Results

Our study included fifty five consecutive patients, selected according to strict inclusion and exclusion criteria with eighty five lesions, who were enrolled in this study after a successful PCI with BMS implantation to one or more of the coronary vessels.

Patients were divided into two groups according to IDF criteria into metabolic patients were referred to as group I and included 30 patients and non-metabolic patients were referred to as group II and included 25 patients.

-Goup I was classified according to ISR into ;
Group A (ISR)
Group B (patent)

A-RISK FACTORS

Table (3): the base line of risk factors including Age ,sex, Smoking ,FH, DM, TG ,HDL,.HTN ,WC

Risk factor	Yes n(%)	No n(%)	X^2	*p* value
Family history			0.69	**0.42 (NS)**
Group I	9 (30)	21 (70)		
Group II	11 (44)	14 (56)		
Smoking			0.44	**0.5 (NS)**
Group I	13 (43.3)	17 (56.6)		
Group II	14 (56)	11 (44)		
Sex	**Male n(%)**	**Female n(%)**	X^2	*p* value
Group I	27 (90)	3 (10)	1.06	**0.3 (NS)**
Group II	19 (76)	6 (24)		
Risk factor	**Range**	**mean±SD**	**t**	*p* value
Age			1.31	**0.19 (NS)**
Group I	57-69	54.6±3.9		
Group II	44-61	53±5.1		
HDL			2.27	**0.02 (S)***
Group I	29-60	44.1±11.6		
Group II	29-60	51.4±12.2		
Triglyceride			2.02	**0.04 (S)***
Group I	110-380	199.4±56.1		
Group II	100-320	169.8±51.5		
FBS			2.54	**0.01 (S)***
Group I	80-300	179±71.6		
Group II	80-300	132.5±61.9		
WC			6.92	**0.0001 (S)***
Group I	100-120	108±6.7		
Group II	80-120	91.5±10.8		
DBP			0.97	**0.33 (NS)**
Group I	70-100	87.5±10.2		
Group II	70-100	90.2±10.2		
SBP			0.56	**0.57 NS)**
Group I	110-180	143±19.5		
Group II	110-165	140.2±16.5		

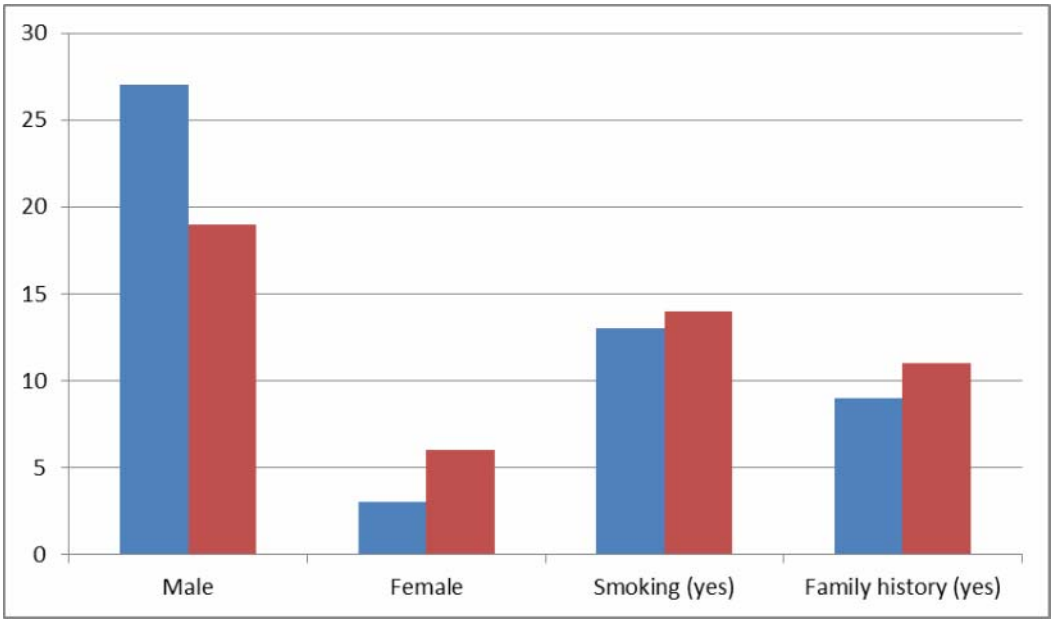


Figure (2) Sex, smoking and family history as risk factors

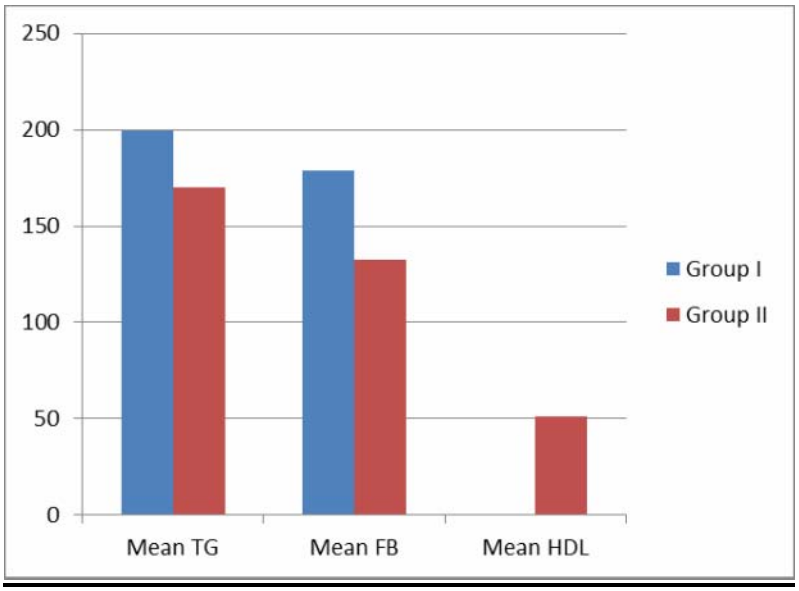


Figure (3) TG, FBS and HDL as risk factors.

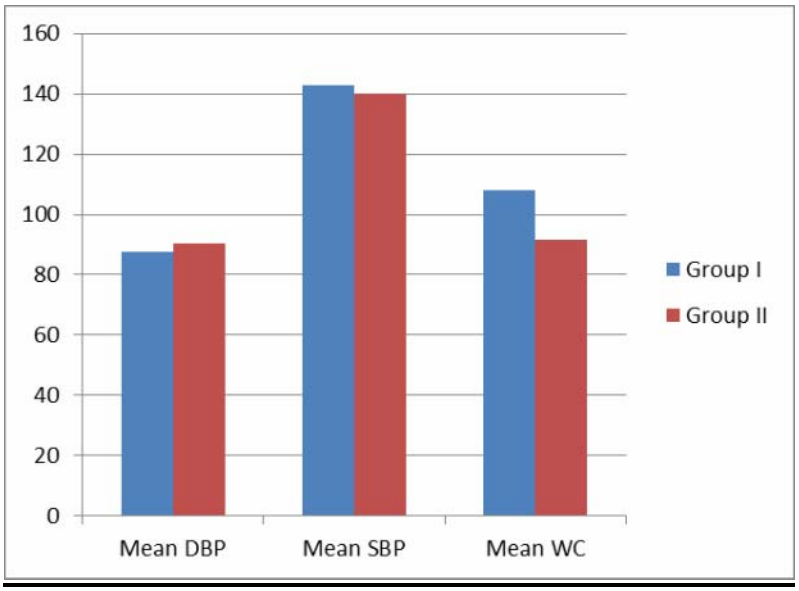


Figure (4): DBP, SBP & WC as risk factors

- Table (3) illustrates the family history is higher in group II(44%) than group I (30%) with no statistically significant difference.
- Smoking is higher at group II (56%) than group I (44%) with no statistically significant difference.
- Age is more higher at group I (54±3.9) than group II (53.4±5.1) with no statistically significant difference.
- Waist circumference was higher at group I (108±6.7) than group II (91.5±10.8) with statistically significant difference between.
- Males were more at group I (90%) than group I (76%) with no statistically significant difference between.
- GroupII is more hypertensive than group I with no statistically significant difference between.

Table (4): Comparison between male and female of both groups as regards to WC & Age

	WC (mean±SD)				Age (mean±SD)			
	M	**F**	**t**	***P* value**	**M**	**F**	**t**	**p value**
Group I	108.67±6.8	105±5	0.9	**0.3 (NS)**	52.25±3.85	53.66±1.53	0.62	**0.53 (NS)**
Group II	91.10±9.21	94.17±15.63	0.606	**0.54 (NS)**	53.32±5.07	53±5.73	0.120	**0.32 (NS)**

Table(4) shows that mean waist circumference of female patients was more that of male patients at group I, and the difference was statistically non significant, also in group II the mean waist circumference was higher at females than males and also the difference was statistically non significant .

The mean age of female patients was more than the mean age of male patients of group I and the difference was statistically non significant, while the mean age of male and female patients of group II was almost the same and the difference was statistically non significant.

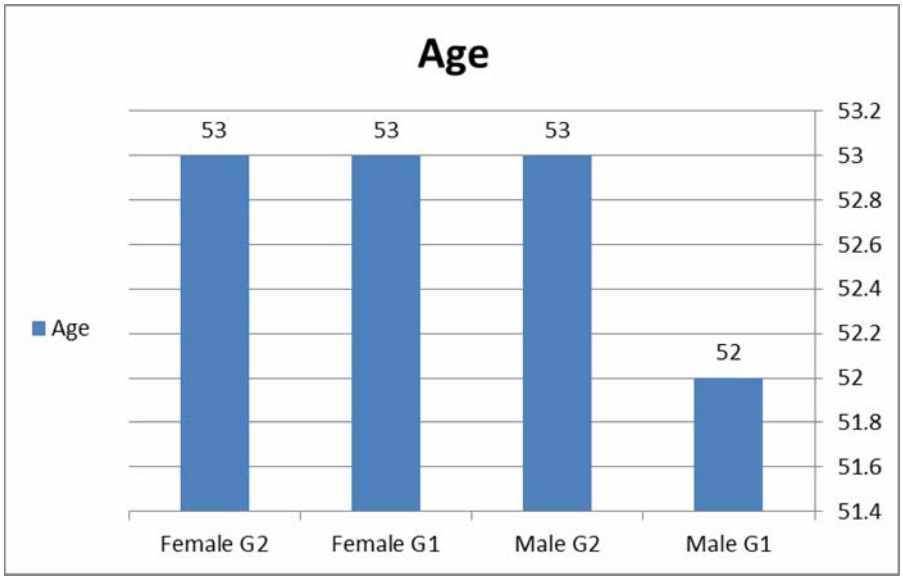


Figure (5): Comparison between male and female of both groups as regards to Age

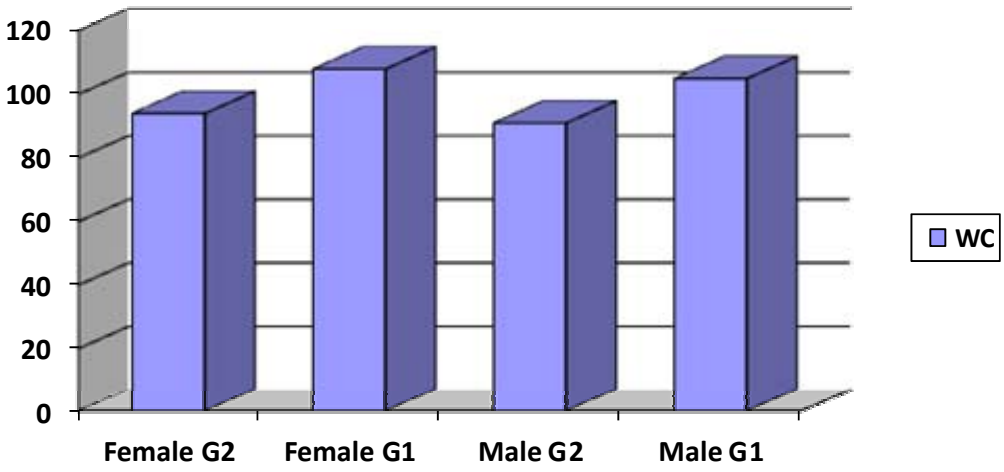


Figure (6): Comparison between male and female of both groups as regards to WC

B- Procedural Details:

Table 5: **As reguard to the Number of affected vessels among the studied groups**

	Group I n(%)	Group II n(%)	X^2	*p* value
One vessel	18 (60)	14 (56)	0.001	**0.9 (NS)**
Two vessels	6 (20)	10 (40)	1.76	**0.18 (NS)**
Three vessels	6 (20)	1 (4)	1.86	**0.17 (NS)**

Table (5) illustrates that number of affected vessels was higher among Group I than Group II with statistically no significant difference between.

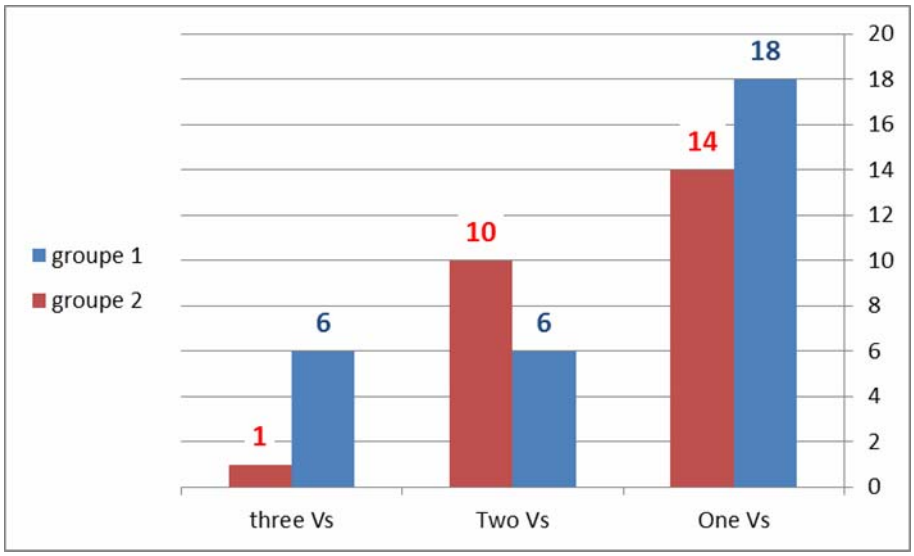


Figure (7): Number of affected vessels in the studied groups.

Table 6: **As regard the type of the affected vessels, among the study groups.**

	Group I N(%)	Group II N(%)	X^2	p value
LAD	22 (57.9)	25 (53)	0.046	**0.8 (NS)**
RCA	11 (28.9)	9 (19.1)	0.64	**0.4 (NS)**
LCX	5 (13.2)	13 (27.7)	1.85	**0.17 (NS)**

Table (6): illustrates that RCA(28.9%), LAD(57.9%) more affected in Group II more than Group I ,RCA(19.1%) ,LAD(53%)with statistically no significant difference between. LCX more affected in Group I(27.7%) more than in Group II(13.2%) with statistically significant difference between.

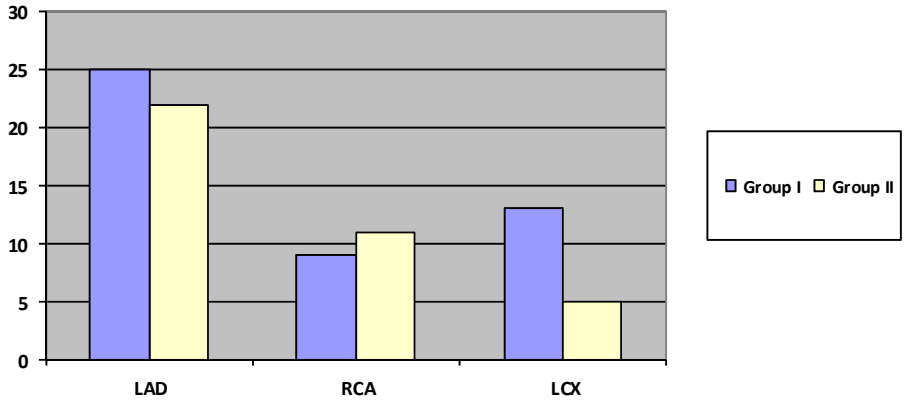


Figure (8): as regard the type of the affected vessels, among the study groups.

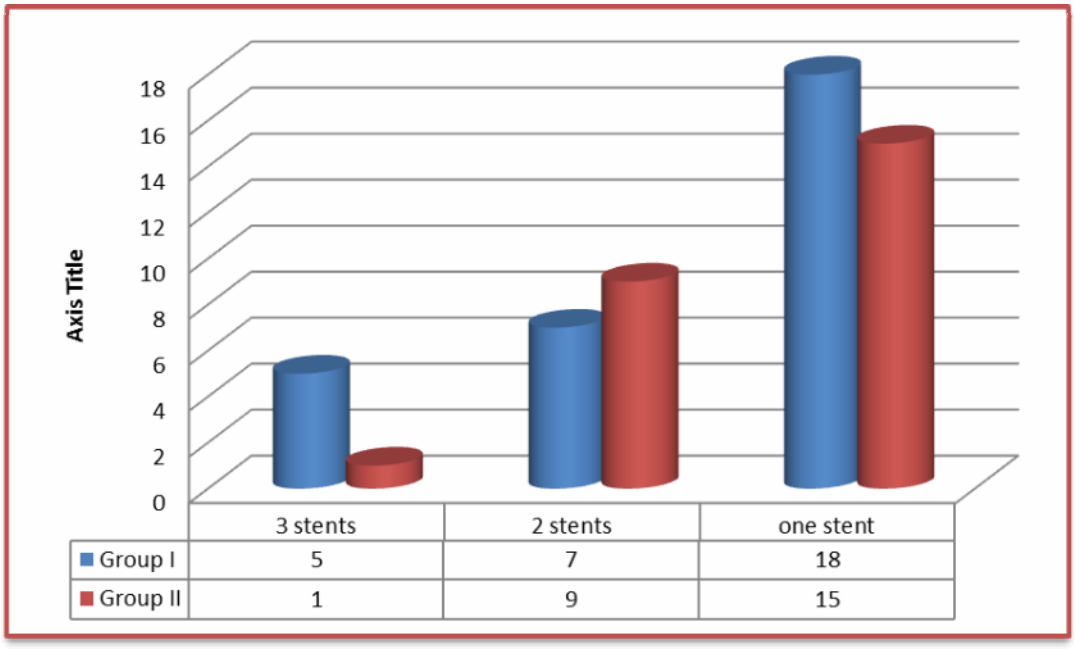


Figure (9): Number of stents in the two studied groups

Table (7) the number of stents in the study groups

No.stents	Group I		Group II		p
	No.Patients	%	No.Patient	%	

1	18	60%	15	60%	**NS**
2	7	23%	9	36%	**<0.05**
3	5	17%	1	4%	**<0.05**

Table (9): Number of stents in the two studied groups

Table 8: As regard to the mean of stent diameter and length

	Group I	Group II	t	p value
Diameter	3±0.3	2.9±0.9	0.572	0.5 (NS)
Length	21.9±5.6	19.1±5.8	1.81	0.07 (NS)

This table illustrate that the mean of stent diameter (3±.3) at group I is more higher than group II (2.9±0.9) with no statistically significant difference. Also, the mean of stent length of group I (21.9±5.6) is more higher than group II(19.1±5.8) with no statistically significant difference.

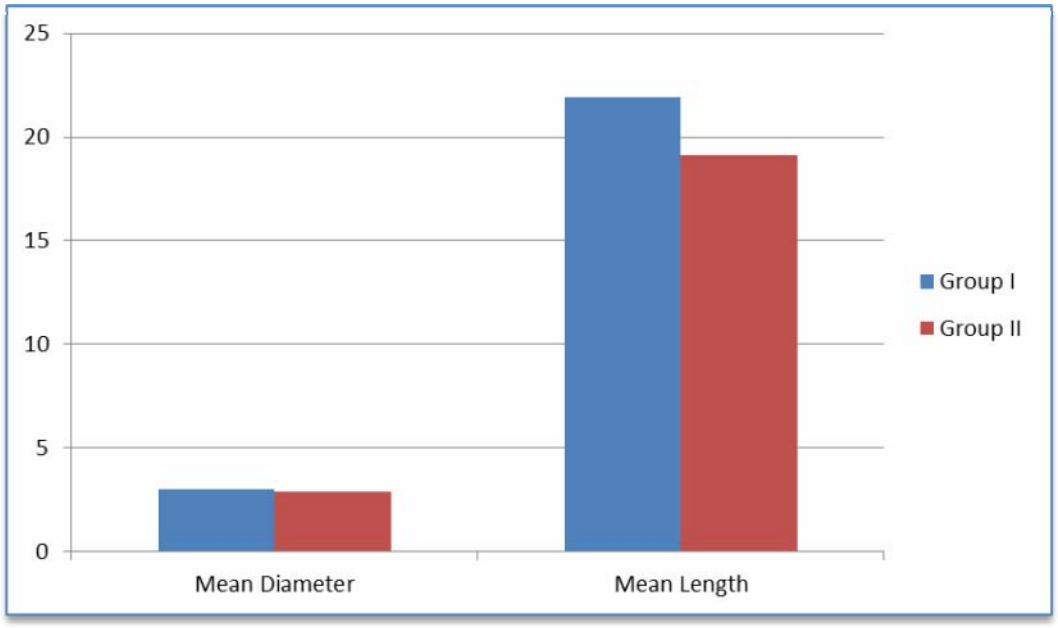


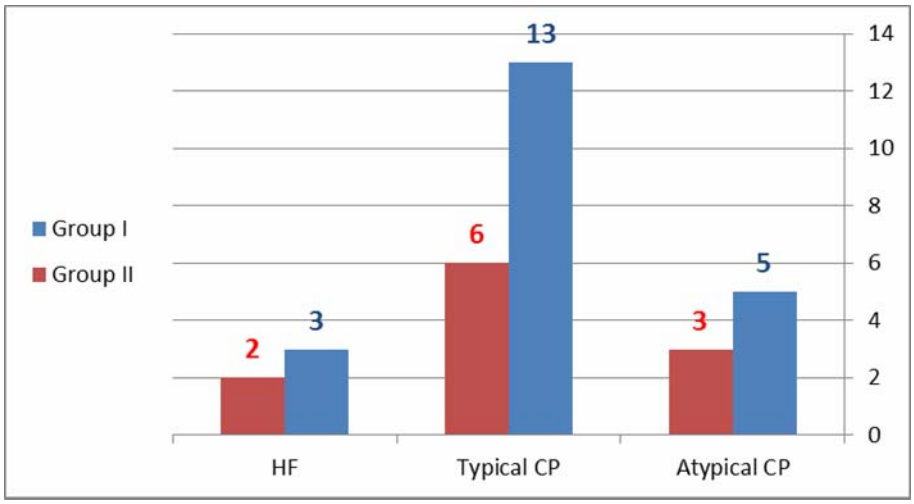
Figure (10): Comparison between group I & II regarding to the mean of diameter and length of stent

C- Clinical follow up for MACE(major adverse cardiovascular event)

Table(9): As regard the developed typical and atypical chest pain and heart failure

	Group 1		Group 2		P value
	Yes	No	Yes	No	
Typical CP	13 (43)	17 (60)	6 (24)	19 (76)	0.22 (NS)
Atypical CP	5 (20)	25 (80)	3 (12)	22 (88)	0.91 (NS)
HF	3 (10)	27 (90)	2 (8)	23 (92)	0.79 (NS)

Table (9) illustrate that patients who developed atypical chest pain were higher (80%) in group II than group I (20%), and the patient who devoleped typical chest pain were more in groupI (43%) than groupie (24%) while the patint who devoleped heart failure were more in group I(10%) than group II (8%), but the difference was statistically non significant.



Figure(11): As regard the developed typical and atypical chest pain and heart failure

D- Follow-Up Coronary Angiography:

Table(10) : As reguard The number of patent stents and number of in-stent re-stenosis (and percent per stent) among the study groups

	Group I N (%)	Group II N (%)	X^2	*p* value
Patent	34 (74%)	32 (84%)	3.02	0.08 (NS)
ISR	13 (26%)	6 (16%)	0.68	0.4 (NS)

The percentage of ISR at group I (26%) wa s higher than group II (16%) with no statistically significant difference between both groups.

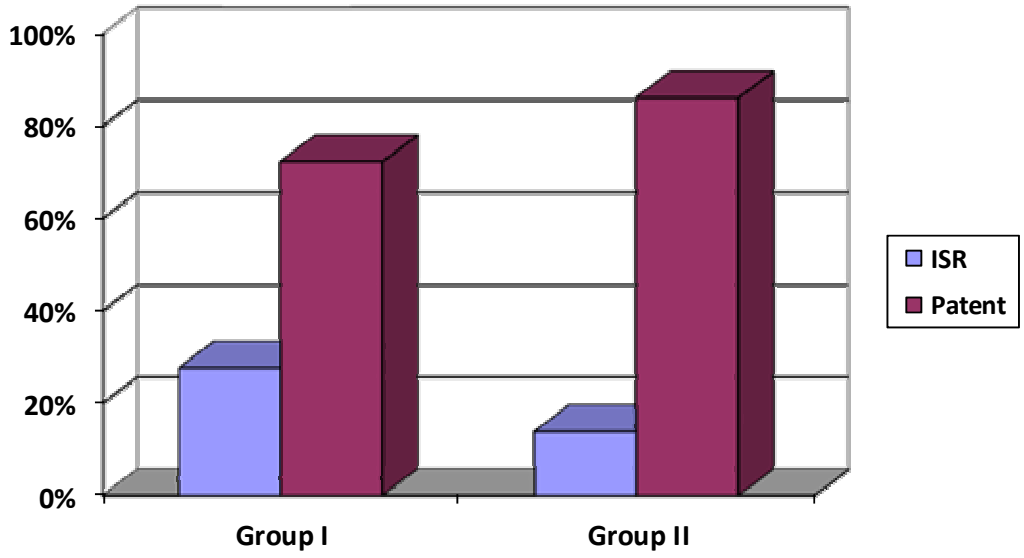


Figure (2): As reguard the number of patent stents and number of in-stent re-stenosis (and percent per stent) among the study groups

E- Risk factors of each studied group

Table(11): FBS, TG, and HDL differences between patent & ISR among the study groups.

	G A(ISR) x ± SD	G B(patant) x ± SD	t	P
FBS	150.8 ± 65.7	160.1 ± 72.8	0.45	0.66 (NS)
TG	220.8 ± 108.9	175.1 ± 52.3	2.1	0.04 (S)*
HDL	40.4 ± 12.2	50.2 ± 11.7	2.73	0.008 (S)*

Table(15) illustrate that The mean(X) ± SD of FBS among the study group is more at patent stents (160±72.8) than at ISR (150±65, 7) with no statistically significant difference.

The mean TG among the study groups is more at ISR (220±108.9) than patent stents with a statistically significant difference.

The mean of HDL among the study groups is lower at ISR (40±12.2) than patent stents (50.2±11,7) with a statistically significant difference.

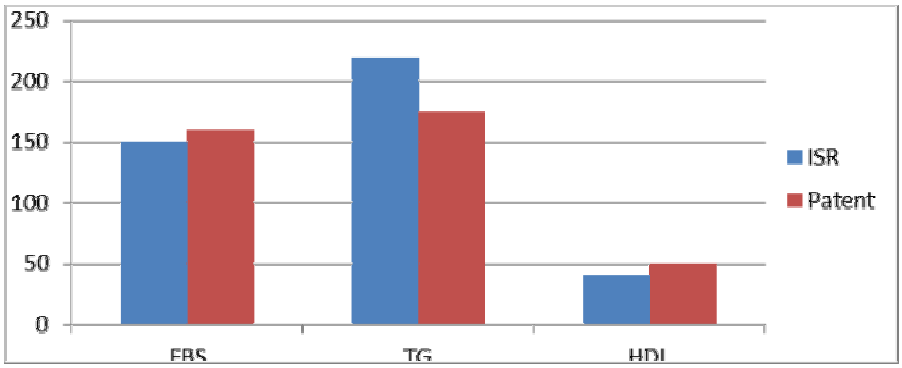


Figure (13): FBS, TG, and HDL differences between patent & ISR among the study groups.

Table (12): Risk factors of group I patients with patent and ISR

	Patent (n=34)	ISR (n=13)	t	p value
Age Range mean±SD	 47-58 51.61±2.92	 49-60 54.77±4.29	2.35	0.02 (S)*
WC Range mean±SD	 100-120 106.85±6.44	 100-120 111.66±6.26	1.88	0.06 (NS)
FBS Range mean±SD	 80-300 187.85±71.42	 80-300 159.33±72.19	0.99	0.32 (NS)
TG Range mean±SD	 130-300 173.57±36.78	 150-400 287.77±84.37	5.23	0.0001 (S)*
HDL Range mean±SD	 30-70 54.52±9.6	 29-70 42.33±13	2.86	0.007 (S)*
Sex Male Female	 19 2	 8 1	0.018	0.8 (NS)
Family history Yes No	 10 11	 4 5	0.026	0.8 (NS)
Smoking Yes No	 6 15	 5 4	0.98	0.32 (NS)

This table(12) shows risk factor differences between patients with patent and ISR of group I. Statistically significant differences were found as reguard to age , triglyceride and HDL. Other factors show no significant difference. .

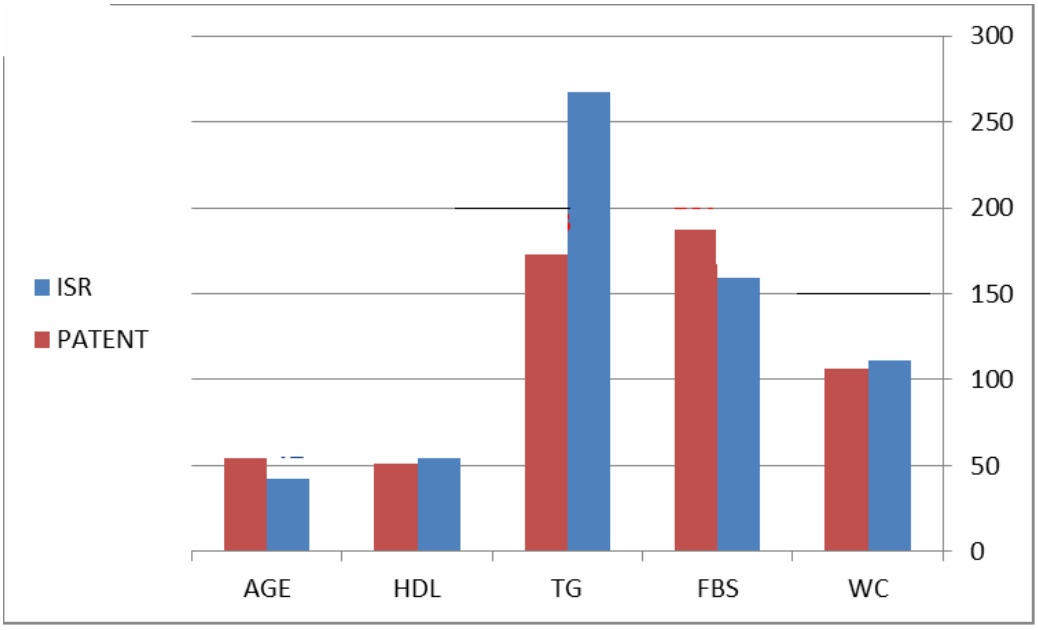


Figure (14): Age,HDL,TG,FBS,WC of group I with patent and ISR

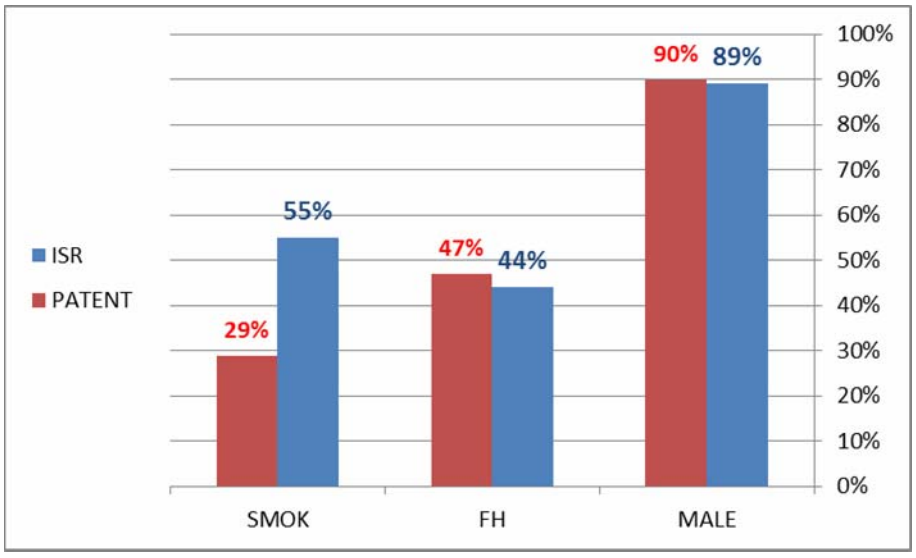


Figure (15): Smoking,FH and Male of group I with patent and ISR

F- Multiple regression of risk factors in ISR group I patients:

Table 13: Multiple regression of risk factors in ISR group I patients. Significant relation between each of age, waist circumference and TG levels, and ISR %.

Regression Statistics	
Multiple R	0.97
R Square	0.95
Adjusted R Square	0.88
Standard Error	5.25
Observations	

	F	Significance
Regression	13.86	0.02 (S)*

	Coefficients	t Stat	P-value
Age	2.8	5.72	0.01 (S)*
WC	1.83	3.9	0.02 (S)*
FBS	-0.01	-0.25	0.8
TG	-0.12	-3.18	0.05 (S)*
HDL	-0.14	-0.577	0.6

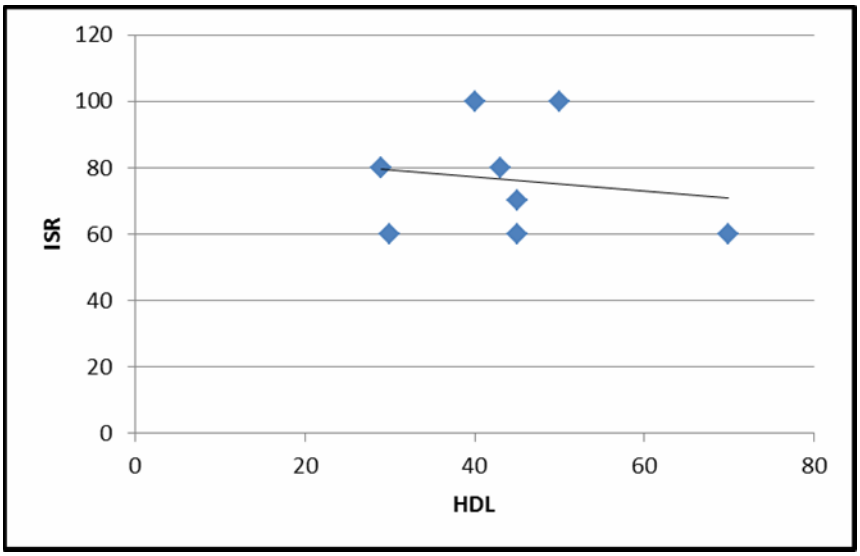


Figure (16): Linear regression between ISR % and HDL

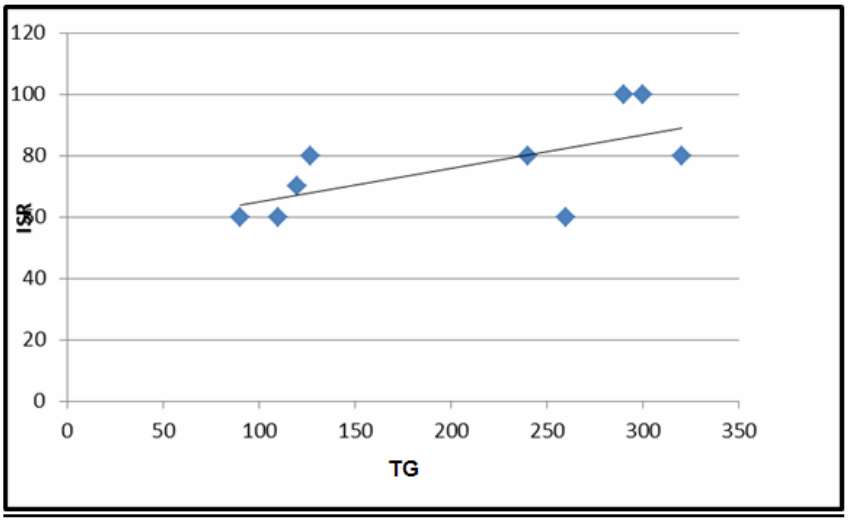


Figure (17): Linear regression between TG level & ISR %

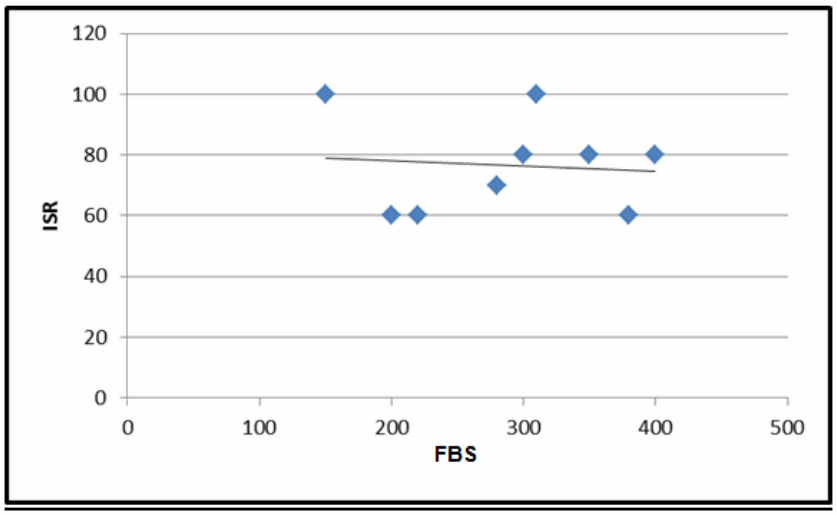
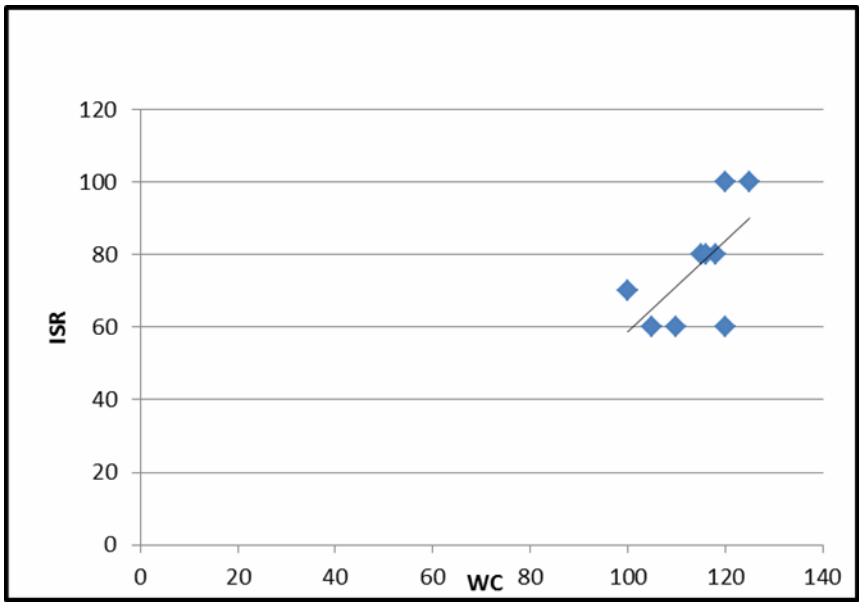


Figure (18): Linear regression between FBS level & ISR %



Figure(19): Linear regression between WC & ISR %

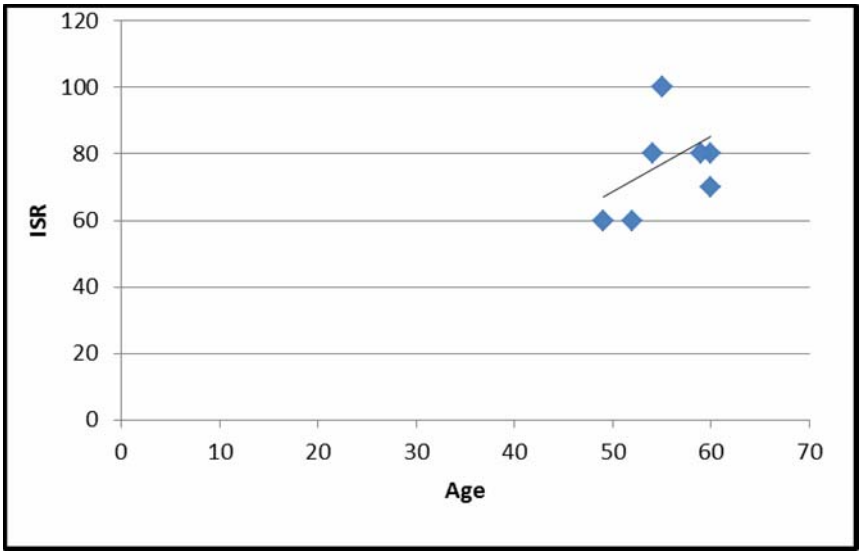


Figure (20): Linear regression between age & ISR %