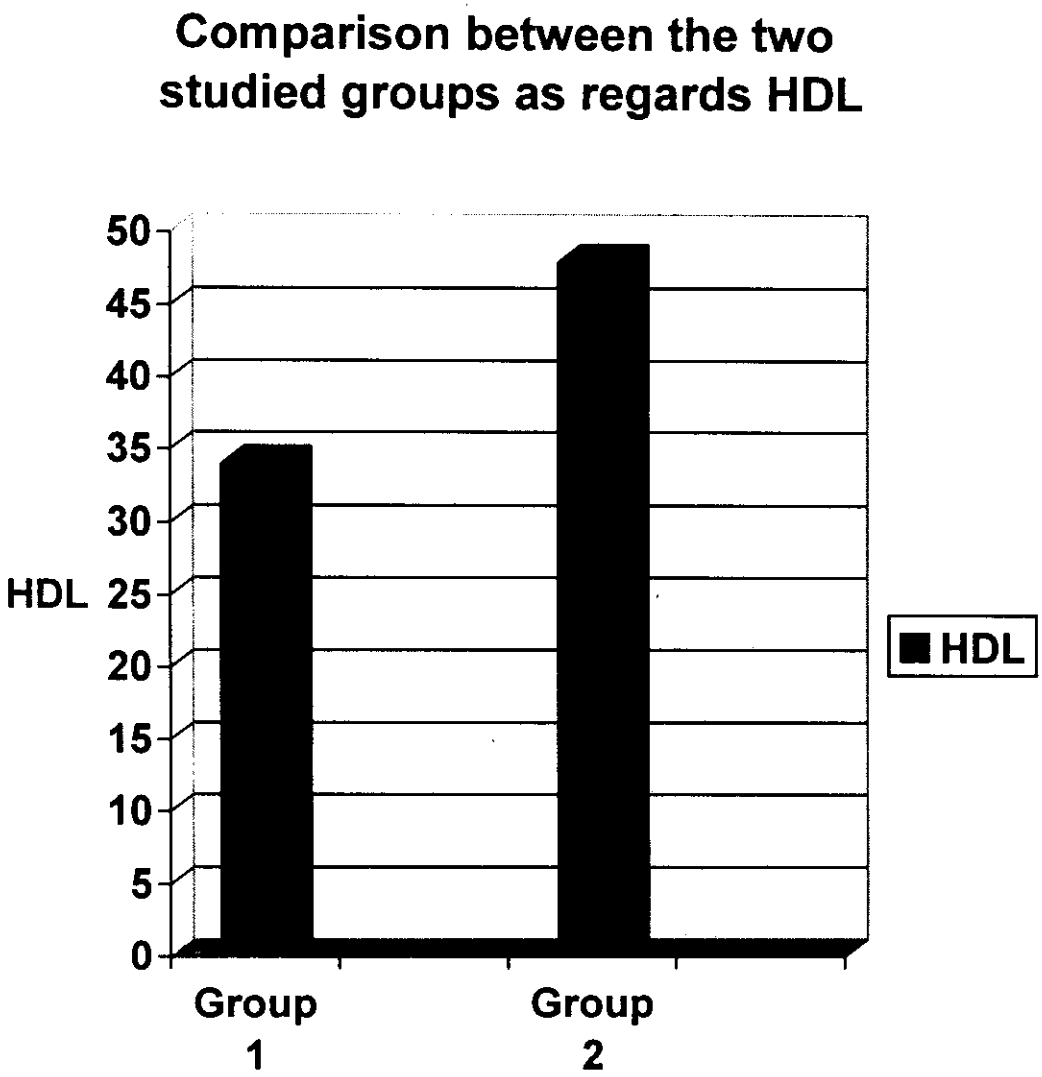
Comparison between the two studied groups as regards HDL
HDL
50
45
40
35
30
25
20
15
10
5
0
Group 1
Group 2
HDL

Figure (5)

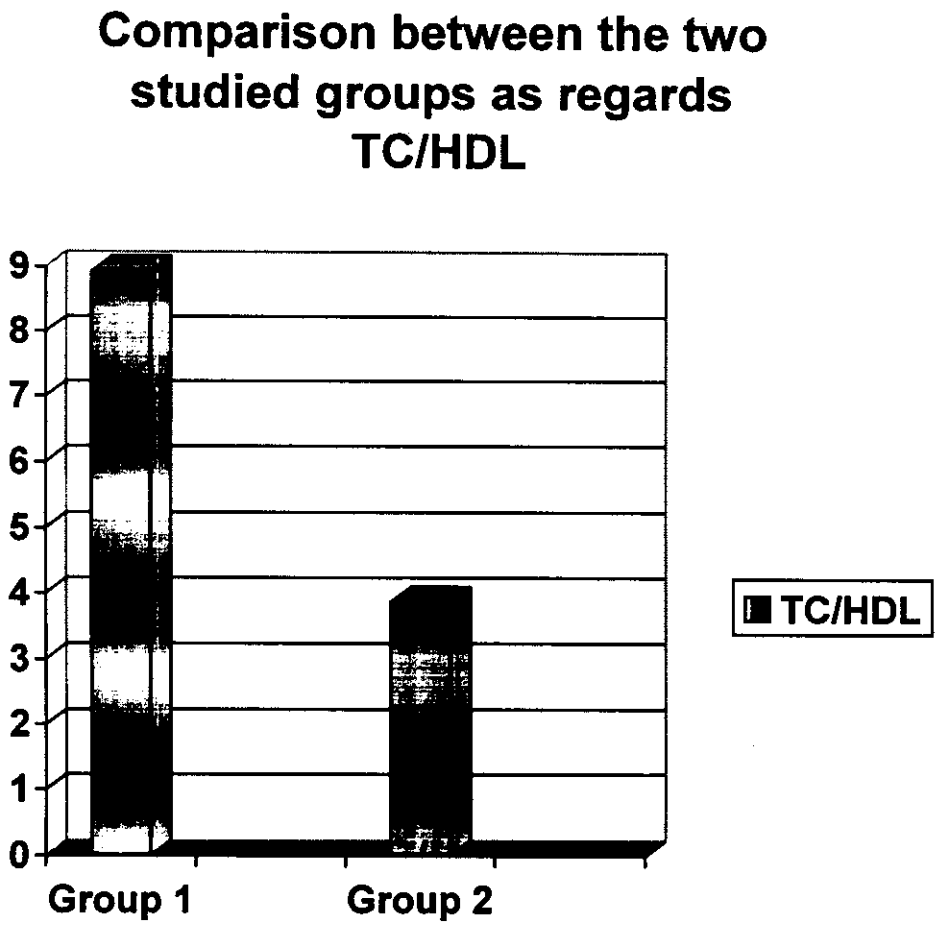
Comparison between the two studied groups as regards TC/HDL
9
8
7
6
5
4
3
2
1
0
Group 1
Group 2
TC/HDL

Figure (6)

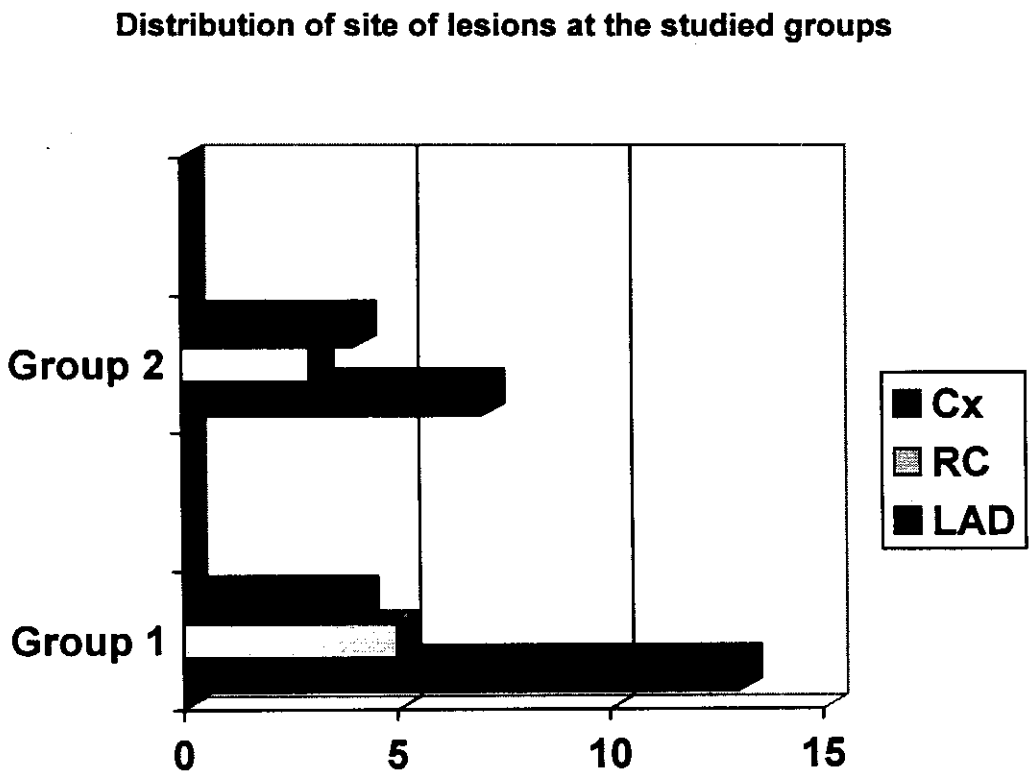
Distribution of site of lesions at the studied groups
Group 2
Group 1
0
5
10
15
Cx
RC
LAD

Figure (7)

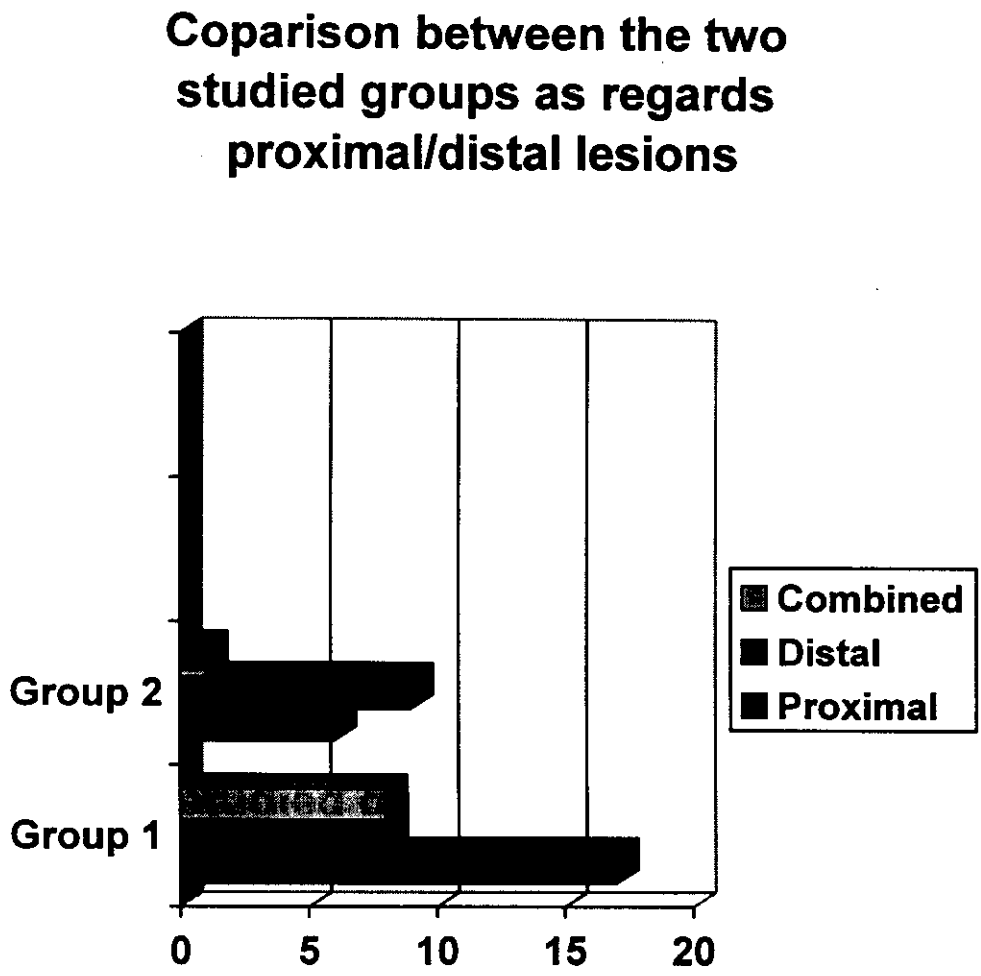
Coparison between the two studied groups as regards proximal/distal lesions
Group 2
Group 1
0
5
10
15
20
Combined
Distal
Proximal

Figure (8)

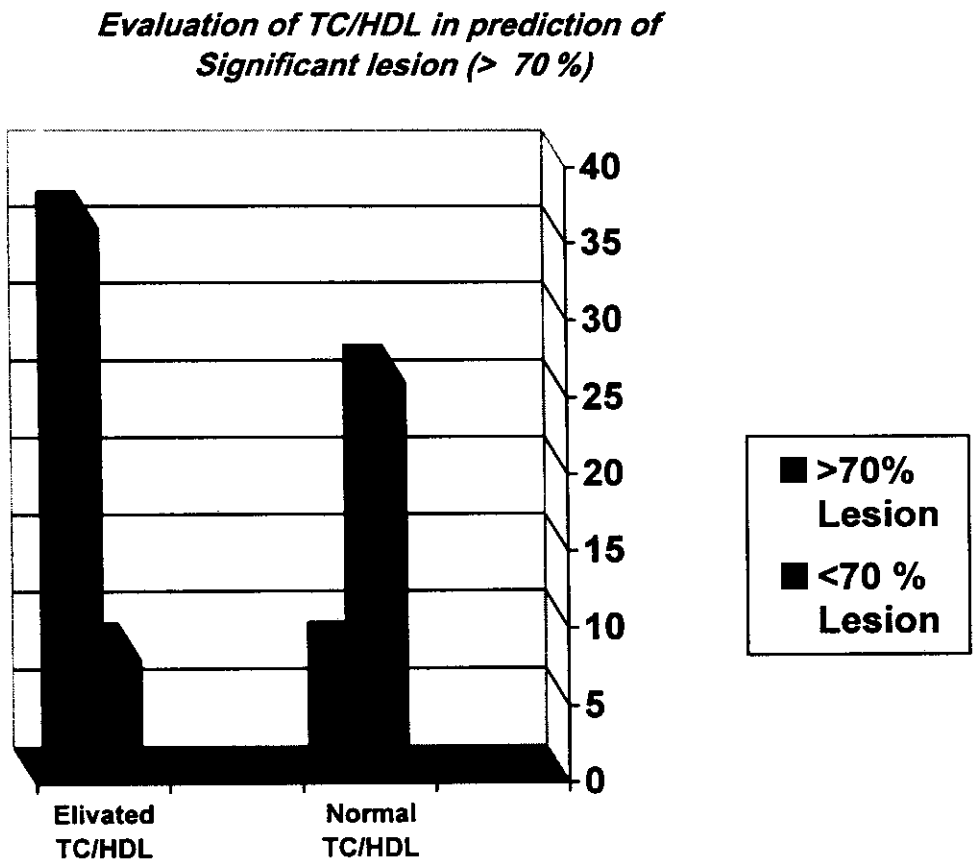
Evaluation of TC/HDL in prediction of Significant lesion (> 70 %)
40
35
30
25
20
15
10
5
0
Elivated TC/HDL
Normal TC/HDL
>70% Lesion
<70 % Lesion

Figure (9)

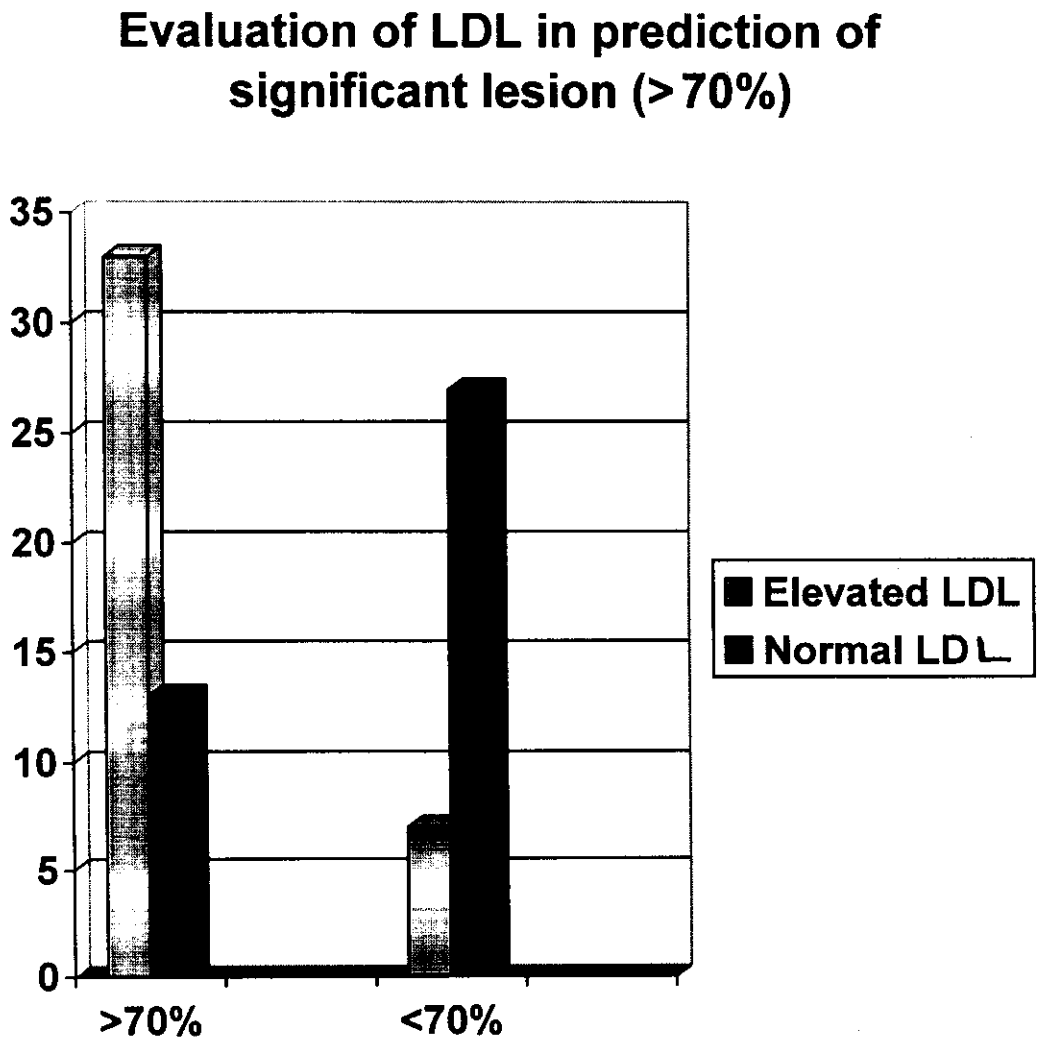
Evaluation of LDL in prediction of significant lesion (>70%)
35
30
25
20
15
10
5
0
>70%
<70%
Elevated LDL
Normal LDL

Figure (10)

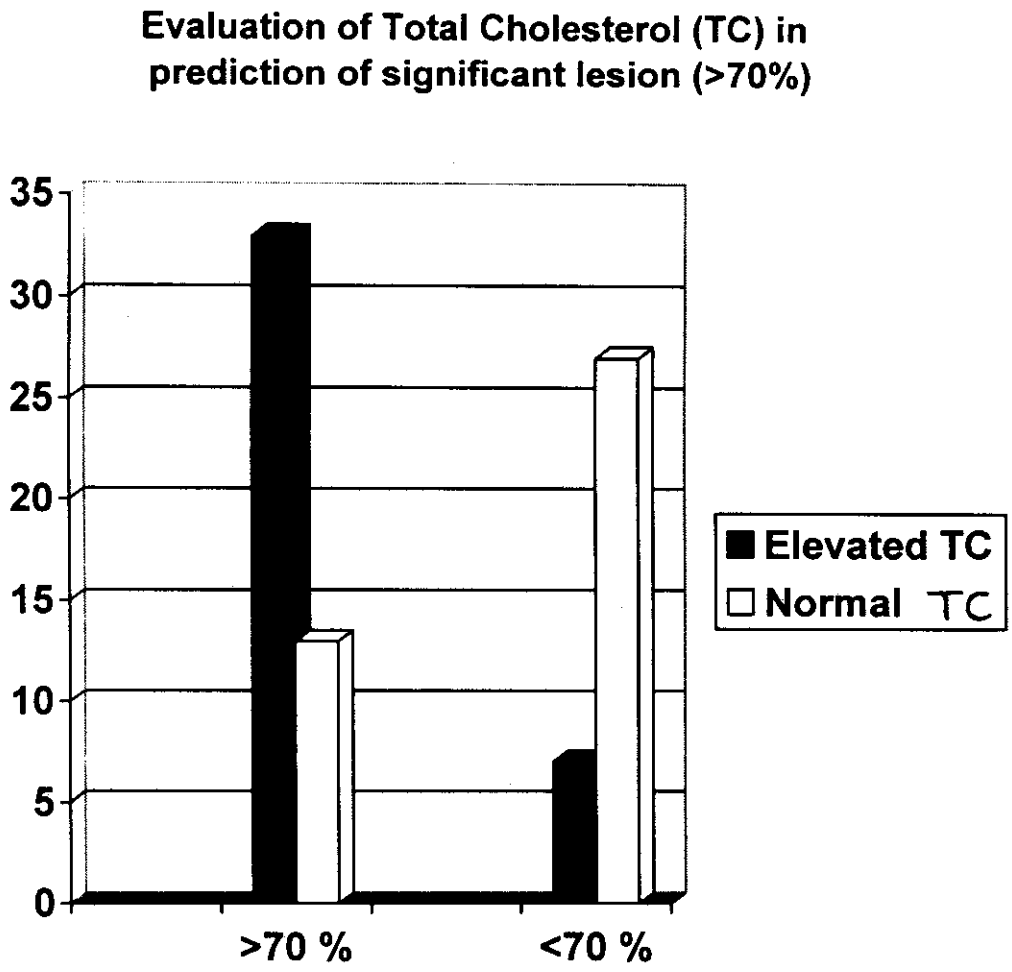
Evaluation of Total Cholesterol (TC) in prediction of significant lesion (>70%)
35
30
25
20
15
10
5
0
>70 %
<70 %
Elevated TC
Normal TC

Figure (11)

Fig.():Correlation between TC/HDL and severity in all cases.

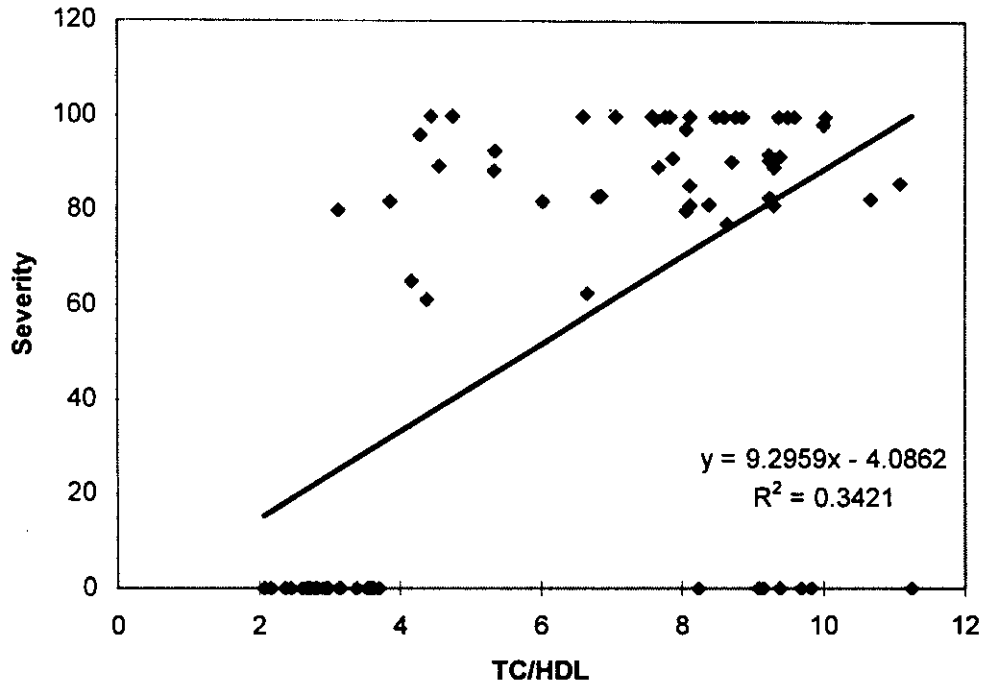

Figure (12)

Fig.():Correlation between TC/HDL and EF% in all cases.