Results

The study included 100 patients who had undergone successful PCI and continued to take statins after PCI and their initial LDL levels < 100 mg/dl. We excluded patients with follow-up LDL >100 mg/dl.

Table (15): Baseline demographic, risk factors and clinical presentation characteristics at index PCI

		High HDL	Low HDL	X^2 test	p value
Sex	**Male**	35	34	0.05	0.83 NS
	Female	15	16		
Age	**Mean±SD**	54±8	57±7	0.01	1.0 NS
DM	**Yes**	19	22	0.37	0.54 NS
	No	31	28		
HTN	**Yes**	31	37	1.65	0.2 NS
	No	19	13		
smoking		11	15	0.21	0.69 NS
ECG	**Ant ischemia**	14	2	0.63	0.32 NS
	Antro-inferior ischemia	1	3		
	Antro-lat ischemia	3	2		
	ALWMI	0	1		
	AWMI	17	18		
	Inferior ischemia	1	1		
	IWMI	3	9		
	IWMI + PWMI	1	0		
	IWMI + RVMI	1	2		
	Lat ischemia	10	10		
	LWMI	0	1		

ALWMI=Anterolateral wall MI, AWMI=Anterior wall MI, IWMI=Inferior wall MI, PWMI=Posterior wall MI, RVMI=Right ventricular MI, LWMI=Lateral wall MI.

All patients were presented to PCI lab with acute coronary syndrome (STEMI, NSTEMI, and UA) and threre was no significant difference in baseline demographic characteristics at index PCI between the 2 groups as shown in table (15).

There was no significant difference between two groups in angiographic characteristics in the number of vessels affected in each group (table 16).

Table (16): The number of coronary arteries affected in each patient in low HDL-C group compared with high HDL-C group**.**

Variable	High HDL		Low HDL		X^2 test	p value
	No	%	No	%		
SVD	32	64	22	44	3.85	0.74 NS
2VD	17	34	27	54		
3VD	1	2	1	2		

SVD=single vessel disease, 2VD=two vessel disease, 3VD=three vessel disase

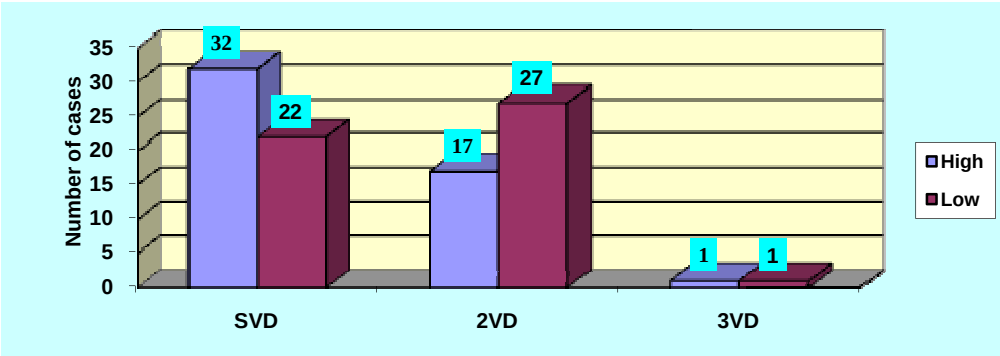

Figure (1): The number of affected vessels in low HDL-C group compared with high HDL-C group

There was no significant difference between two groups in angiographic characteristics regarding the number and type of stents in each group (table 17).

Table (17): The number and type of stents used in low HDL-C group compared with high HDL-C group**.**

	High HDL		Low HDL		Total		X^2 test	p value
	No	%	No	%	No	%		
One BMSs	19	38.0	13	26.0	32	32.0	4.08	0.57 NS
Two BMSs	10	20.0	17	34.0	27	27.0		
Three BMSs	1	2.0	1	2.0	2	2.0		
One DESs	13	26.0	10	20.0	23	23.0		
Two DESs	6	12.0	8	16.0	14	14.0		
Mixed BMS & DES	1	2.0	1	2.0	2	2.0		
Total	50	100.0	50	100.0	100	100.0		

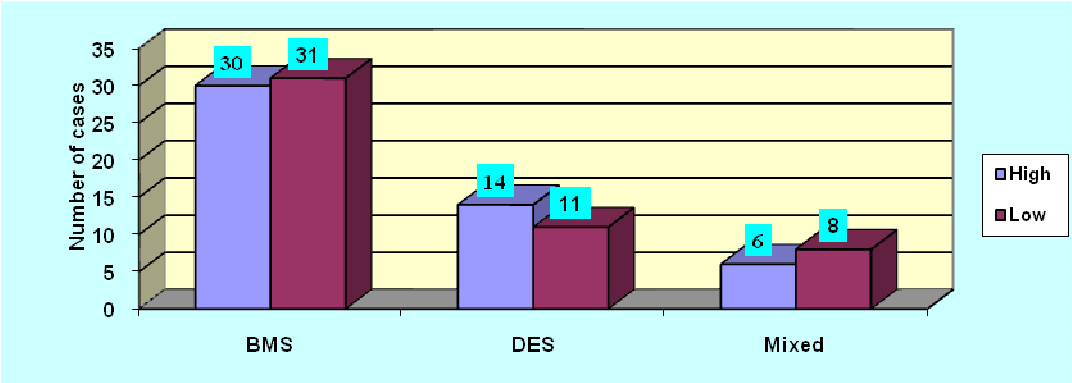

Figure (2): The number of stents in relation to patients used in low HDL-C group compared with high HDL-C group

There was no significant difference between two groups in sex, (table 18).

Table (18): Sex in patients with low follow-up HDL-C compared with high follow-up HDL-C

Sex	High HDL		Low HDL		Total		X^2 test	p value
	No	%	No	%	No	%		
Male	35	70	34	68	69	69	0.05	0.83 NS
Female	15	30	16	32	31	31		
Total	50	100.0	50	100.0	100	100.0		

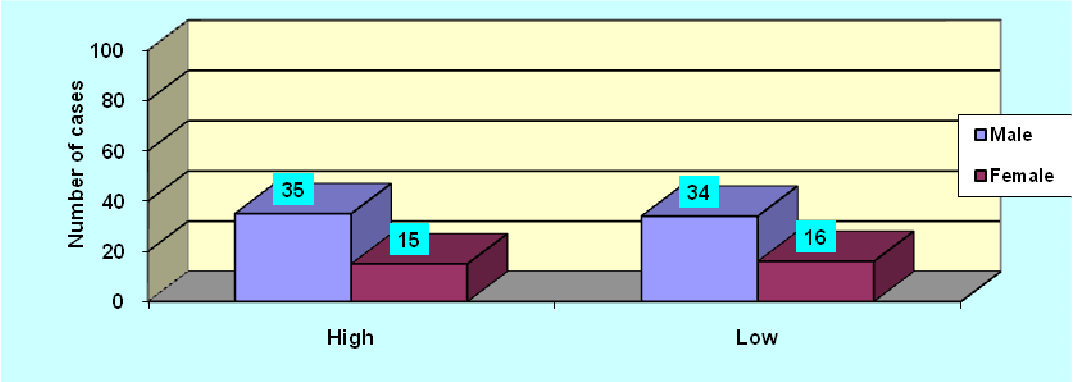

Figure (3): Sex in patients with low follow-up HDL-C compared with high follow-up HDL-C

There was no significant difference between two groups in smoking (table 19).

Table (19): Smoking in patients with low follow-up HDL-C compared with high follow-up HDL-C

Smoking	High HDL		Low HDL		Total		X^2 test	P value
	No	%	No	%	No	%		
Present	11	22	15	30	26	26	0.21	0.69 NS
Absent	39	78	35	70	74	74		
Total	50	100.0	50	100.0	100	100.0		

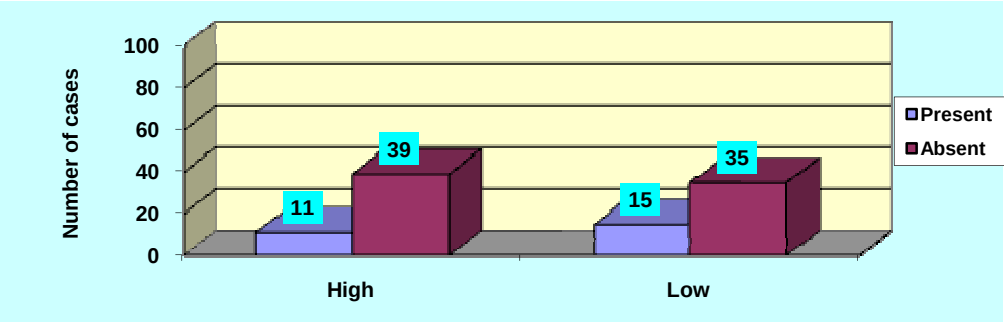

Figure (4): Smoking in patients with low follow-up HDL-C compared with high follow-up HDL-C

There was no significant difference between two groups in diabetis mellitus (table 20).

Table (20): Diabetes mellitus in patients with low follow-up HDL-C compared with high follow-up HDL-C

DM	High HDL		Low HDL		Total		X^2 test	P value
	No	%	No	%	No	%		
Present	19	38	22	44	41	41	0.37	0.54 NS
Absent	31	62	28	56	59	59		
Total	50	100.0	50	100.0	100	100.0		

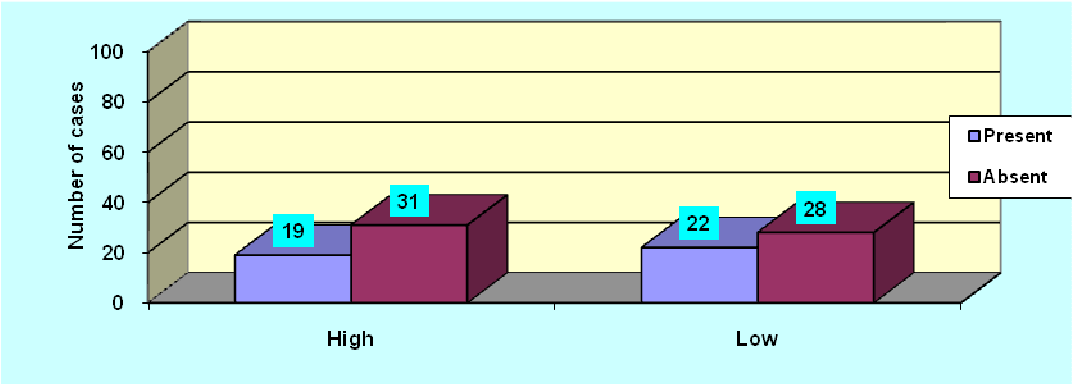

Figure (5): Diabetes mellitus in patients with low follow-up HDL-C compared with high follow-up HDL-C

There was no significant difference between two groups in hypertension (table 21).

Table (21): Hypertension in patients with low follow-up HDL-C compared with high follow-up HDL-C

HTN	High HDL		Low HDL		Total		X^2 test	p value
	No	%	No	%	No	%		
Present	31	62	37	74	68	68	1.65	0.2 NS
Absent	19	38	13	26	32	32		
Total	50	100.0	50	100.0	100	100.0		

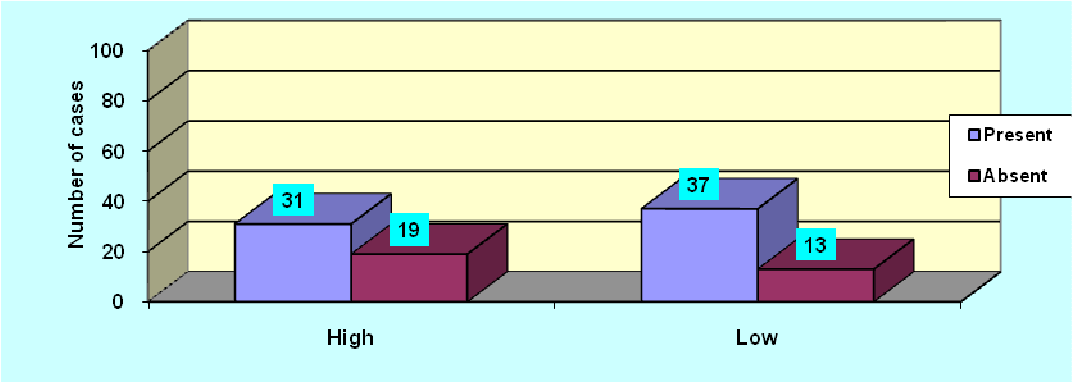

Figure (6): Hypertension in patients with low follow-up HDL-C compared with high follow-up HDL-C

There was no significant difference between two groups in cardiac death (table 22).

Table (22): Cardiac death in patients with low follow-up HDL-C compared with high follow-up HDL-C

Death	High HDL		Low HDL		Total		X^2 test	p value
	No	%	No	%	No	%		
Present	2	4	3	6	5	5	0.21	1.0 NS
Absent	48	96	47	94	95	95		
Total	50	100.0	50	100.0	100	100.0		

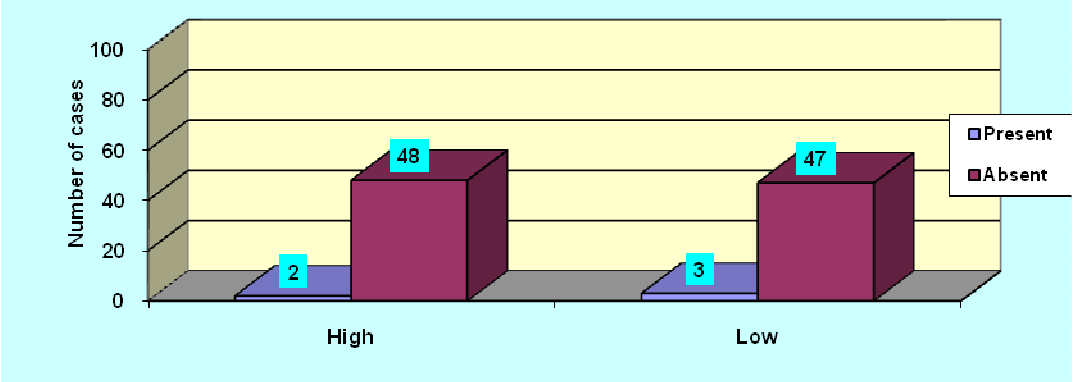

Figure (7): Cardiac death in patients with low follow-up HDL-C compared with high follow-up HDL-C

There was no significant difference between two groups in myocardial infarction (table 23).

Table (23): Myocardial infarction in patients with low follow-up HDL-C compared with high follow-up HDL-C

MI	High HDL		Low HDL		Total		X^2 test	p value
	No	%	No	%	No	%		
Present	1	2	3	6	4	4	1.3	0.62 NS
Absent	49	98	47	94	96	96		
Total	50	100.0	50	100.0	100	100.0		

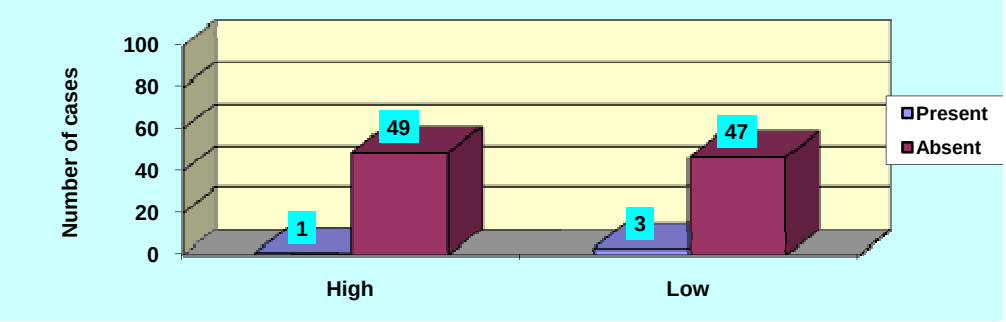

Figure (8): Myocardial infarction in patients with low follow-up HDL-C compared with high follow-up HDL-C

There was significant difference between two groups in target lesion revascularisation (table 24).

Table (24): Target lesion revascularization in patients with low follow-up HDL-C compared with high follow-up HDL-C

TLR	High HDL		Low HDL		Total		X^2 test	p value
	No	%	No	%	No	%		
Present	5	10	12	24	17	17	8.95	0.04 S
Absent	45	90	38	76	83	83		
Total	50	100.0	50	100.0	100	100.0		

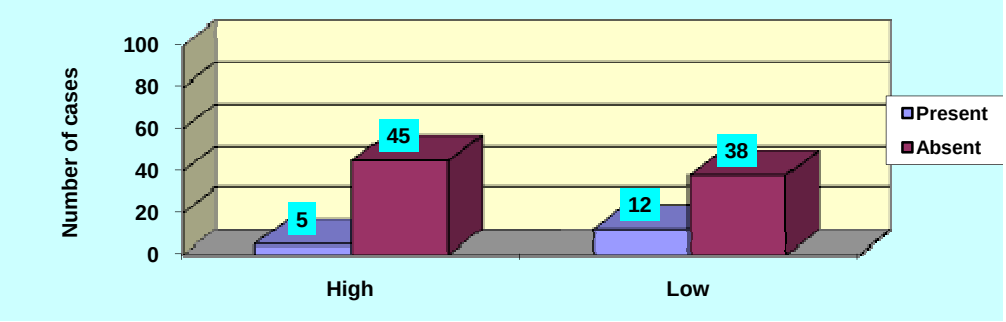

Figure (9): Target lesion revascularization in patients with low follow-up HDL-C compared with high follow-up HDL-C

There was significant difference between two groups in target vessel revascularisation (table 25).

Table (25): Target vessel revascularization in patients with low follow-up HDL-C compared with high follow-up HDL-C

TVR	High HDL		Low HDL		Total		X^2 test	p value
	No	%	No	%	No	%		
Present	6	12	14	28	20	20	11.31	0.009 S
Absent	44	88	36	72	80	80		
Total	50	100.0	50	100.0	100	100.0		

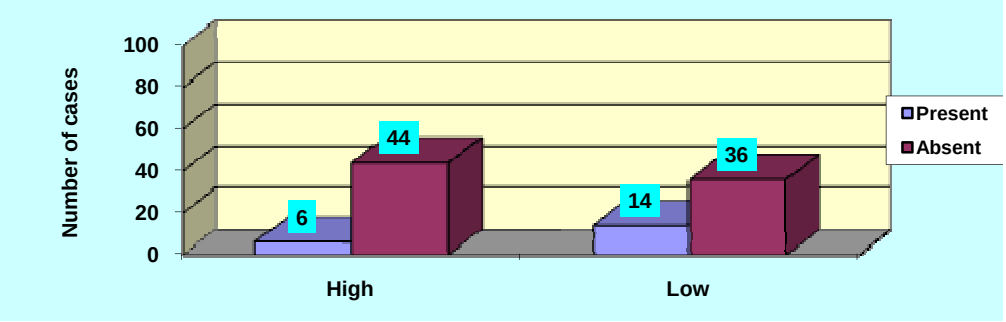

Figure (10): Target vessel revascularization in patients with low follow-up HDL-C compared with high follow-up HDL-C

Results

There was no significant difference between two groups in major adverse cardiac events (table 26).

Table (26): Major adverse cardiovascular events in patients with low follow-up HDL-C compared with high follow-up HDL-C

Composite of MACE	High HDL		Low HDL		Total		X^2 test	p value
	No	%	No	%	No	%		
Present	8	16	17	34	25	25	10.15	0.01 S
Absent	42	84	33	66	75	75		
Total	50	100.0	50	100.0	100	100.0		

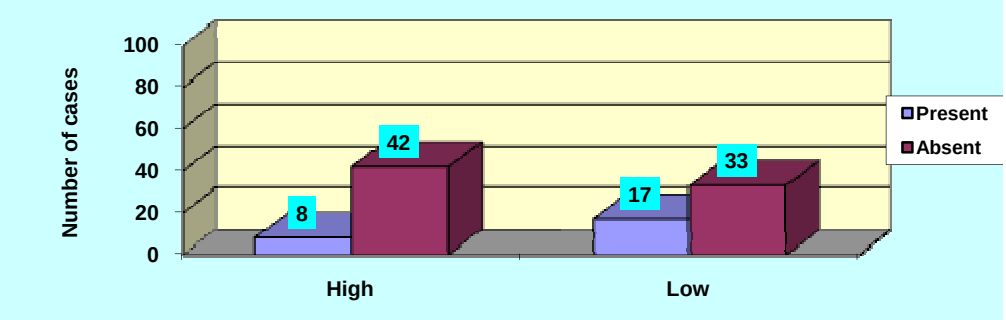

Figure (11): Major adverse cardiovascular events in patients with low follow-up HDL-C compared with high follow-up HDL-C

There was no significant difference between two groups in age, index total cholesterol and LDL and There was significant difference between two groups in TG and HDL (table 27).

Table (27): Age and lipid profile in patients with low follow-up HDL-C compared with high follow-up HDL-C at index PCI**.**

Variable	Groups	Mean	± SD	Student t test	p value
AGE	**High HDL**	55.34	9.84	1.34	0.18 NS
	Low HDL	57.6	6.74		
TC	**High HDL**	147.98	14.32	1.45	0.15 NS
	Low HDL	155.7	34.73		
TG	**High HDL**	128.52	19.51	13.17	0.002 HS
	Low HDL	141.6	21.75		
LDL	**High HDL**	80.14	10.13	0.51	0.61 NS
	Low HDL	81.1	8.6		
HDL	**High HDL**	50.2	4.55	14.86	0.001 HS
	Low HDL	37.48	3.99		

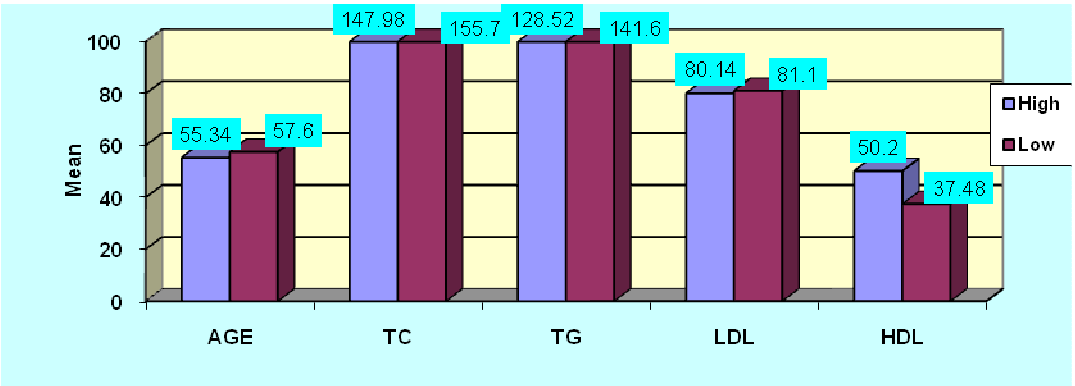

Figure (12): Age and lipid profile in patients with low follow-up HDL-C compared with high follow-up HDL-C at index PCI

There was no significant difference between two groups in TC, LDL at 6 months and (EF) and there was significant difference between two groups in TG and HDL at 6 months (table 28).

Table (28): Lipid profile at 6 months and Echocardiography (Echo) for ejection fraction (EF) in patients with low HDL compared with high HDL**.**

Variable	Groups	Mean	± SD	Student t test	p value
TC6	**High HDL**	122.5	11.67	2.17	0.12 NS
	Low HDL	129.7	20.36		
TG6	**High HDL**	111.32	17.98	15.68	0.009 HS
	Low HDL	121.54	20.08		
LDL6	**High HDL**	62.06	7.68	2.08	0.45 NS
	Low HDL	64.94	6.06		
HDL6	**High HDL**	52.74	4.79	21.07	0.001 HS
	Low HDL	34.6	3.76		
ECHO(EF)	**High HDL**	57.1	5.42	2.9	0.34 NS
	Low HDL	54.02	5.2		

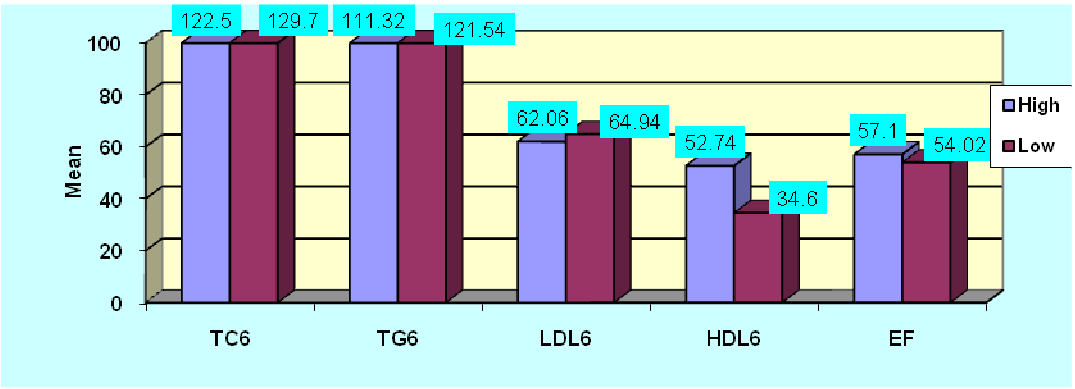

Figure (13): Lipid profile at 6 months and Echocardiography in patients with low follow-up HDL-C compared with high follow-up HDL-C

Table (29): Lipid profile at index PCI compared with lipid profile at 6 months in patients with high follow-up HDL-C**.**

Variable	Group I	Mean	± SD	Student t test	P value
TC	**At the beginning**	147.98	14.32	21.6	0.001 HS
	After 6 months	122.5	11.67		
TG	**At the beginning**	128.52	19.51	10.97	0.001 HS
	After 6 months	111.32	17.98		
LDL	**At the beginning**	80.14	10.13	24.04	0.001 HS
	After 6 months	62.06	7.68		
HDL	**At the beginning**	50.2	4.55	6.68	0.001 HS
	After 6 months	52.74	4.79		

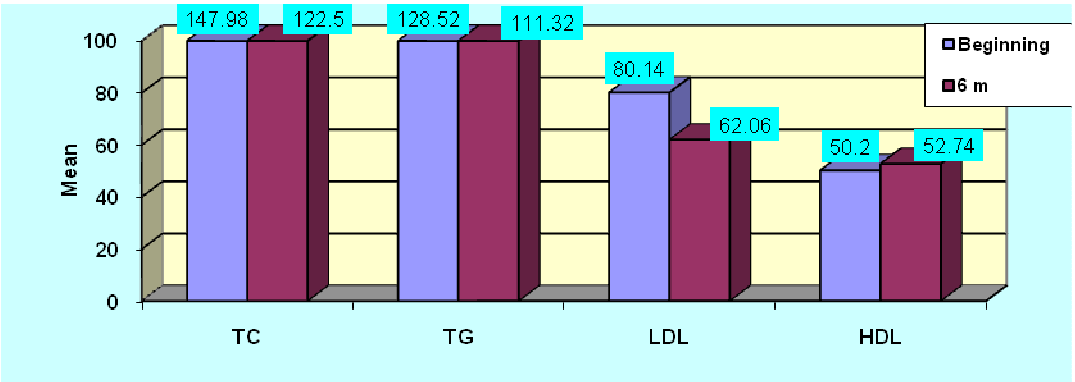

Figure (14): Lipid profile at index PCI compared with lipid profile at 6 months in patients with high follow-up HDL-C

Table (30): Lipid profile at index PCI compared with lipid profile at 6 months in patients with low follow-up HDL-C.

Variable	Group II	Mean	± SD	Student t test	p value
TC	**At the beginning**	155.7	34.73	10.36	0.001 HS
	After 6 months	129.7	20.36		
TG	**At the beginning**	141.6	21.75	10.04	0.001 HS
	After 6 months	121.54	20.08		
LDL	**At the beginning**	81.1	8.6	18.85	0.001 HS
	After 6 months	64.94	6.06		
HDL	**At the beginning**	34.6	3.99	6.95	0.001 HS
	After 6 months	37.48	3.76		

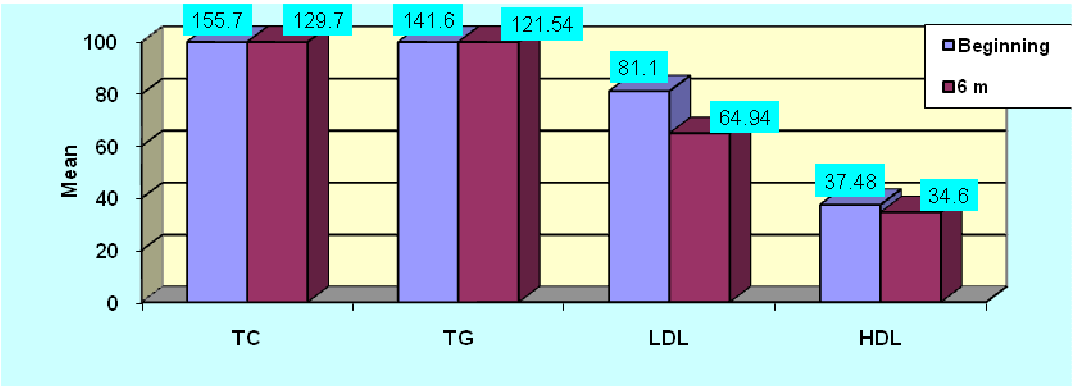

Figure (15): Lipid profile at index PCI compared with lipid profile at 6 months in patients with low follow-up HDL-C

Statin therapy reduced total cholesterol levels by 17.21 % in high HDL group and 16.69% in low HDL group, decreased TG levels by 13.38 % in high HDL group and 14.16 % in low HDL group, decreased LDL levels by 22.5 % in high HDL group and 19.8 % in low HDL group and increased HDL only by 2.54 in high HDL group and 7.68 % in low HDL group at 6 months follow up on average (tables 29 and 30) respectively.

Most study subjects 83 patients 83% (43 of 50 patients 86% in high HDL group and 40 of 50 patients 80% in low HDL group) achieved LDL-C levels ≤70 mg/dl after statin therapy.

From previous results statin trerapy alone has good effect on reducing LDL levels while it has only little effect on increasing HDL levels rendering the need of adjuvant therapy to reach goal HDL-C levels after achieving target LDL-C levels.

There were significant differences between the two groups regarding number of patients with complicatios in relation to type of stent implanted in each patient.

The incidence of complication in patients with high HDL and BMS implanted is 15.62% Vs 32.25% in patients with low HDL and BMS implanted, also there was significant difference in DES patients where incidence of complications in high HDL group is 16.67% Vs 41.67% in patients with low HDL.

Table (31): Incidence of complications in relation to type of stent in patients with low follow-up HDL-C compared with high follow-up HDL-C

Complicated cases in relation to type of stent	**High HDL**		**Low HDL**		**X^2 test**	**p value**
	No	**%**	**No**	**%**		
Complicated patients with BMS /total number of patints with BMS	5/32	15.62	10/31	32.25	7.85	0.04 S
Complicated patients with DES /total number of patints with DES	2/12	16.67	5/12	41.67		
Complicated patients with mixed BMS and DES Mixed/total number of patints with mixed BMS and DES	1/6	16.67	2/7	28.57		

There were significant differences between the two groups regarding number of patients with complicatios in relation to DM.

The incidence of complication in patients with high HDL and DM is 26.31% Vs 45.45% in patients with low HDL and DM. So incidence of complications was lower in diabetic patients with high HDL than in diabetic patients with low HDL.

Table (32): Incidence of complications in relation to DM in patients with low follow-up HDL-C compared with high follow-up HDL-C

Complicated cases & DM	High HDL		Low HDL		X2 test	P value
	No	%	No	%		
Complicated patients with DM /total number of patints with DM	5/19	26.31	10/22	45.45	11.85	0.005 HS

There were significant differences between the two groups regarding number of patients with complicatios in relation to HTN.

The incidence of complication in patients with high HDL and HTN is 15.62% Vs 32.25% in patients with low HDL and HTN. So incidence of complications was lower in hypertensive patients with high HDL than in hypertensive patients with low HDL.

Table (33): Incidence of complications in relation to HTN in patients with low follow-up HDL-C compared with high follow-up HDL-C

Complicated cases & HTN	High HDL		Low HDL		X2 test	P value
	No	%	No	%		
Complicated patients with HTN /total number of patints with HTN	5/31	16.13	11/37	29.73	6.785	0.042 S

Results

There were significant differences between the two groups regarding number of patients with complicatios in relation to smoking.

The incidence of complication in patients with high HDL and smoking is 27.27% Vs 46.66% in patients with low HDL and smoking. So incidence of complications was lower in smoker patients with high HDL than in smoker patients with low HDL.

Table (34): Incidence of complications in relation to smoking in patients with low follow-up HDL-C compared with high follow-up HDL-C

Complicated cases & smoking	High HDL		Low HDL		X2 test	P value
	No	%	No	%		
Complicated smoker patients /total number of smoker patints	3/11	27.27	7/15	46.66	10.85	0.01 S