RESULTS

Table (2) Show $\bar{X}$±SD of personal variables among the studied groups.

Study groups / Variables	Splenectomized n=15 $\bar{X}$ ±SD	Non splenectomized n=15 $\bar{X}$±SD	T	P
Age	**10.8± 0.9**	**11.3± 0.7**	**1.7**	**>0.05**
Weight	**29.9± 5.9**	**28.3± 5.7**	**0.76**	**>0.05**
Height	**130± 9.1**	**125.7± 13.9**	**1.07**	**>0.05**
Head circum	**52.1± 1.7**	**51± 2.3**	**1.49**	**>0.05**

Regarding age of the study groups it was found that mean age in splenectomized groups was (10.8±0.9) while mean age in non splenectomized groups were(11.3± 0.7).Concerning Weight, Height and Head circumference of the study groups it was found that in splenectomized groups the mean of Weight was (29.9±5.9),mean of Height was(130±9.1) and mean of Head circumference was (52.1±1.7) while in non splenectomized groups the mean of Weight was(28.3±5.7),mean of Height was (125.7±13.9) and the mean of Head circumference was (51±2.3).there was statistically non significant difference between the two groups as regard these variables.

Figure (12): mean of Height and Head circumference of the study groups

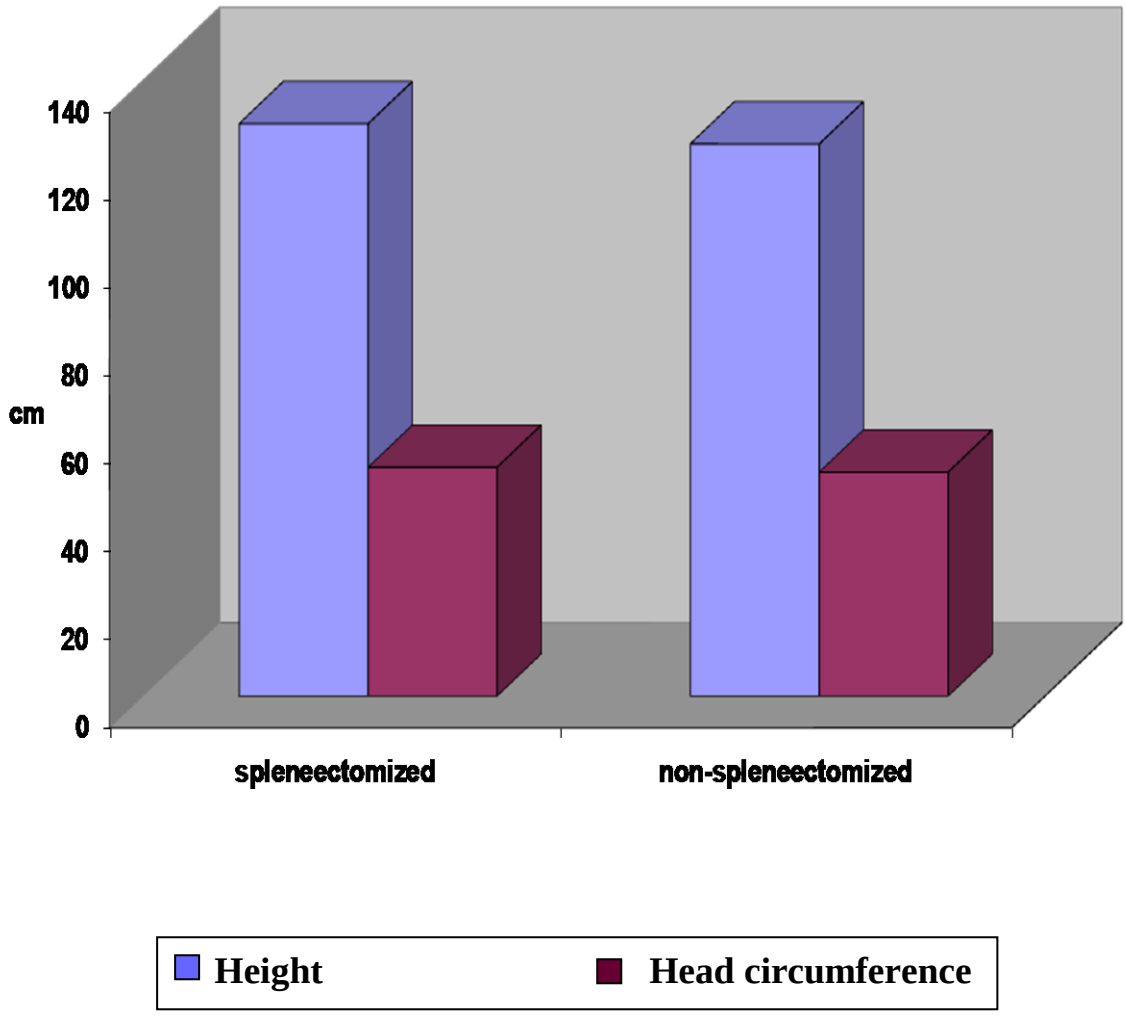


Table (3) Distribution of the study groups according to sex

Sex / Study Groups	Males		Females		Total	
	No	%	No	%	No	%
Splenectomized	6	40.0	9	60.0	15	100.0
Non splenectomized	7	46.7	8	53.3	15	100.0
Total	13	43.3	17	56.7	30	100.0

Chisquare (X^2) =0.136 P>0.05

The present study included 30 cases with thalassemia major; 13 cases out of 30 cases (43.3%) were males of them 6 cases (40%) were splenectomized and 7 cases (46.7%) were non splenectomized .17 cases out of 30 cases (56.7%) were females of them 9 cases (60%) were splenectomized and 8 cases (53.3%) were non splenectomized .There was statistically non significant difference between two groups as regard sex.

Figure (13): Distriubtion of the study groups according to sex

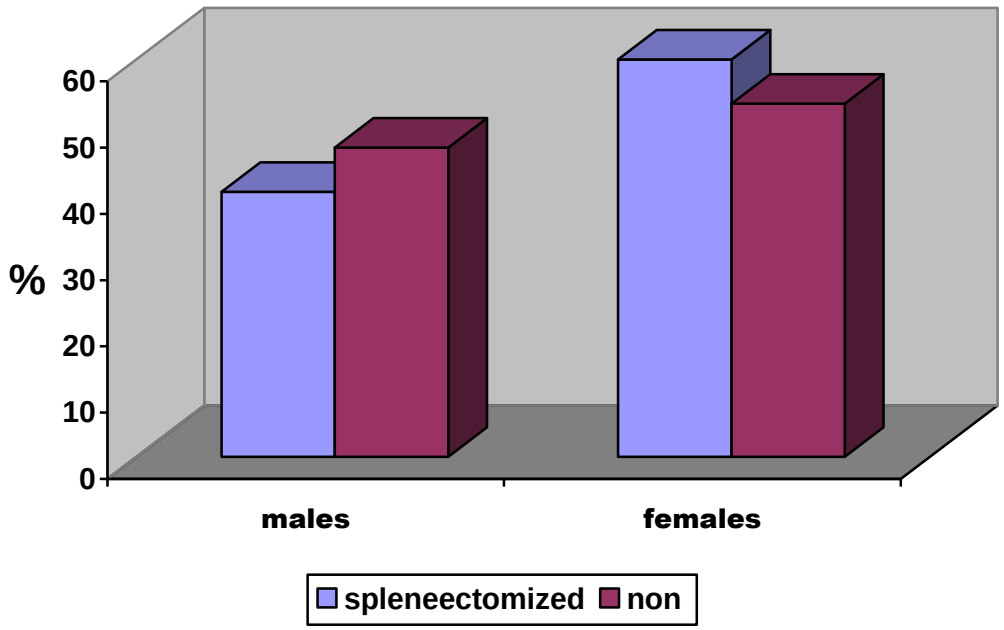


Table (4) Show X^{-}±SD of Electrophoresis variables among the study groups.

Study groups / Electro Phoresis	Splenectomized (n=15) X^{-}± SD	Non Splenectomized (n=15) X^{-} ±SD	T	P
HbF	29.3±27.1	42.2±27	1.31	>0.05
HbA1	67.2±27.7	54.7±26.8	1.26	>0.05
HbA2	3.5±1.6	3.04±0.6	1.04	>0.05

Regading Hb electrophoresis of the study groups it was found that the mean of HbF, HbA1 and HbA2 were (29.3±27.1),(67.2±27.7) and (3.5±1.6) in splenectomized groups while in non splenectomized groups the mean of HbF ,HbA1 and HbA2 were (42.2±27),(54.7±26.8) and (3.04±0.6). There was statistically non significant difference between two groups as regard Hb electrophoresis.

Figure (14): means of HB electrophoresis variables of the study groups

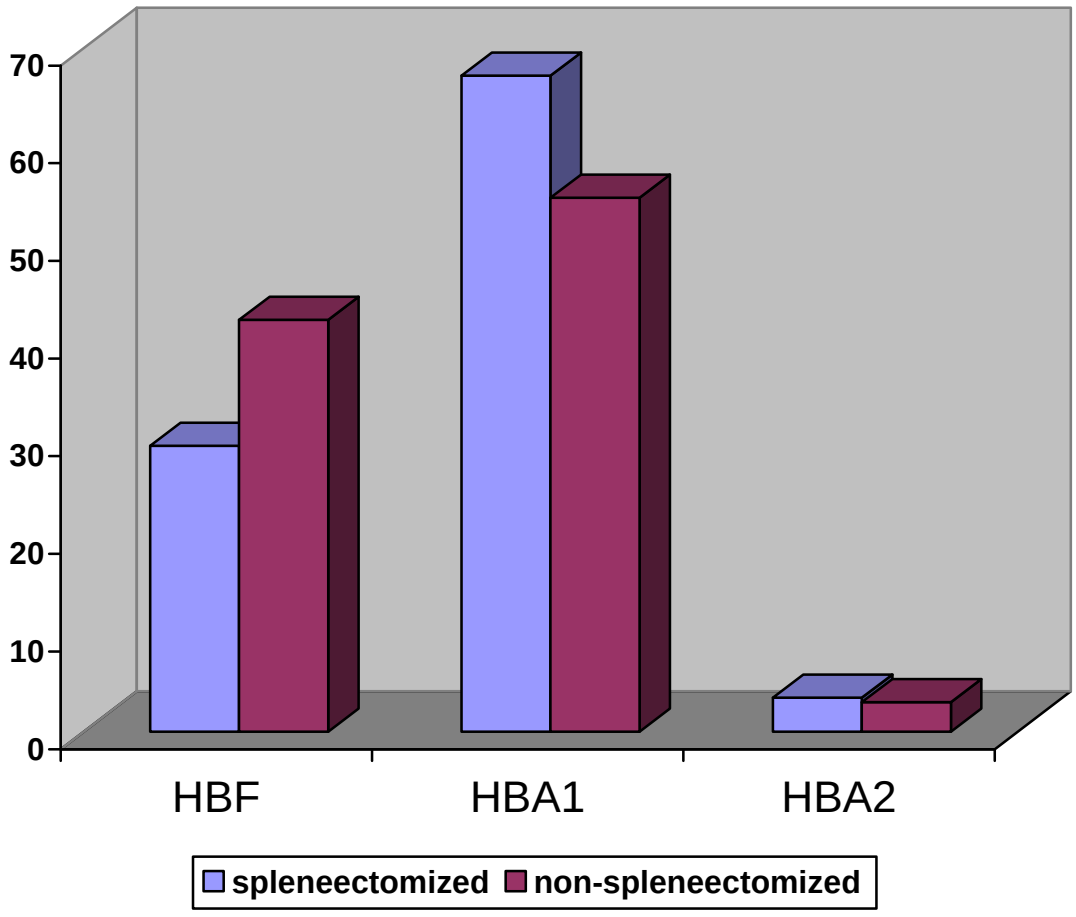


Table (5) shows X^{-}±SD of CBC among the study groups.

Study groups / CBC	Splenectomized (n=15) X^{-}± SD	Non Splenectomized (n=15) X^{-}± SD	T	P
Hb	**7.1±0.9**	**7.2 ±1.1**	**0.27**	**>0.05**
Hct	**19.8±7.7**	**21.4±3.5**	**0.73**	**>0.05**
RBCs	**4.9±6.2**	**2.9±0.6**	**1.24**	**>0.05**
MCV	**74.8±5.3**	**71.6±6.4**	**1.49**	**>0.05**
MCH	**25.6±2.1**	**24.8±3.3**	**0.79**	**>0.05**
MCHC	**31. ±63.5**	**32.6±2.9**	**0.85**	**>0.05**
RDW	**23.5±3.3**	**21.8 ±4.9**	**1.12**	**>0.05**

Regading CBC of the study groups it was found that no statistically different between the two groups .They have high RDW with mean of (23.5±3.3)in splenectomized groups while in non splenectomized the mean was of (21.8±4.9).They also have low Hb level,Hct value,RBCs count,MCHC,MCV,MCH.in both groups.

FIGURE (15) means of CBC of the study groups

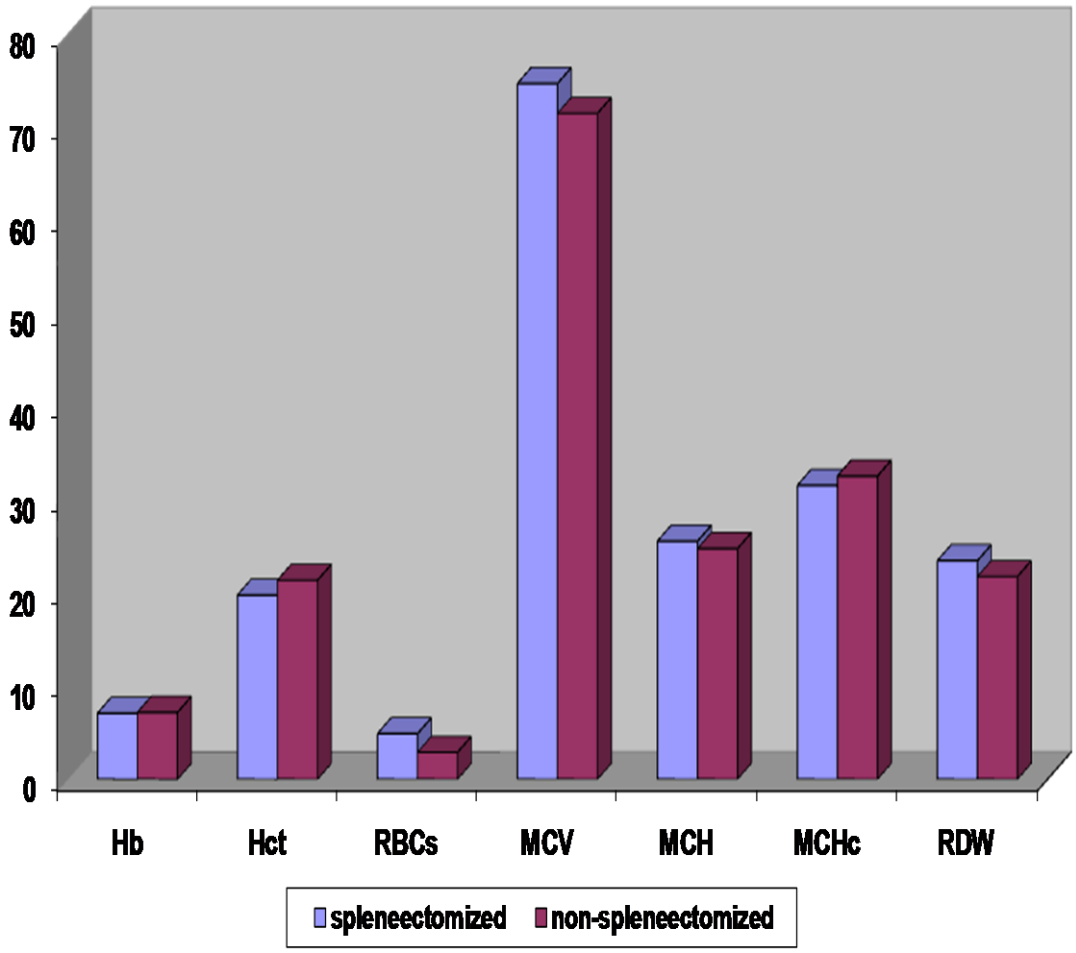


Table (6) shows $\bar{X}$ ± SD of different laboratory variables among the study groups.

Study group / Variable	Splenectomized (n=15) $\bar{X}$ ± SD	Non splenectomized (n=15) $\bar{X}$ ± SD	T	P
Ferritin	3882.1± 2246.1	3880.1± 1871.2	0.003	>0.05
T.serumbilirubin	2.2± 0.9	1.99 ± 0.5	0.79	>0.05
ALT	73.6± 80.5	66.3± 56.8	0.29	>0.05
AST	79.7± 64.9	77.7 ± 82.9	0.07	>0.05
Serum creatinin	0.6± 0.4	0.7 ± 0.5	0.6	>0.05
Blood suger	157.2± 65.9	156.5± 43.2	0.034	>0.05
Retics	3.1± 1.8	3.2± 1.8	0.15	>0.05

Regarding serum ferritin in both groups,it was very high with the mean of (3882.1± 2246.1)in splenectomized groups while in non splenectomized the mean was of (3880.1± 1871.2) .They have high Retics count ,Random blood suger,Liver function test and total serum bilirubin with normal renal function testes.With no statistically different between the two groups.

FIGURE (16) means of different variables of the study groups

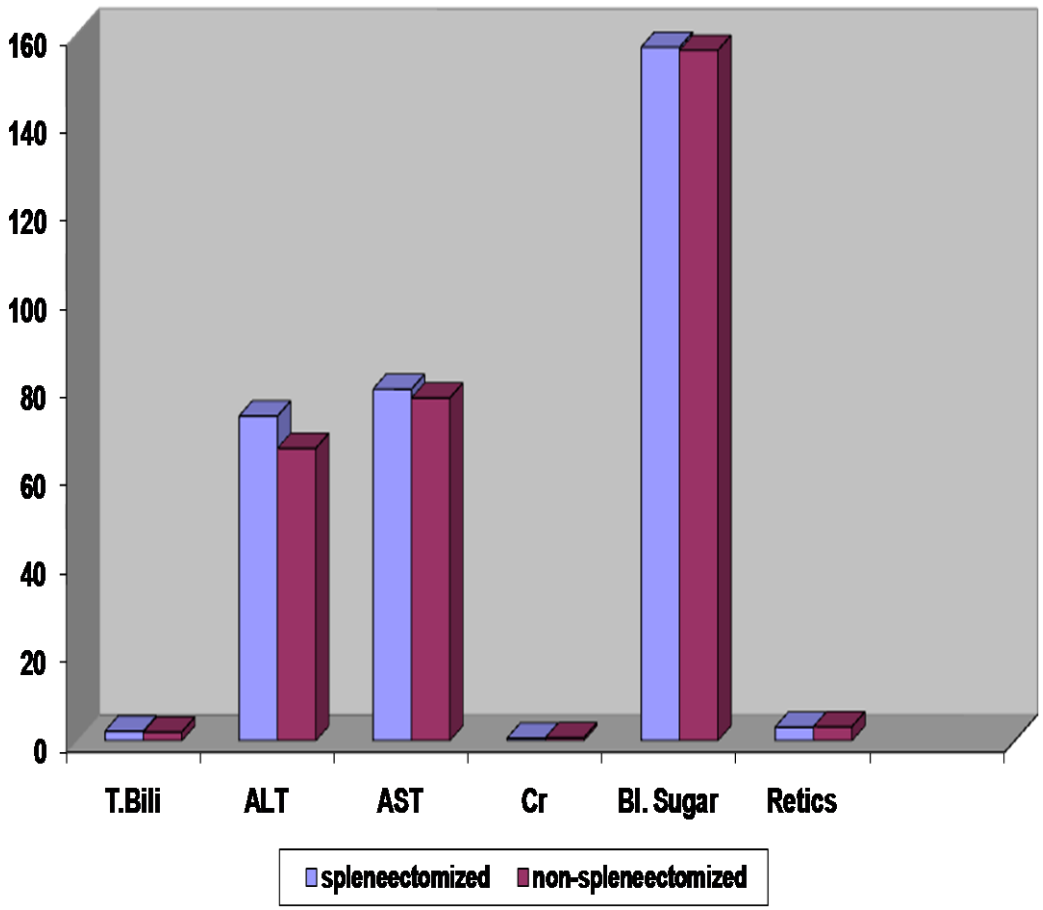


Table (7) show X^{-} ± SD of Echo parameters.

Study group / Echo parameters	Splenectomized (n=15) X^{-} ± SD	Non splenectomized (n=15) X^{-} ± SD	T	P
IVSD	0.7± 0.2	0.58 ± 0.1	2.08	<0.05
LVDD	4.4 ± 0.4	4.3 ± 0.5	0.61	>0.05
IVSS	1.04 ± 0.26	0.85± 0.18	2.33	<0.05
LVSD	2.9± 0.3	2.8± 0.3	0.91	>0.05
LVPWT	1.15 ± 0.3	1.1± 0.2	0.54	>0.05
Ao root	2.25± 0.3	2.3± 0.1	0.61	>0.05
LA	2.5 ± 0.6	2.3 ±0.6	0.91	>0.05
FS	35.7± 4.8	33.9± 4.7	1.04	>0.05
E\A ratio	2 ± 0.6	1.6± 0.4	2.15	<0.05
PHT	34.2 ± 6.2	23.1± 9.7	3.73	<0.05

Regarding Echocardiographic findings (M-mode, 2-D and Pulsed Doppler) in both groups,it was found that the ventricular septal thickness in both diastole (0.7±0.2,P<0.05)versus (0.58±0.1cm),and systole (1.04±0.26 versus 0.85±0.18 mm) was significantly higher in splenectomized patients than non splenectomized patients. There was no significant difference between two groups regarding left ventricular post wall thickness, left ventricular dimension in diastole and systole, aortic root diameter, and left atrial diameter. Left ventricular systolic function shows no difference regarding fraction shortening between the two groups. The mitral valve E/A ratio was significantly higher in splenectomized groups than non splenectomized groups (2±0.6 versus 1.6±0.4, P<0.05). The PAP was higher with marked significance in splenectomized than non splenectomized groups (34.2±6.2 versus 23.1±9.7 mmHg, P<0.05).

Figure (17): means of ECHO variables of the study groups

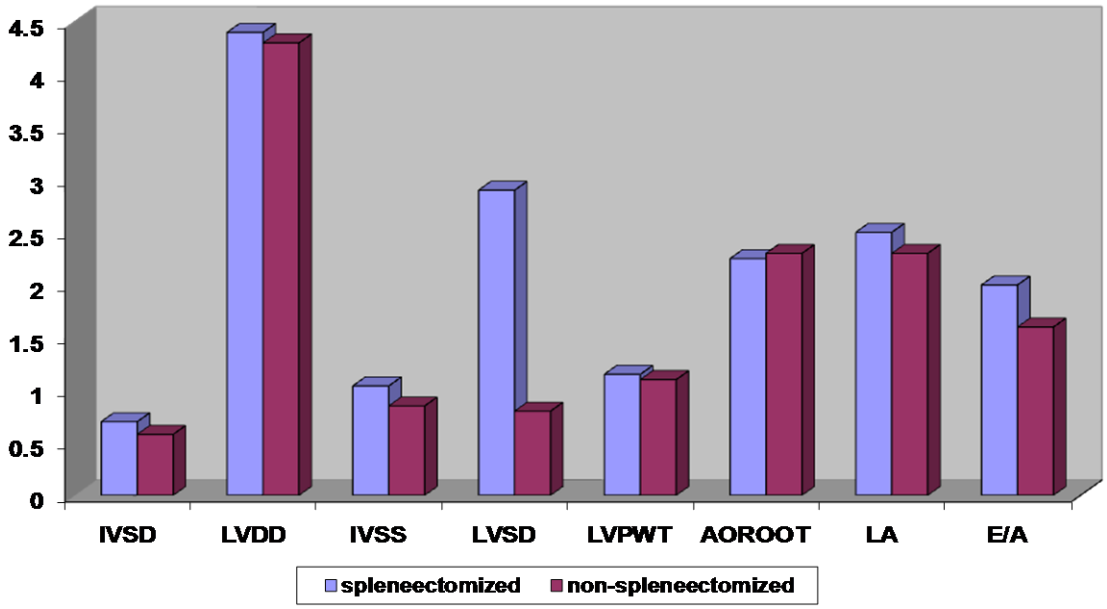


Figure (18): means of ECHO variables (FS and PHT) of the study groups

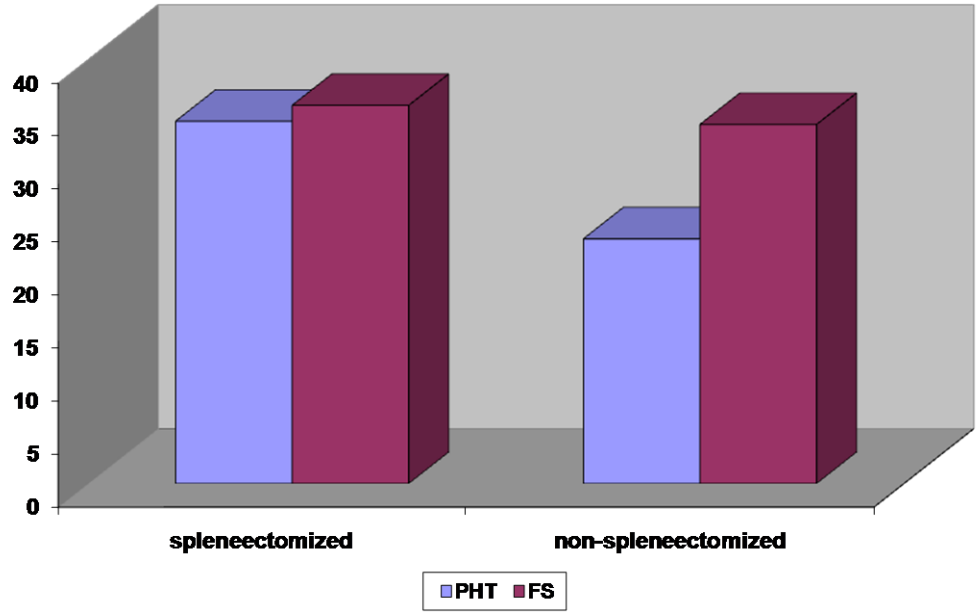


Table (8) Show distribution of thalassemic feature among the study groups.

Thalassemic features / Study Group	_Ve		+Ve		Total	
	No	%	No	%	No	%
Splenectomized	5	33.3	10	66.7	15	100.0
Non splenectomized	8	53.3	7	46.7	15	100.0
Total	13	43.3	17	56.7	30	100.0

$X^2=1.22$ P>0.05

Figure (19): distribution of thalassemic features among the study groups

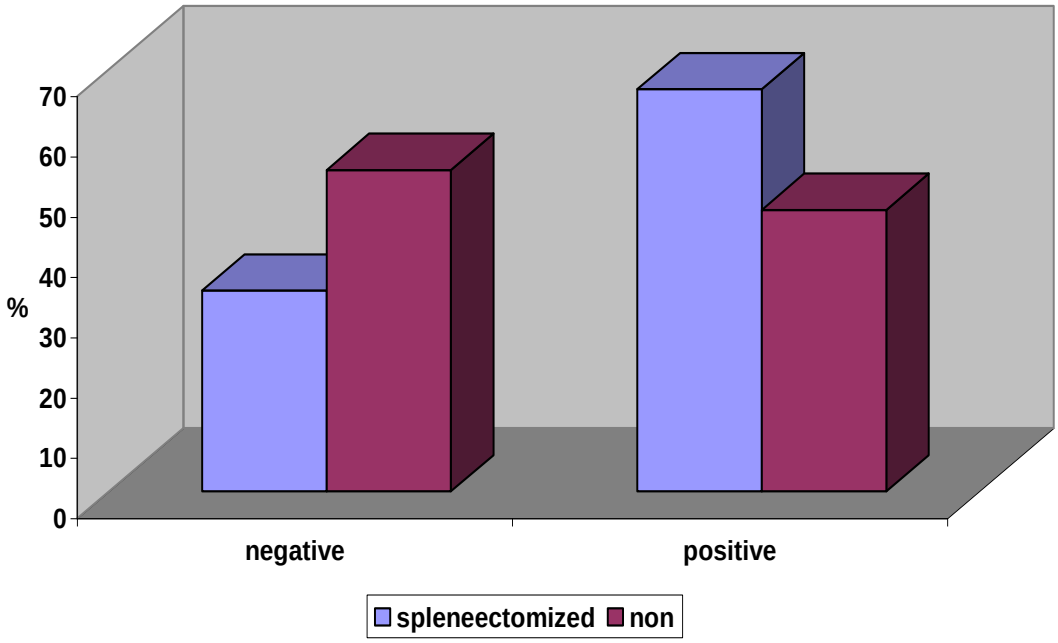


Table (9) Show distribution of consanguinity among the study groups.

Consanguinity / Study Groups	-Ve		+Ve		Total	
	NO	%	NO	%	NO	%
Splenectomized	9	60.0	6	40.0	15	100.0
NonSplenectomized	14	93.3	1	6.7	15	100.0
Total	23	76.7	7	23.3	30	100.0

Adjusted X^2=2.98 P>0.05

Regarding consanguinity in the studied cases ,it was found that 23 cases out of 30 cases (76.7%) show negative consanguinity of them 9 cases (60%)were splenectomized and 14 cases (93.3%) were non splenectomized .7 cases out of 30 cases (23.3%)show positive consanguinity of them 6 cases (40%) were splenectomized and 1 case (6.7%) was non splenectomized . There was statistically non significant difference between two groups as regard consanguinity.

Figure (20): distribution of consanguinty among the study groups

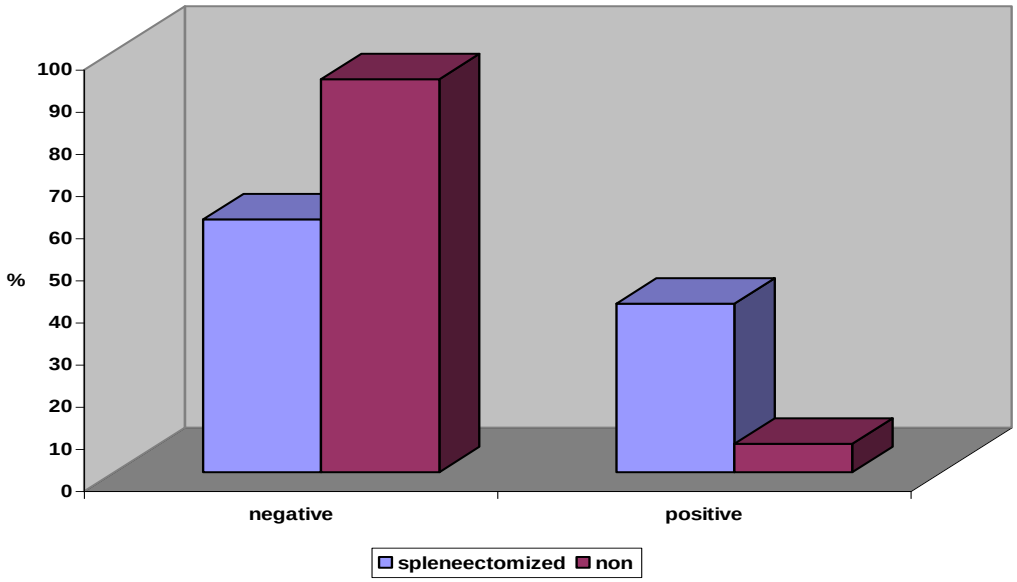


Table (10) Show distribution of family history among the study groups.

Family history / Study Groups	-Ve		+Ve		Total	
	NO	%	NO	%	NO	%
Splenectomized	7	46.7	8	53.3	15	100.0
Non Splenectomized	13	86.7	2	13.3	15	100.0
Total	20	66.7	10	33.3	30	100.0

Adjusted X^2=3.75 P<0.05

Regarding family history in the studied groups,it was found that 20 cases out of 30 cases (66.7%) show negative family history of them 7 cases(46.6%)were splenectomized and 13 cases (86.7%) were non splenectomized.10 cases out of 30 cases (33.3%) show positive family history of them 8 cases (53.3%) were splenectomized and 2 cases (13.3%) were non splenectomized .There was statistically significant difference between two groups as regarding family history.

Figure (21): Distribution of Family history among the study groups

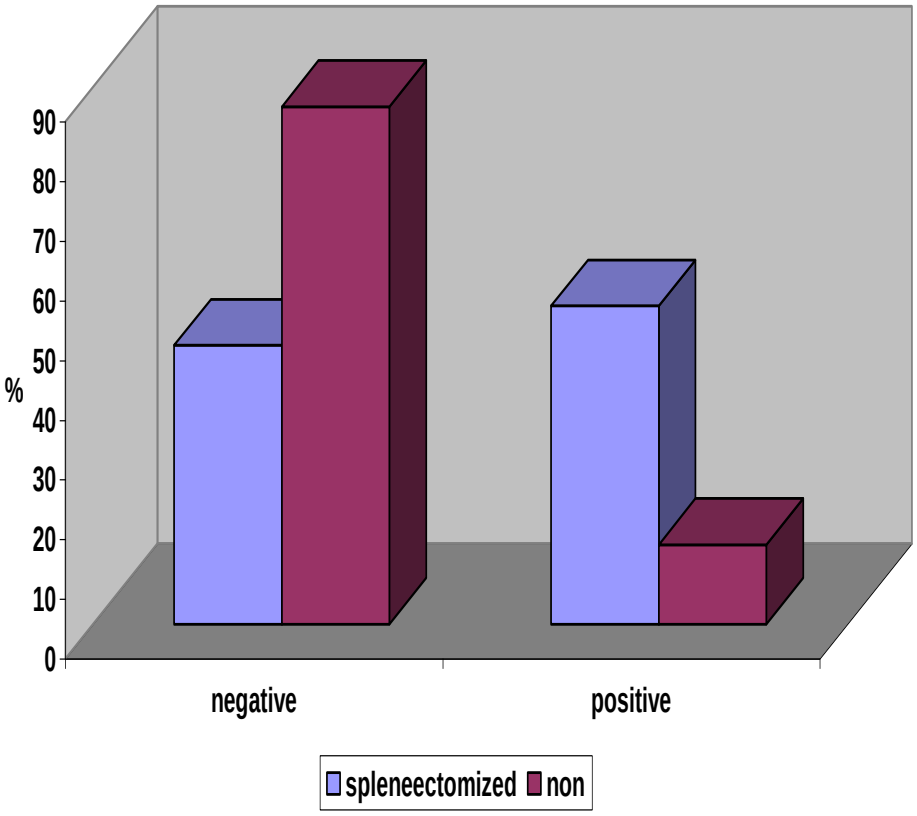


Table (11) Show compliance of patients with subcutaneous Desferal chelation therapy.

Desferal Adequcy / Study Group	-Ve		+Ve		Total	
	NO	%	NO	%	NO	%
Splenectomized	10	66.7	5	33.3	15	100.0
Non Splenectomized	9	60.0	6	40.0	15	100.0
Total	19	63.3	11	36.7	30	100.0

$X^2=0.144$ P>0.05

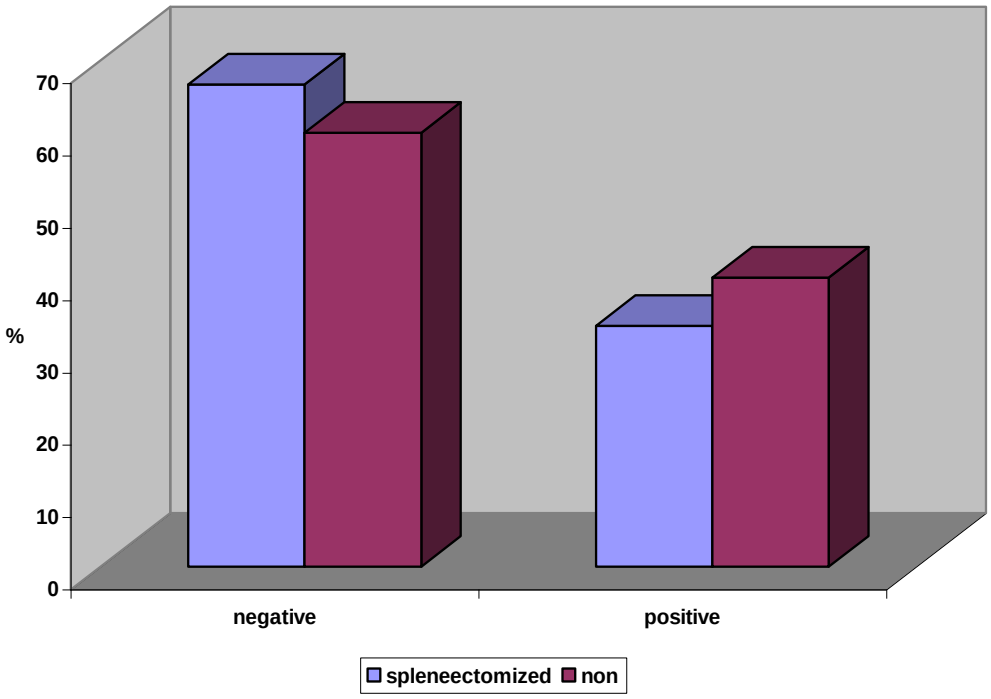
N.B Compliance means patients or doctors adherence to a recommended course of treatment.

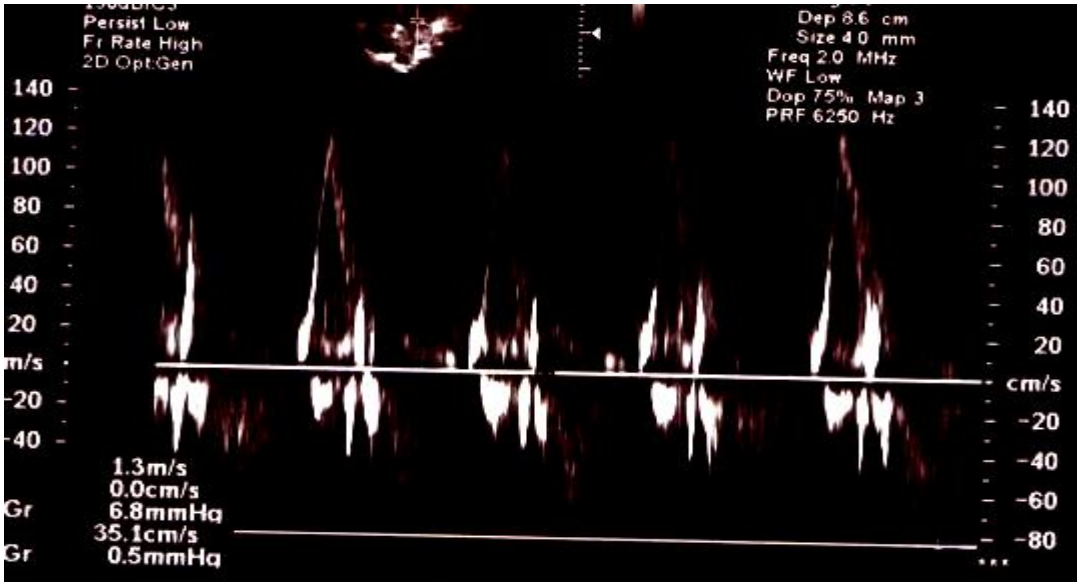
Good (+ve) > 5 infusions per week

Poor (-ve) < 4 infusions per week

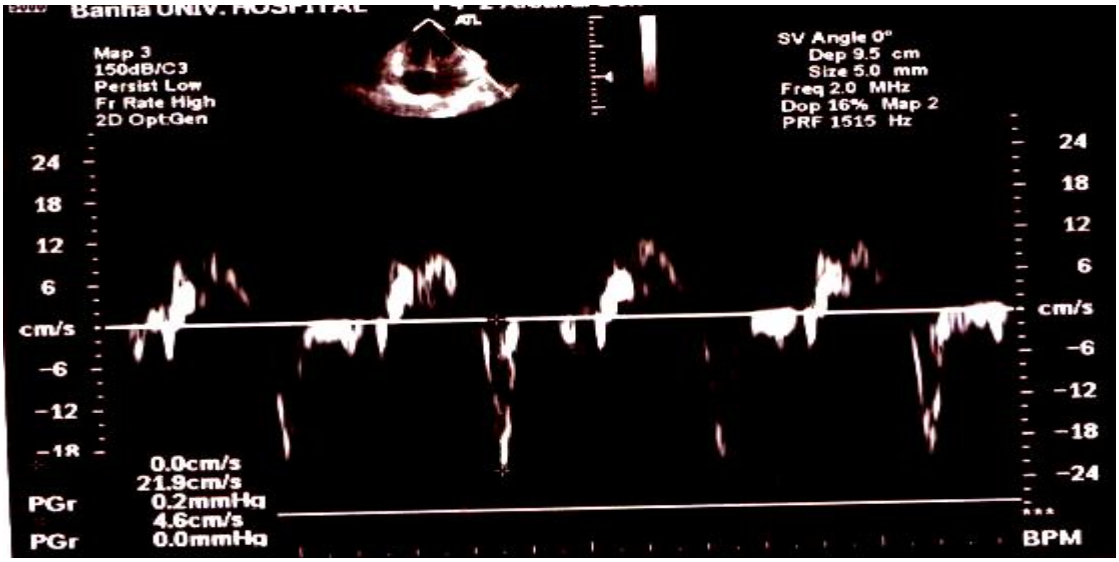
Regarding compliance of patients with chelation therapy, it was found that 11 cases out of 30 cases (36.7%) showed good compliance, of them 5 cases (33.3%) were splenectomized and 6 cases (40%) were non splenectomized .19 cases (63.3%) showed poor compliance of them 10 cases (66.7%) were splenectomized and 9 cases (66%) were non splenectomized. there was statistically non significant difference between splenectomized and non splenectomized group as regard compliance of patients.

Figure (22): distribution of desferal adequacy among the study groups





A



B

FIGURE (23): Tissue Doppler imaging, there are three components to this recording. The first is the upward moving systolic (S) velocity of the annulus. The second and third are the biphasic downward motion occurring in diastole (Ea and Aa, respectively). With normal systolic and diastolic function of the left ventricle, Ea typically exceeds the Aa velocity. In splenectomized TM patients with marked increase in E/A ratio =3.7, 4.7 respectively.

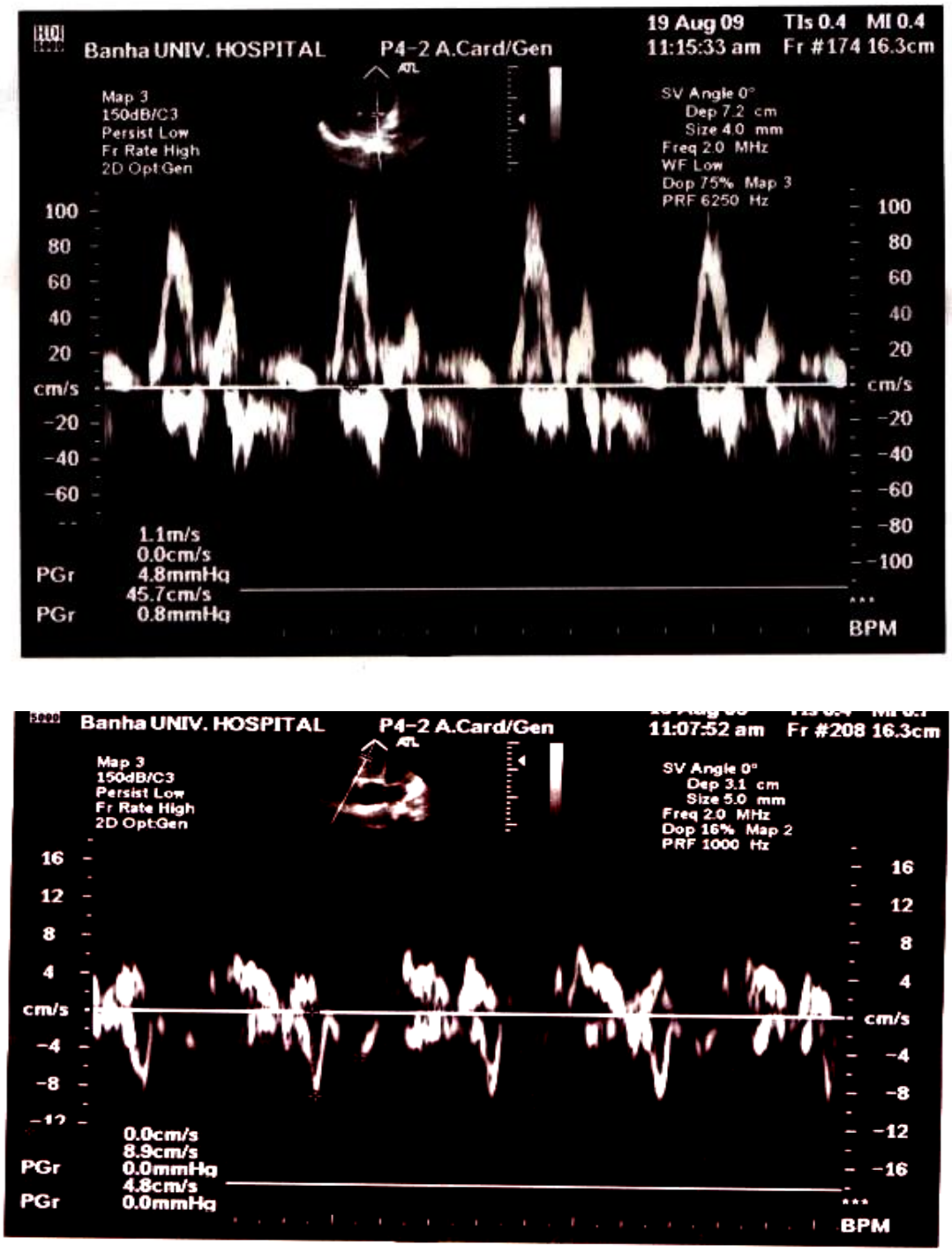


FIGURE (24). Doppler tissue imaging (DTI). There are three components to this recording. The first is the upward moving systolic (S) velocity of the annulus. The second and third are the biphasic downward motion occurring in diastole (Ea and Aa, respectively).In TM non splenectomized patients with E\A= 2.4,2 respectively.