RESULTS

RESULTS

Clinical examination of patients before the start of treatment, showed variation of the drum changes according to severity and duration of heart failure. The drum showed retraction of variant degrees with disturbed con of light which increased in some cases to dullness of the drum, increased vascularity and individual blood vessels traversing from periphery to the center of the drum was noticed as well.

Full picture of otitis media with effusion with fluid level due to accumulation of transudate was noticed in 5 cases out of 8 cases with flat "type B curve" on tympanometry.

The degree of retraction of the drum reflected itself on tympanometry as type C1 and C2 carve, and negative compliance testing.

Studying the results of tymponograms conformed these findings.

Age and sex distribution.

As shown in table (1), The age of the patients ranged from 26 to 70 years. The mean average age was 51.43 years. Twenty patients were male representing 66.7% and 10% were female representing 33.3% as shown Fig. (1)

Statistical analysis of central venous pressure study results.

Shows the central venous pressure of patients before treatment and one month, 3 months and 6 months after. Table (2), (3), (4) and Fig. (2). There is a significant improvement of central venous pressure after treatment.

Table (2) shows that the mean central venous pressure before treatment was 12.27 with significant improvement after one month of medical treatment to be 11.07. Also in table (3) the mean central venous pressure after 3 months became 9.43 which is statistically significant. The same presented well in table (4) the mean central venous pressure after 6 month became 7.57.

Statistical analysis of maximum compliance study results.

Table (5), (6), (7) and Fig. (3) show the statistical comparison of maximum compliance measured in the patients in this study before, one month, 3 months and 6 months after medical treatment.

Table (5) shows the mean of maximum compliance before treatment was -175.6 and after one month of treatment it became -142.0 with significant statistical difference. In table (6) the mean of maximum compliance after 3 months shows significant improvement -106.4. Also in table (7) after 6 months

the mean of maximum compliance becomes -50.0.

Statistical Analysis of Air/Bone gap study results.

Table (8), (9), (10) and Fig. (4) shows that Air/Bone gap of the patients in the study Before and one month, 3 months and 6 months after medical treatment, there is significant improvement in Air/Bone gap after treatment.

Table (8) shows the mean of Air/Bone gap before treatment was 20.33 with significant improvement after one month 18.77. Also in table (9) the mean of Air/Bone gap after 3 months shows significant improvement 14.73. The same presents in table (10) after 6 months the mean becomes 10.53, which is statistically significant.

Statistical and analysis of Ejection fraction study results.

Table (11), (12), (13) and Fig. (5) show the Ejection fraction of the studied patients before and one month, 3 months and 6 months after medical treatment. There is a significant improvement in Ejection fraction after treatment.

Table (11) shows the mean of Ejection fraction before treatment was 36.63 with significant improvement after one month 43.0. Also table (12) the mean of ejection fraction after 3 month show significant improvement 47.40. The same

present in table (13) after 6 months the mean became 51.83, which is statistically significant.

Statistical analysis of the tympanopmetry study results.

Table (14) and Fig. (7) show different tympanometric pattern type A, C1, C2 and flat curves and their percentage changes before and one month, 3 month and 6 month after treatment.

- Type A curve (+200 -99)

Represent 23.3% before treatment and also one month after it represent 23.3%, 3 months after treatment it become 40.0% with the end of the 6 months there is marked improvement of patients of the study and type A curve represent 60.0%.

- Type C1 curve (-100 -199)

Before treatment it represent 13.3% becomes 26.7 one month after 33.3% 3months after and finally it become 36.7% after 6 months what is mean significant improvement.

- Type C2 curve (-200 -400)

It was represent 36.7% at the start of the study while one month after treatment it becomes 3.3% what is mean significant improvement of the conditions.

- Type B curve (Flat curve)

It was represented **26.7%** before administration of treatment and 16.7% one month after. But it disappear later on.

Statistical analysis of the correlation between central venous pressure and Ejection fraction of the study results.

Shows that before administration of medical treatment their was moderate reversable correlation and R=-0.6360 as illustrated in Fig. (8), one month after treatment, also their was moderate reversable correlation and R=-0.7443 Fig. (9) and still after 3 months, moderate reversable correlation and R=0.5724 Fig. (10). By the end of 6 months medical treatment the correlation show mild reverablity and R=-0.4139 Fig. (11).

Statistical analysis of the correlation between maximum compliance and Ejection fraction of the study results.

Shows that before treatment their was weak correlation and R=0.1290 Fig. (12), also one month after treatment their was weak correlation and R=0.2223 Fig. (13), after 3 months of treatment their was moderate correlation and R=0.7729 Fig. (14) 6 months after their was good correlation and R=0.7822 Fig. (15).

Statistical of analysis of correlation between central venous pressure and maximum compliance of the study results.

Shows that before treatment their was weak reversable correlation and R=-0.0706 Fig. (16). Also one month after treatment their was weak reversable correlation and R=-0.0881 Fig. (17). 3 months after their was mild reversable correlation and R=-0.446 Fig. (18).

After 6 months of medical treatment their was moderate reversable correlation and R=-0.7105 Fig. (19).

Statistical analysis of the correlation Between Air/Bone gap and Ejection fraction of the study results

Shows that before treatment their was good reversable correlation and R=-0.7727 Fig (20). One month after treatment their was moderate reversable correlation and R=-0.7337 Fig (21). Also 3 months their was moderate reversable correlation and R=-0.7061 Fig (22). 6 month after still moderate reversable correlation and R=-0.6363 Fig (23).

Statistical analysis of the correlation between Air/Bone gap and central venous pressure of the study results.

Shows that before treatment their was moderate correlation and R=0.5301 Fig (24). One month after treatment their was moderate correlation and R=0.6005 Fig (25). Also 3 months after their was moderate correlation and R=0.5602 Fig (26). 6 months after their was moderate correlation and R=0.2306 Fig (27).

1.Age:	Value	
Mean	51.43	
± S.D.	11.72	
Min.	26	
Max.	70	
2. Sex:	**No.**	**%**
Male	20	66.7
Female	10	33.3
Total	30	100.0

Table (1): Show the mean of the Age and sex distribution of the studied cases.

CVP.	Mean ± S.D	Range	Paired *t*-test	P – value
Before.	12.27 ± 1.17	11 – 15	7.41	0.000
After 1m.	11.07±1.02	10 - 14		

Table(2): Show statistical Comparison of central venous pressure. before and after 1m.

CVP.	Mean ± S.D	Range	Paired *t*-test	P – value
Before.	12.27 ± 1.17	11 – 15	8.27	0.000
After 3m.	9.43 ± 1.59	7 - 12		

Table (3): Show statistical Comparison of central venous pressure. before and after 3m.

CVP.	Mean ± S.D	Range	Paired *t*-test	P – value
Before.	12.27 ± 1.17	11 – 15	12.54	0.000
After 6m.	7.57±1.59	5 - 11		

Table (4): Show statistical Comparison of central venous pressure. before and after 6m.

Middle ear pressure	Mean ± S.D	Range	Paired *t*-test	P – value
Before.	-175.6 ±109.5	-300 -30	3.75	0.001
After 1m.	-142.0 ± 87.7	-300 -10		

Table (5): Show statistical Comparison of middle ear pressure at which max. compliance occur before and after 1m.

Middle ear pressure	Mean ± S.D	Range	Paired *t*-test	P – value
Before.	-175.6 ±109.5	-300 -30	4.59	0.000
After 3m.	-106.4 ± 81.7	-300 +10		

Table (6): Show statistical Comparison of middle ear pressure at which max. compliance occur before and after 3m.

Middle ear pressure	Mean ± S.D	Range	Paired *t*-test	P – value
Before.	-175.6 ±109.5	-300 -30	6.57	0.000
After 6m.	-50.0 ± 78.1	-200 +50		

Table (7): Show statistical Comparison of middle ear pressure at which max. compliance occur before and after 6m.

A\B gap	Mean ± S.D	Range	Paired *t*-test	P – value
Before.	20.33 ± 9.40	0 – 35	3.31	0.003
After 1m.	18.77 ± 9.02	0 - 35		

Table (8): Show statistical Comparison of A\B gap before and after 6m Comparison of A\B gap before and after 1m.

A\B gap	Mean ± S.D	Range	Paired *t*-test	P – value
Before.	20.33 ± 9.40	0 – 35	6.15	0.000
After 3m.	14.73 ± 6.90	0 - 25		

Table (9): Show statistical Comparison of A\B gap before and after 6m Comparison of A\B gap before and after 3m.

A\B gap	Mean ± S.D	Range	Paired *t*-test	P – value
Before.	20.33 ± 9.40	0 – 35	7.42	0.000
After 6m.	10.53 ± 5.69	0 - 27		

Table (10): Show statistical Comparison of A\B gap before and after 6m Comparison of A\B gap before and after 6m

E.F.	Mean ± S.D	Range	Paired *t*-test	P – value
Before.	36.63 ± 11.5	21 – 52	9.45	0.000
After 1m.	43.0 ± 9.82	22 - 60		

Table (11): Show statistical Comparison of E.F. before and after 1m.

E.F.	Mean ± S.D	Range	Paired *t*-test	P -- value
Before.	36.63 ± 11.5	21 – 52	12.13	0.000
After 3m.	47.40 ± 8.87	33 - 62		

Table (12): Show statistical Comparison of E.F. before and after 3m.

E.F.	Mean ± S.D	Range	Paired *t*-test	P – value
Before.	36.63 ± 11.5	21 – 52	13.32	0.000
After 6m.	51.83 ± 6.82	41 - 63		

Table (13): Show statistical Comparison of E.F. before and after 6m.

Type	Before		1M		3M		6M	
	No.	%	No.	%	No.	%	No.	%
A (+200- -99)	7	23.3	7	23.3	12	40.0	18	60.0
C1(-100- -199)	4	13.3	8	26.7	10	33.3	11	36.7
C2(-200- -400)	11	36.7	10	33.3	8	26.7	1	3.3
Flat	8	26.7	5	16.7	0	0	0	0
Total	30	100	30	100	30	100	30	100

Table (14): Show the percentage change in the Tympanometry before and after treatment.

Maximum compliance	Mean
Before.	0.126 UV
After 1m.	0.165 UV
After 3m.	0.313 UV
After 6m.	0.590 UV

Table (15): Show statistical Comparison of max. compliance before and after 1m, 3 months and 6 months of medical treatment.

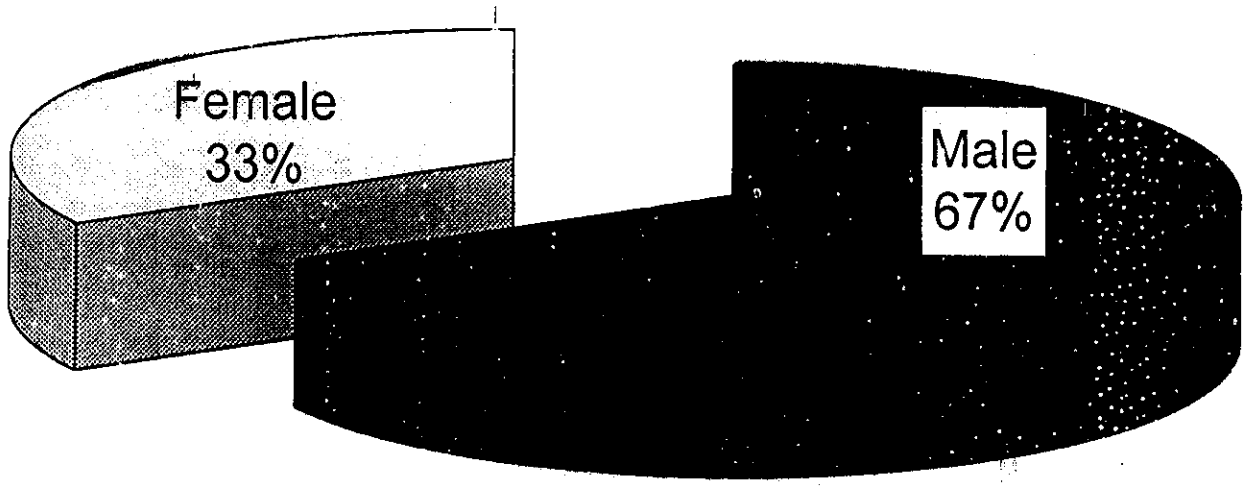


Fig.(1): Show the percentage of Six distribution of the studied cases.

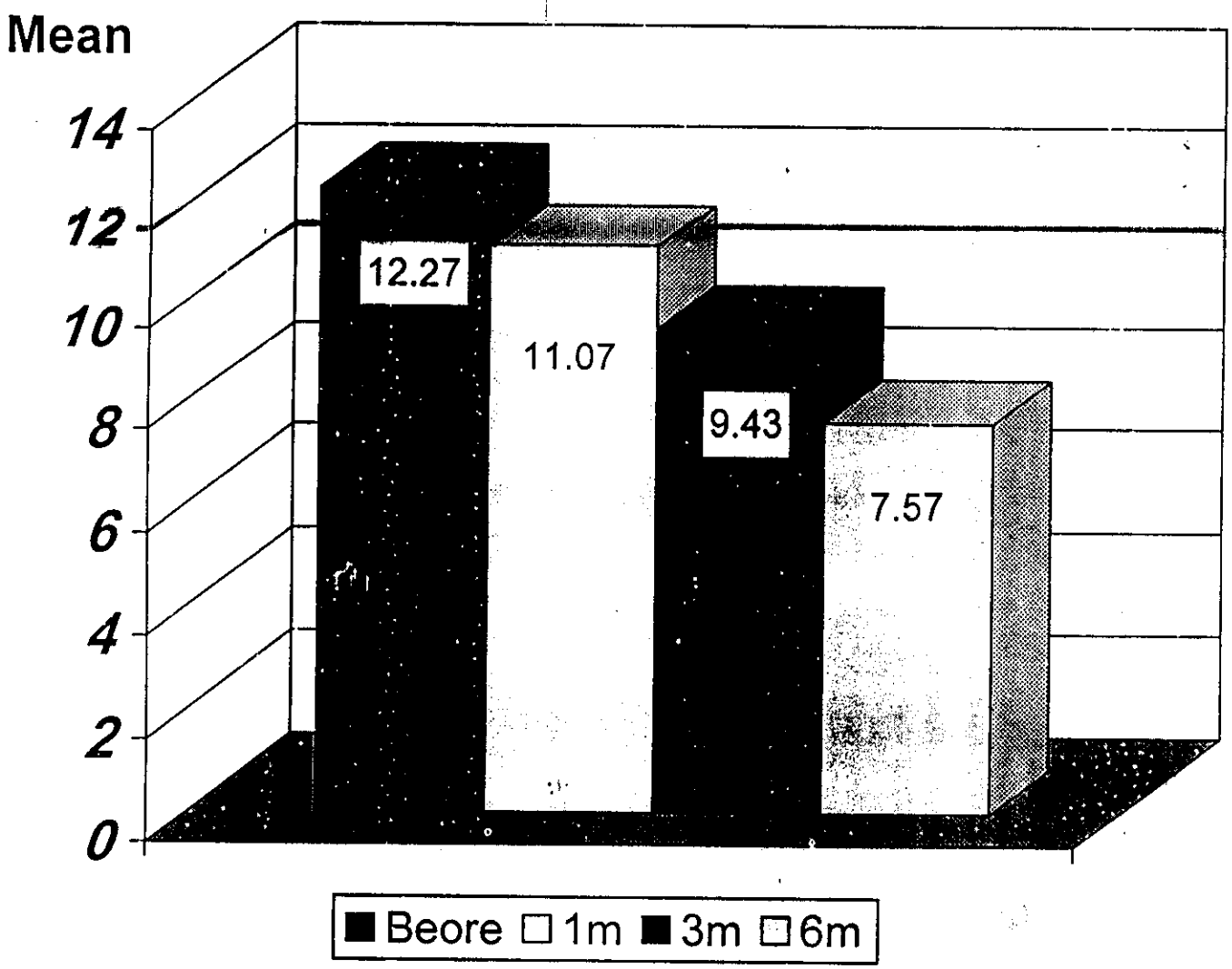


Fig.(2): Show the mean Changes in CVP.

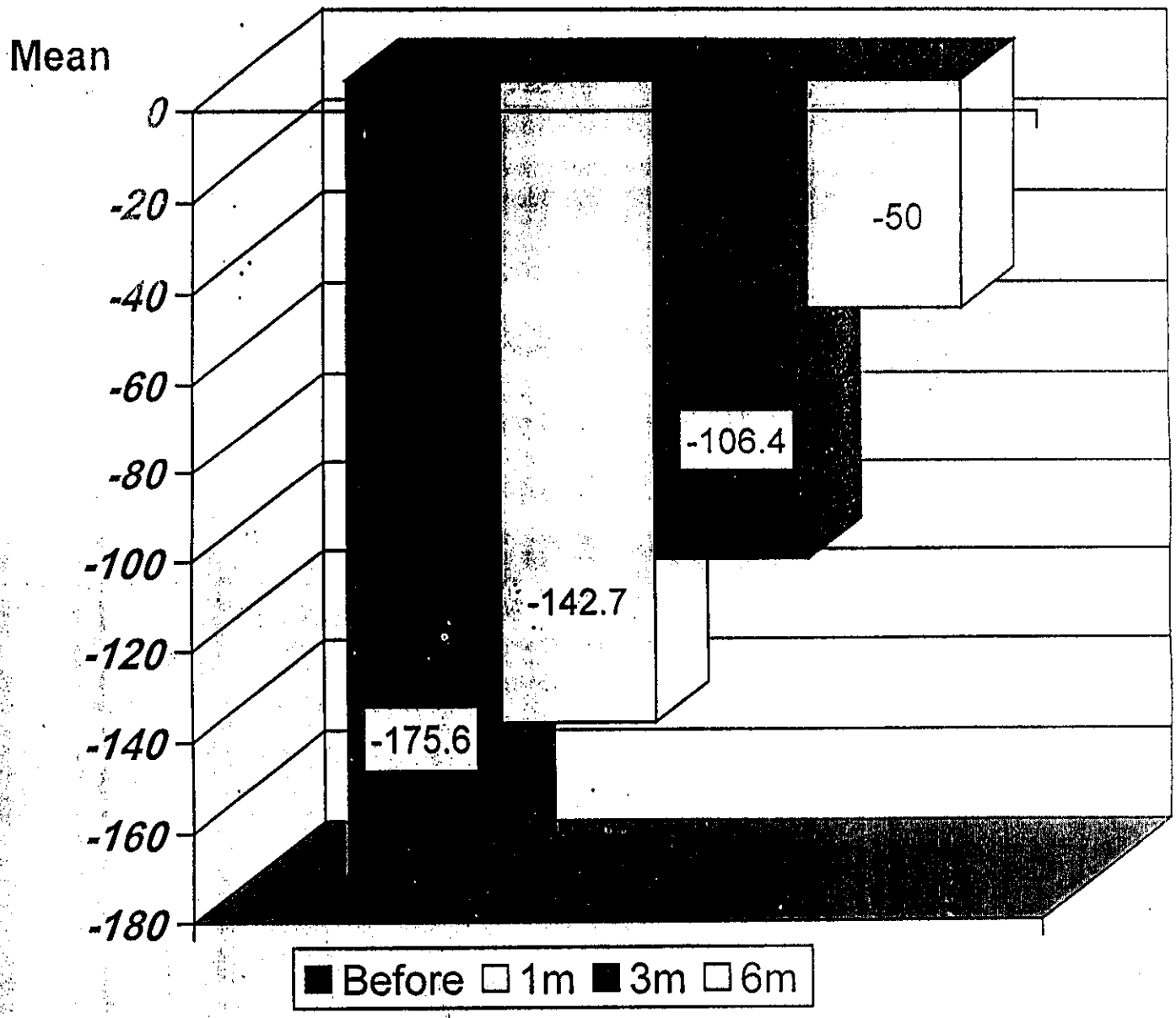


Fig.(3): Sow the mean Changes in pressure at which maximum compliance occurs.

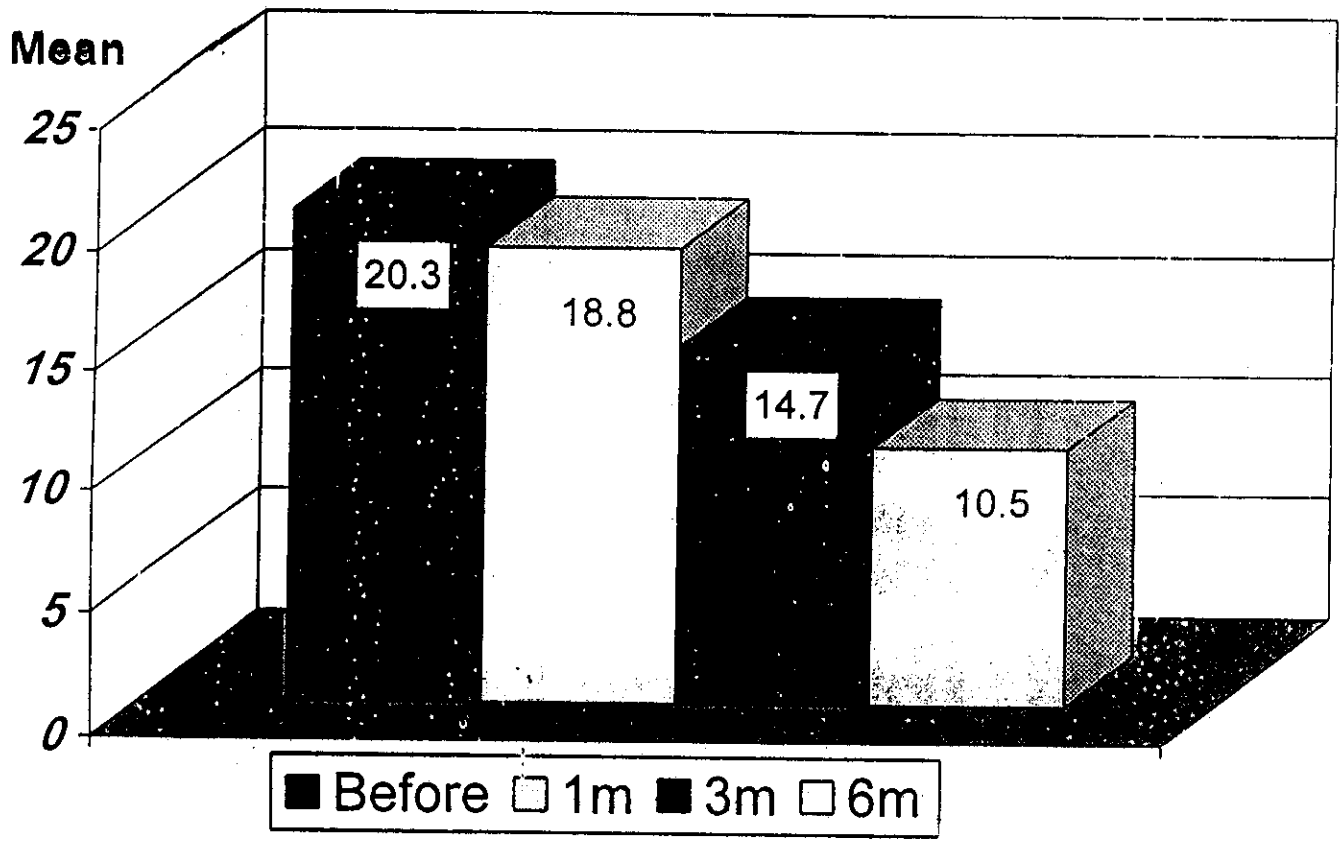


Fig.(4): Show the mean Changes in A\B gap.

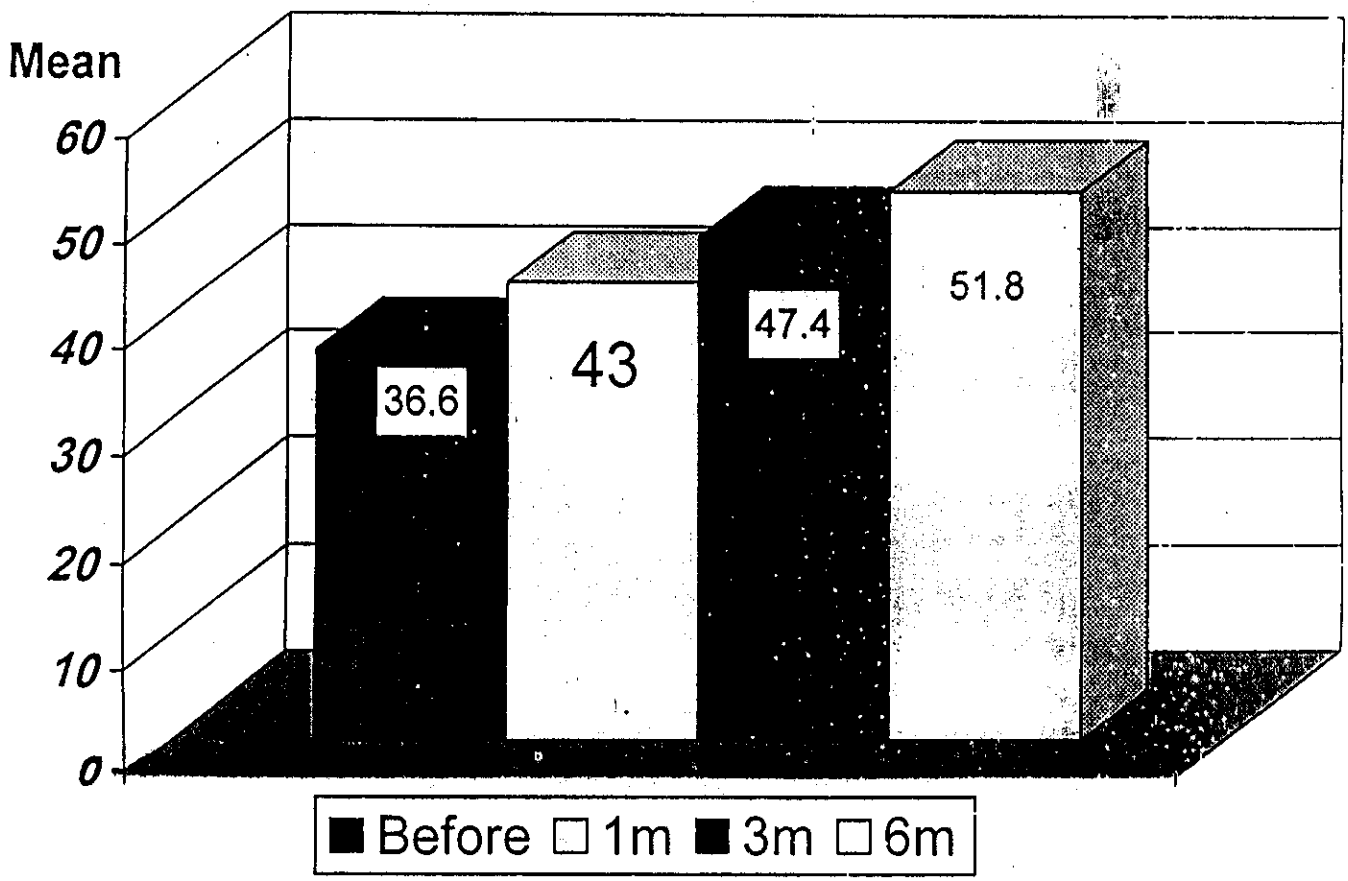


Fig.(5): Show the mean Changes in E.F.

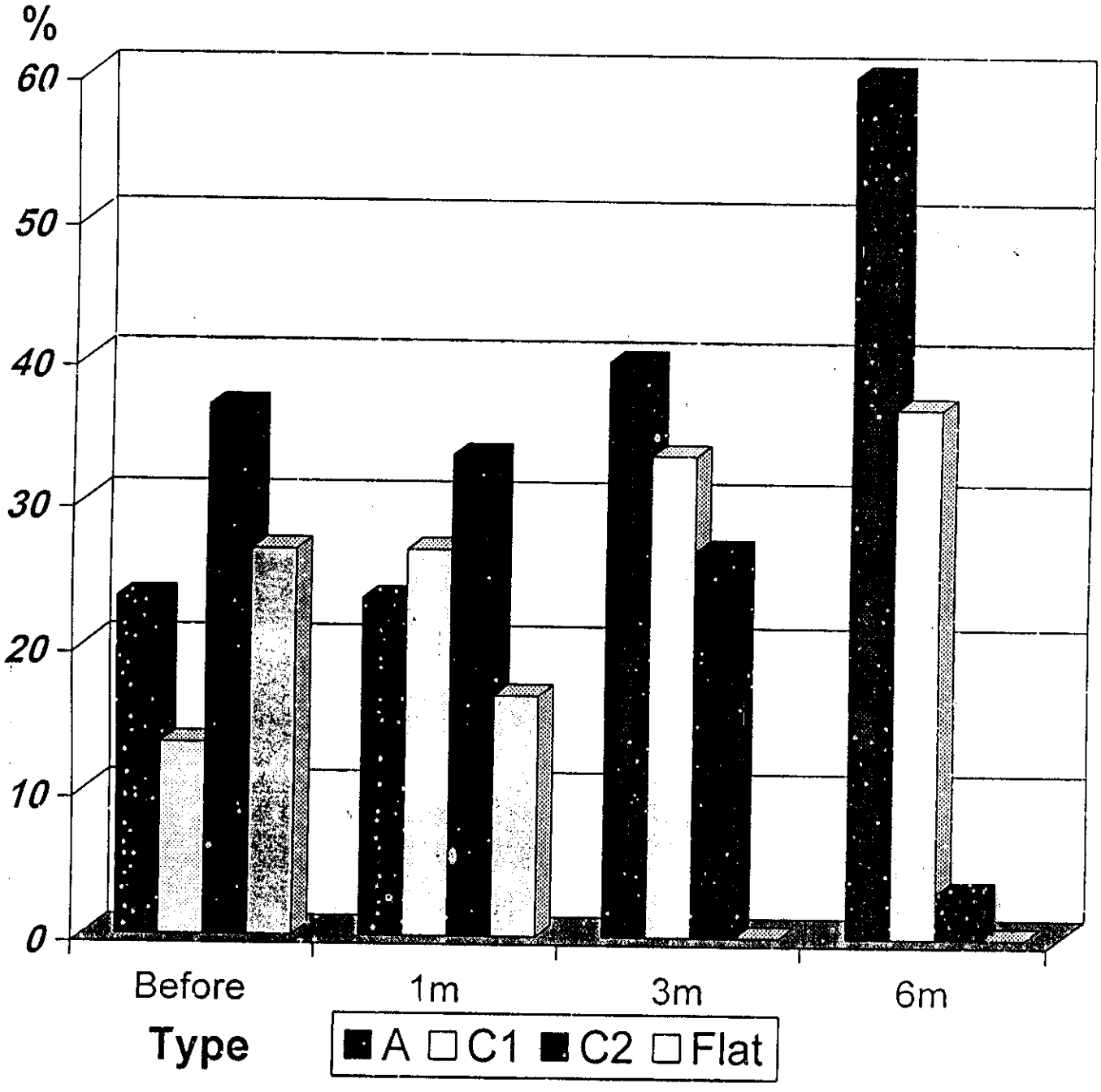


Fig.(7): Show the percentage change in the Tympanometry before and after treatment

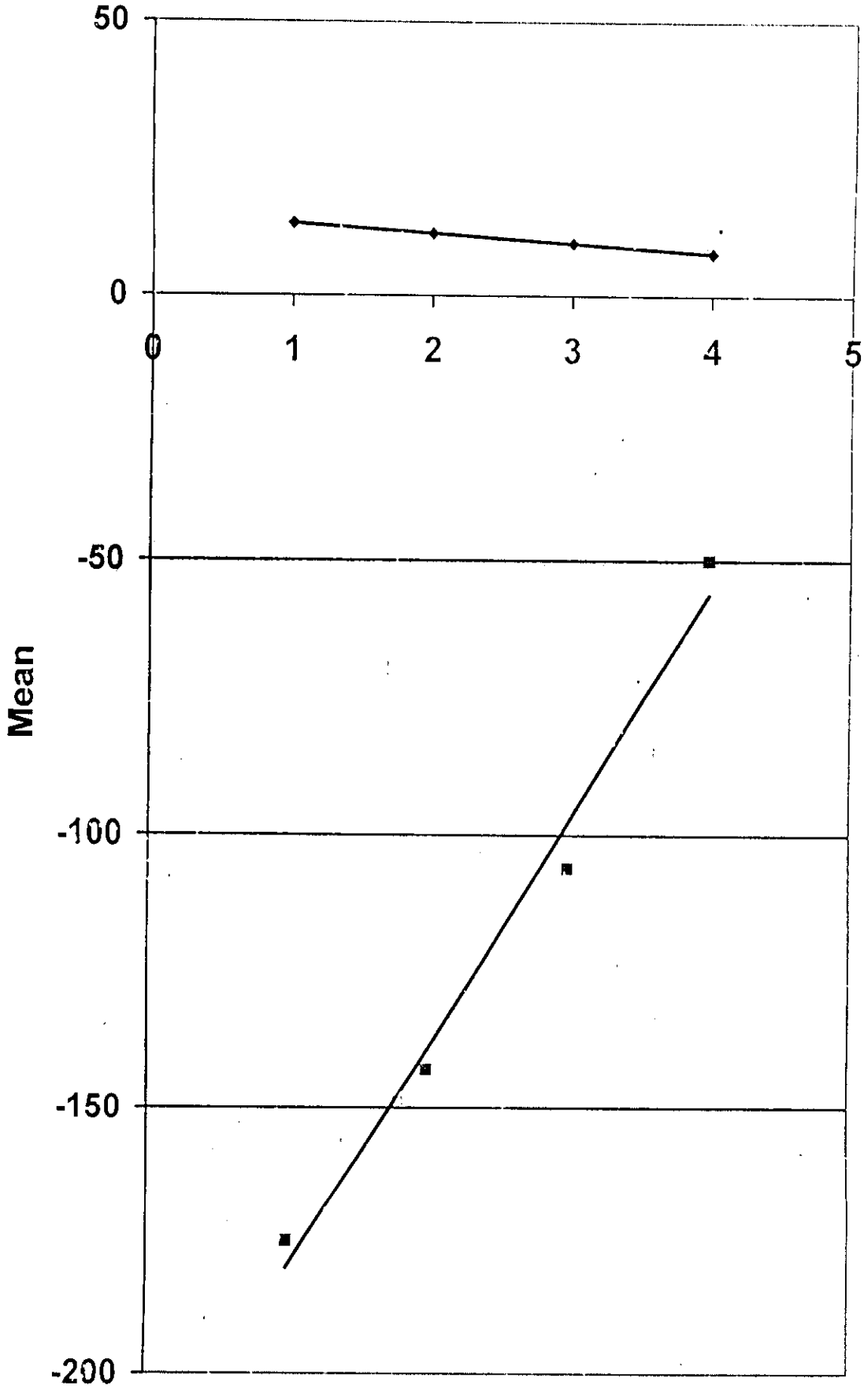


Fig.(6): Correlation between means of CVP. and maximum complance

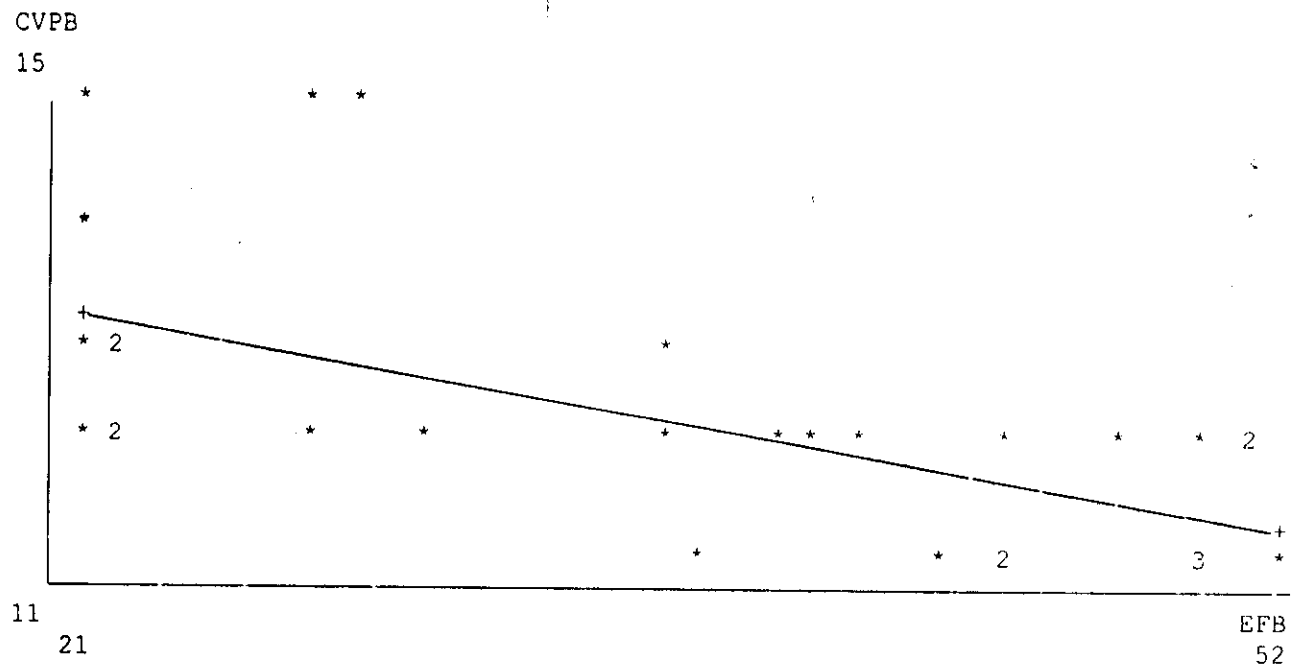
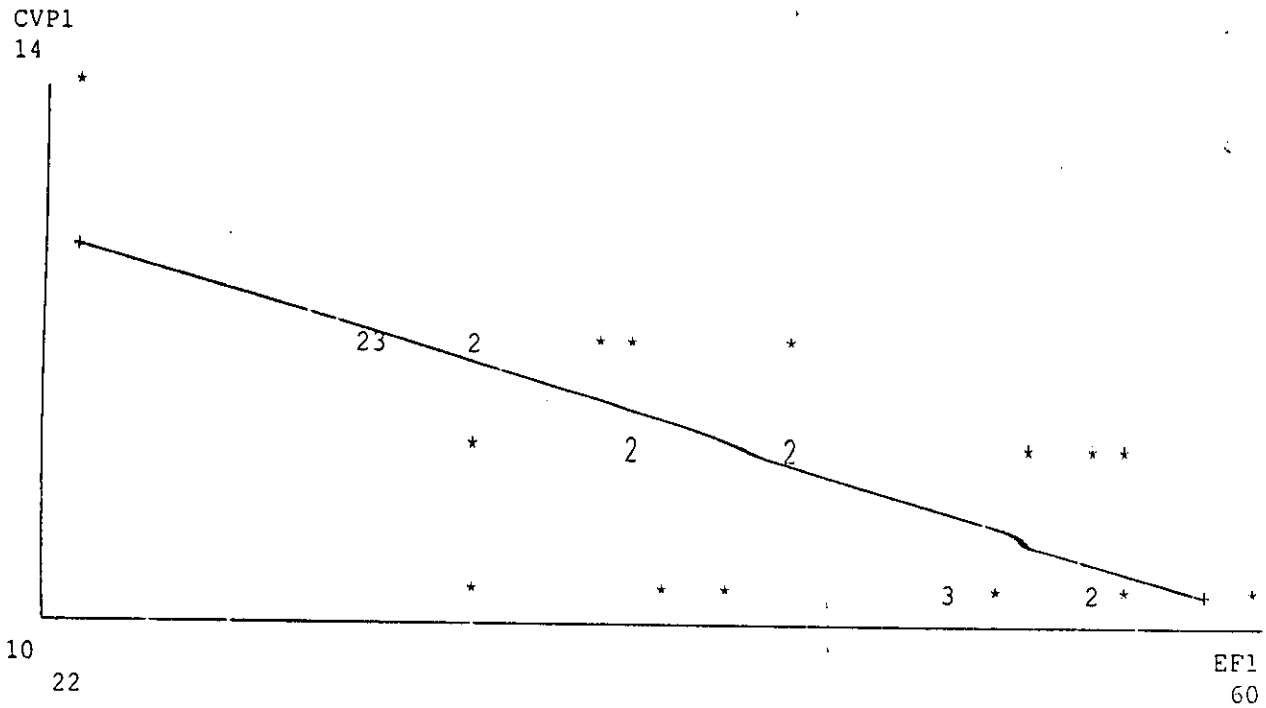


Fig. (8):
Show a moderate reversable correlation between central venous pressure (C.V.P.) and Ejection fraction (E.F.) before treatment r = -.6360



r = -.7443

Fig. (9):
Show a moderate reversable correlation between central venous pressure (C.V.P.) and Ejection fraction (E.F.) afterone month of treatment r = -.7443

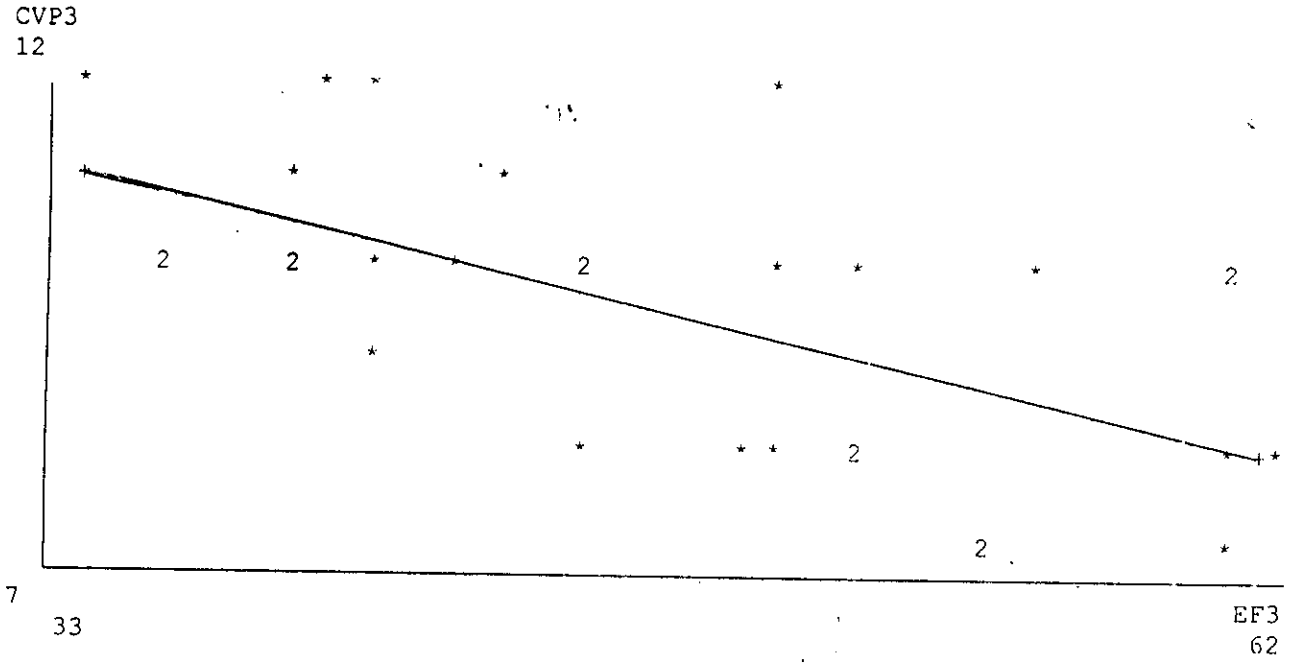
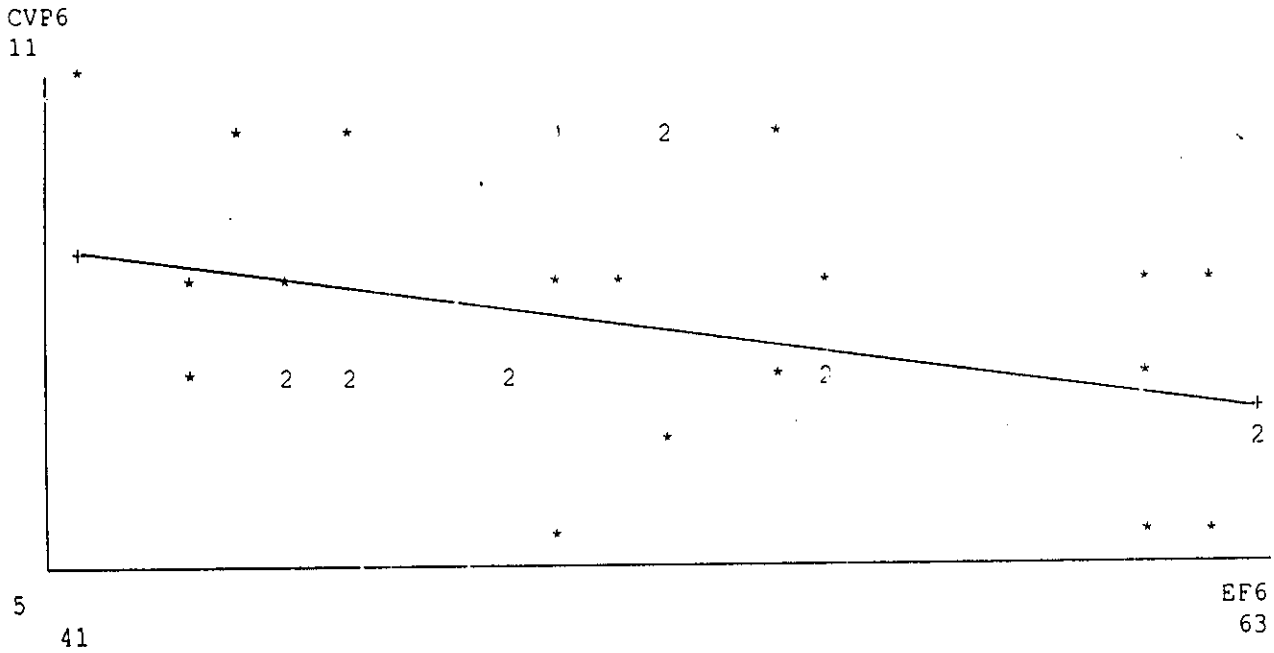
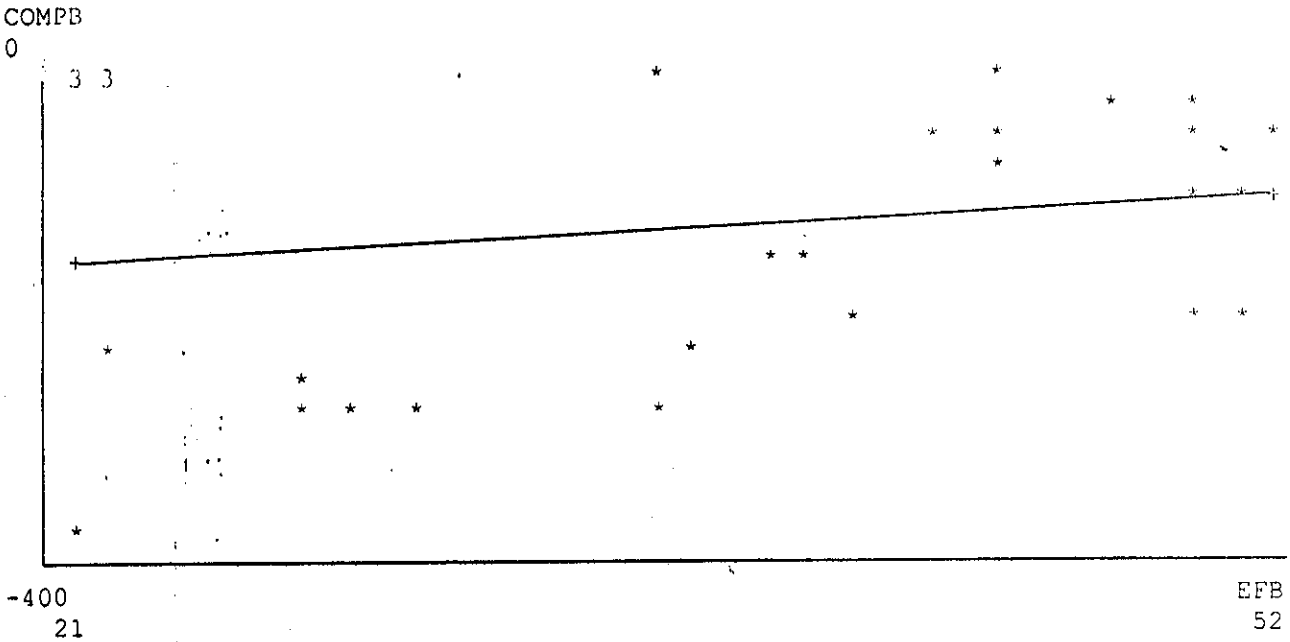


Fig. (10):
Show a moderate reversable correlation between central venous pressure (C.V.P.) and Ejection fraction (E.F.) after 3 months of treatment r = -.5724



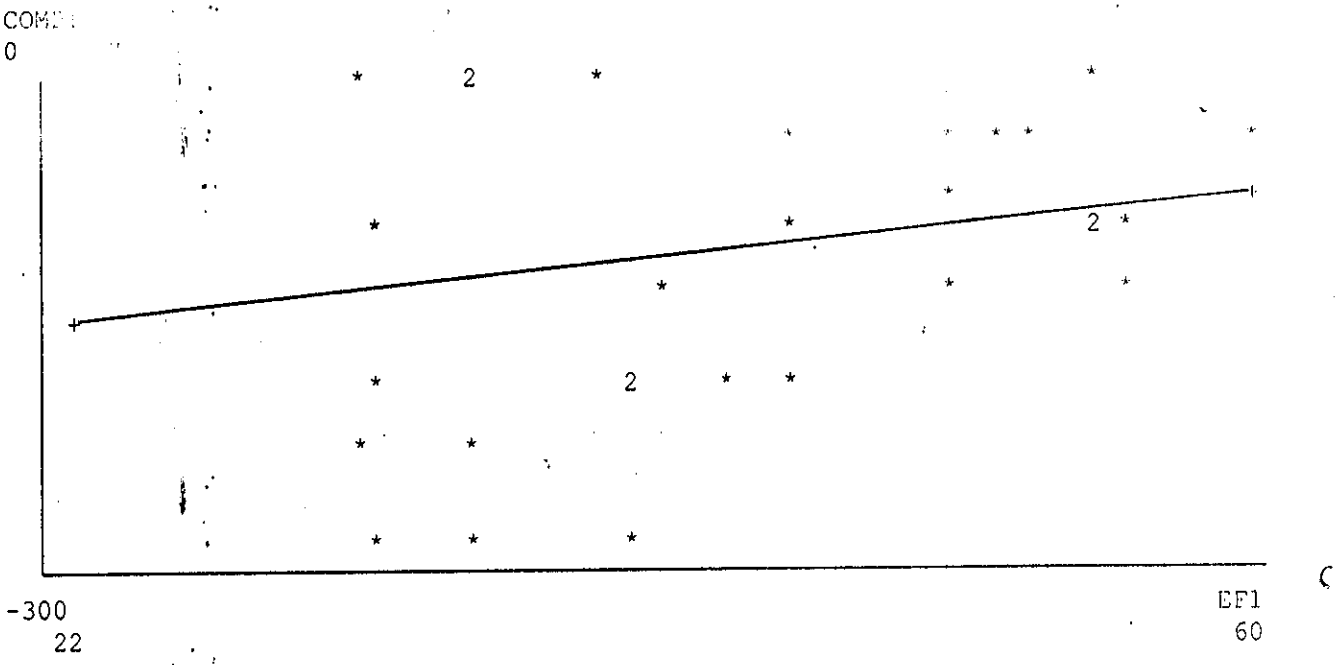
r = -.4139

Fig. (11):
Show a mild reversable correlation between central venous pressure (C.V.P.) and Ejection fraction (E.F.) after 6 months of treatment r = -.4139



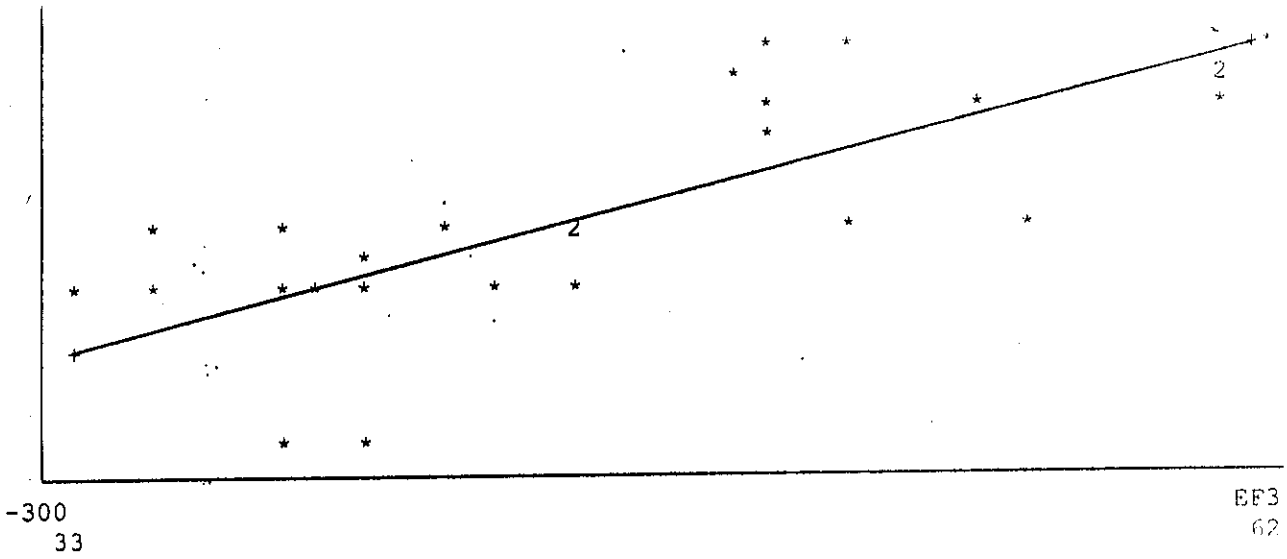
r = .1290

Fig. (12):
Show a weak correlation between middle ear pressure at which maximum compliance occures (COMP) and Ejection fraction (E.F.) before treatment
r = 0.1290



r = .2223

Fig. (13):
Show a weak correlation between middle ear pressure at which maximum compliance occurs (COMP) and Ejection fraction (E.F.) after one month of treatment r = 0.2223



r = .7729

Fig. (14):
Show a moderate correlation between middle ear pressure at which maximum compliance occurs (COMP) and Ejection fraction (E.F.) after 3 month of treatment r = 0.7729

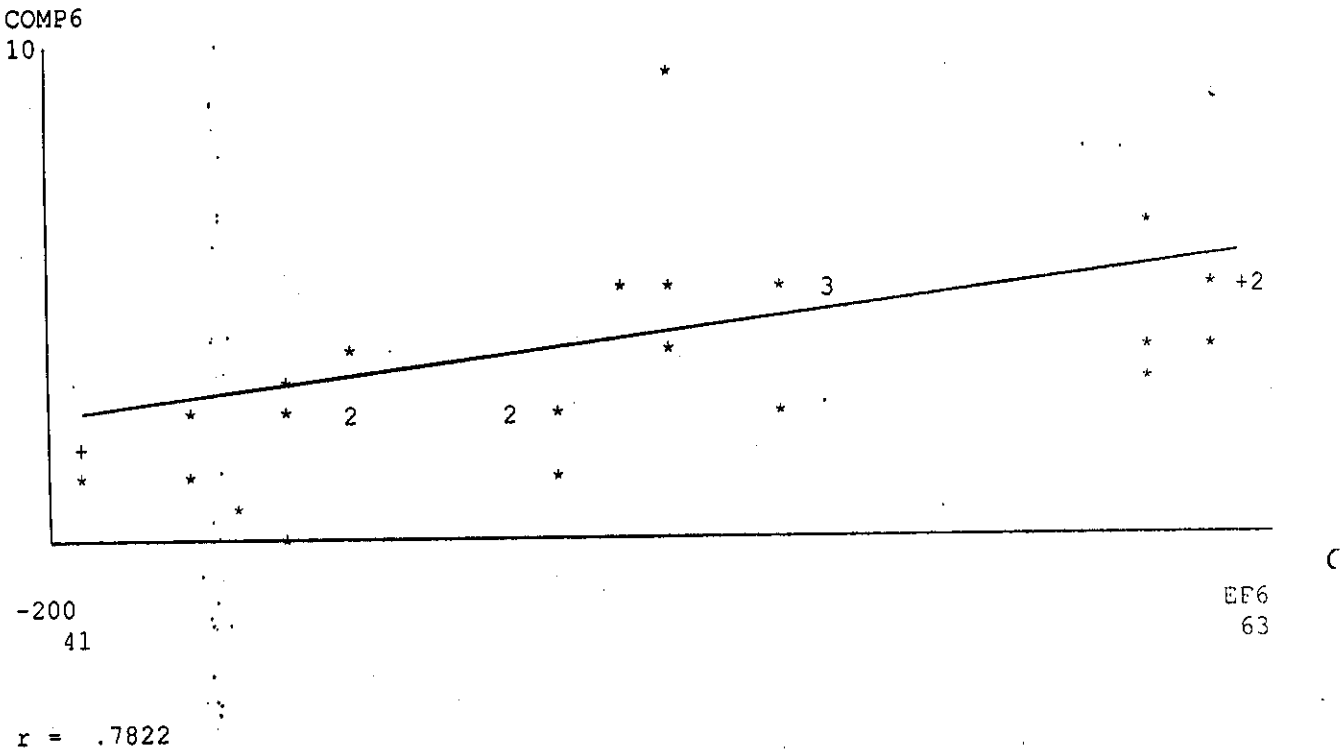
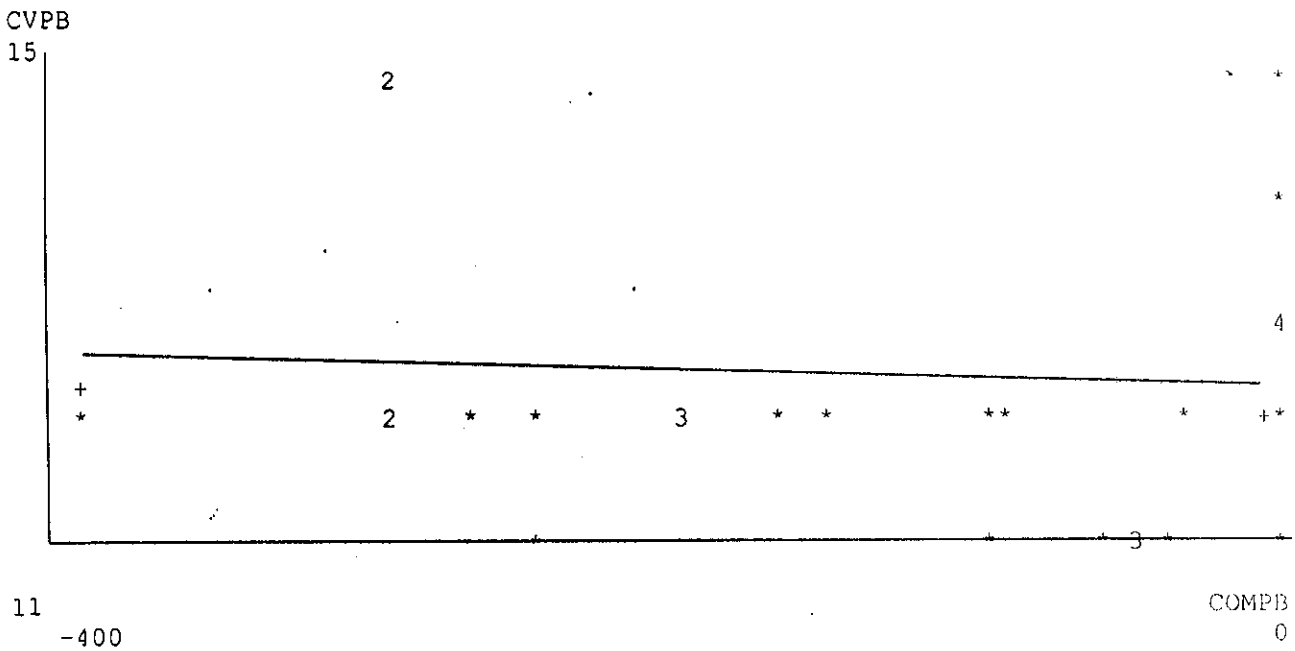
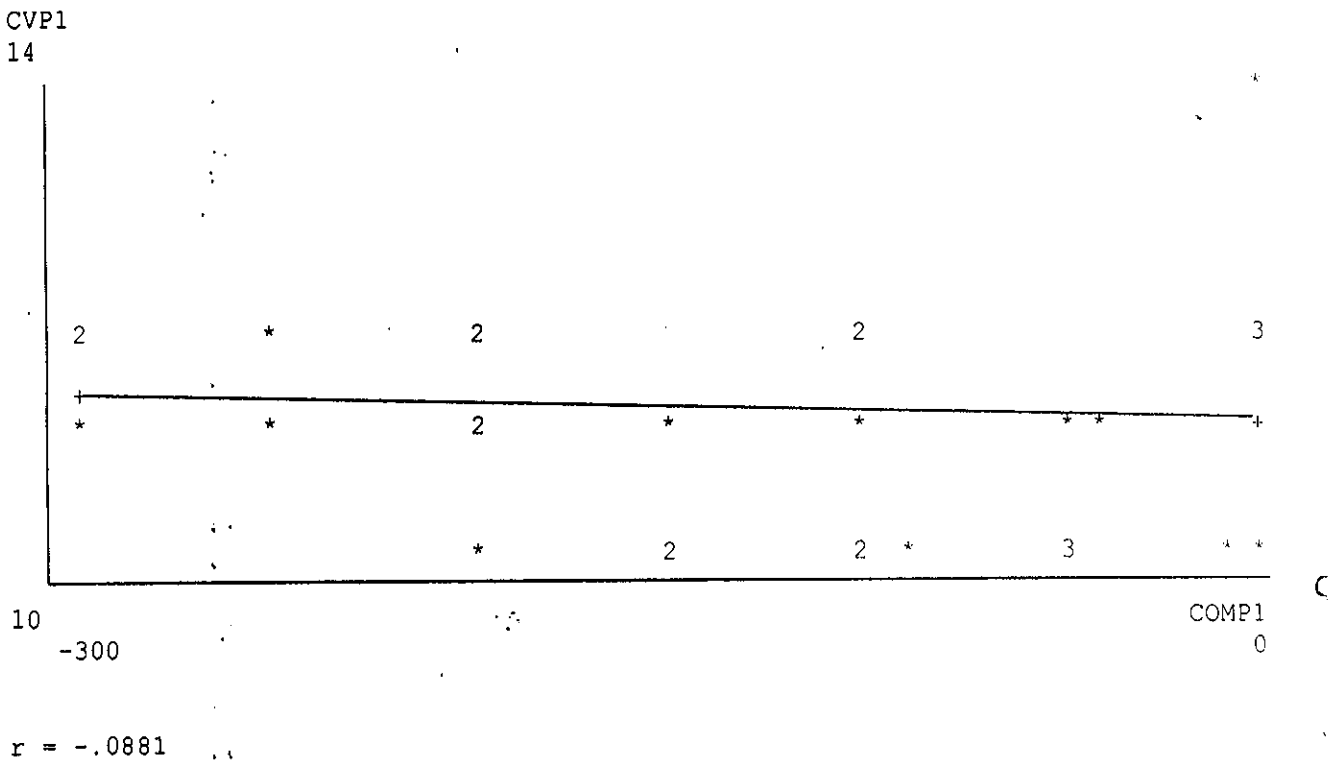


Fig. (15):
Show a good correlation between middle ear pressure at which maximum compliance occurs (COMP) and Ejection fraction (E.F.) after 6 month of treatment r = 0.7822



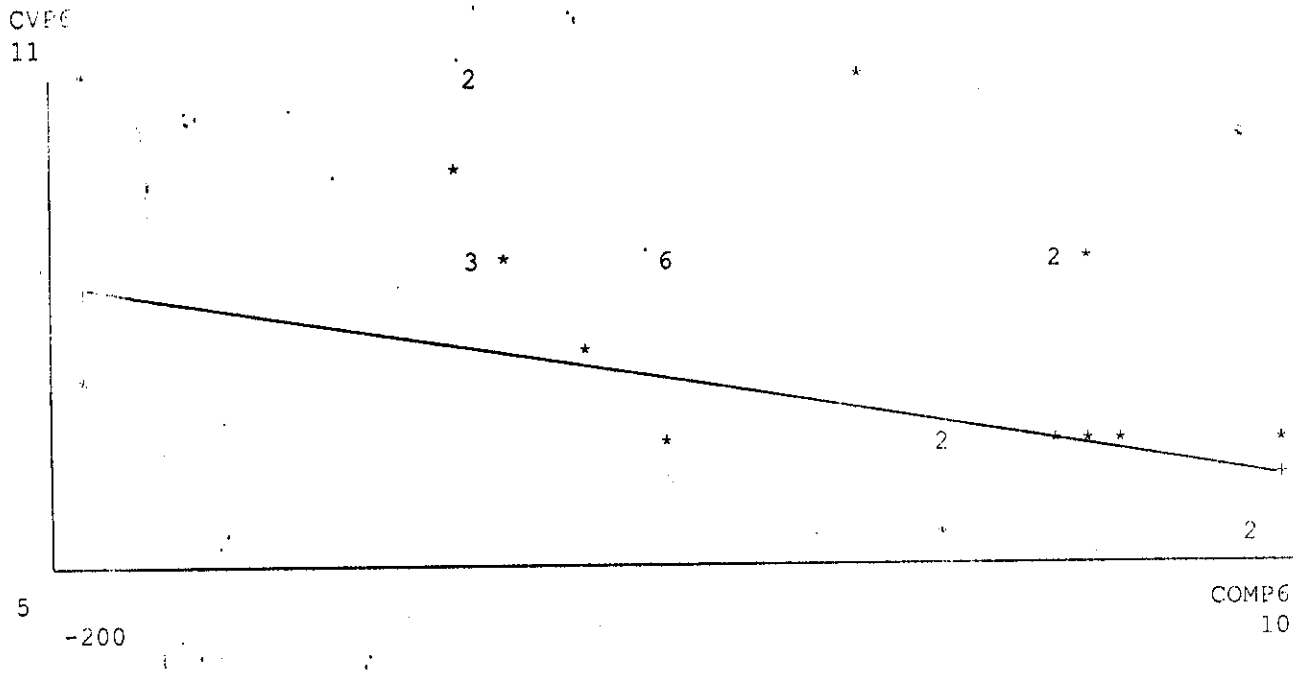
r = -.0706

Fig. (16):
Show a weak reversable correlation between middle ear pressure at which maximum compliance occurs (COMP) and central venous pressure (C.V.P.) before treatment r = -0.0706



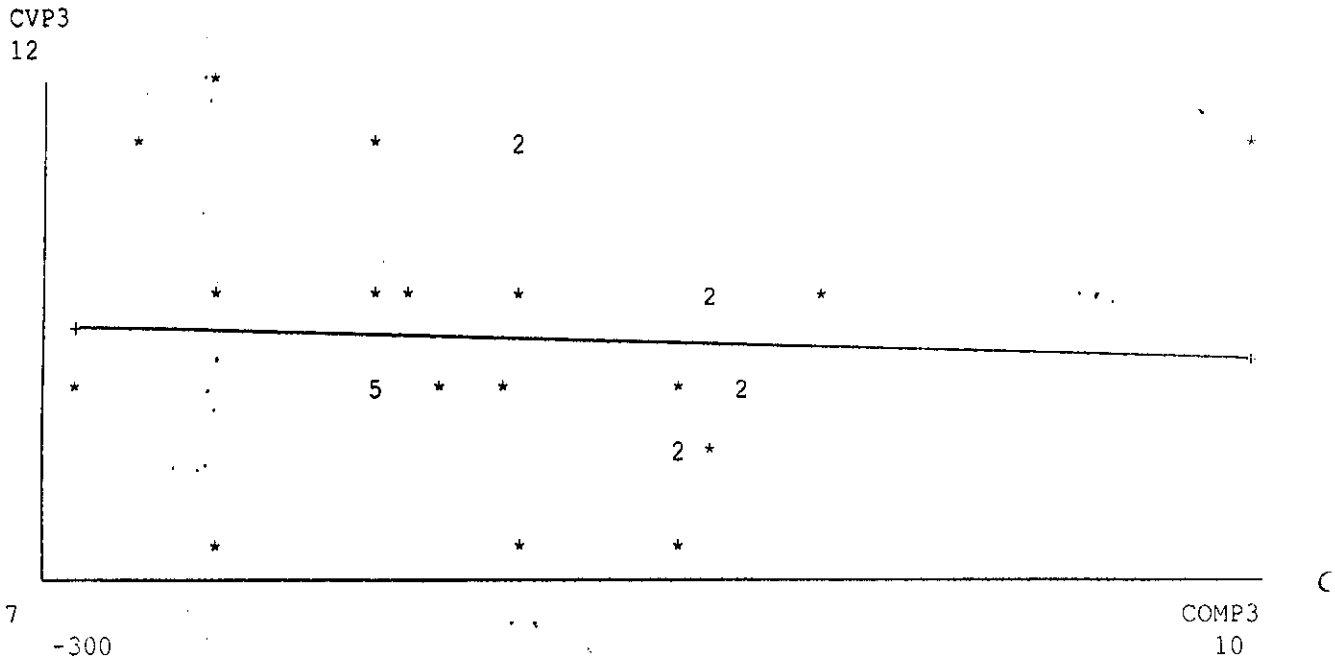
r = -.0881

Fig. (17):
Show a weak reversable correlation between middle ear pressure at which maximum compliance occurs (COMP) and central venous pressure (C.V.P.) after one month of treatment r = -0.0881



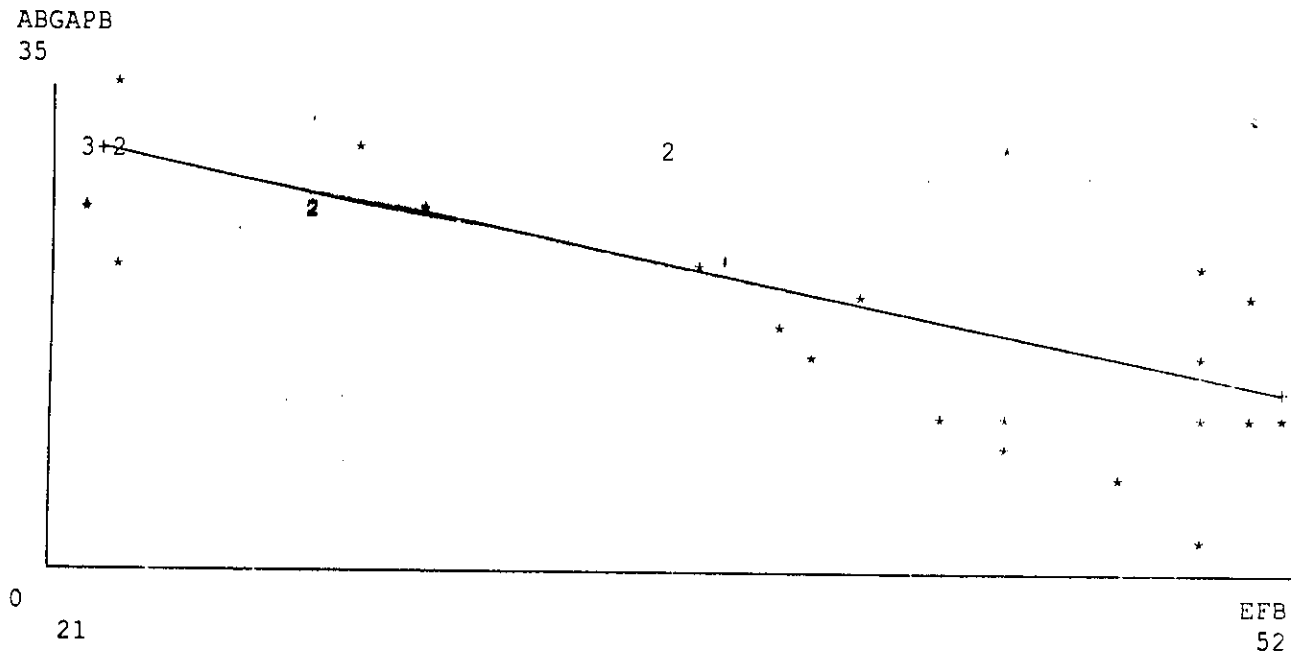
r = -.7105

Fig. (19):
Show a moderate reversable correlation between middle ear pressure at which maximum compliance occurs (COMP) and central venous pressure (C.V.P.) after 6 months of treatment; r = -0.7105



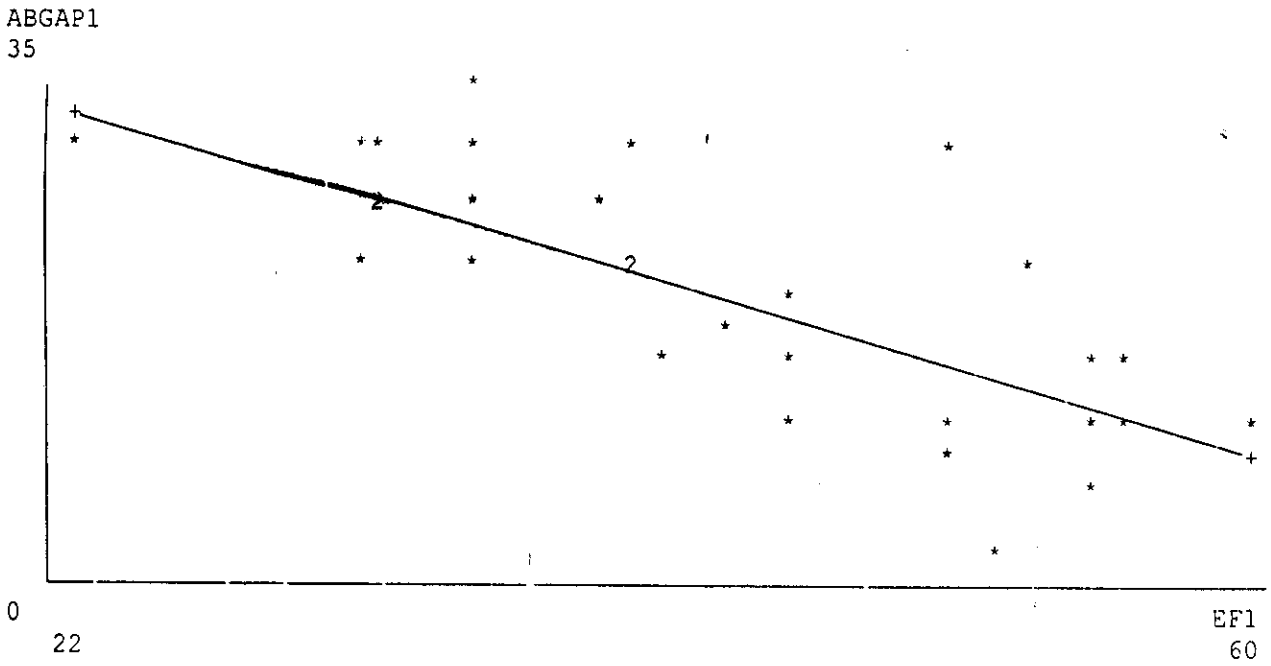
r = -.446

Fig. (18):
Show mild reversable correlation between middle ear pressure at which maximum compliance occurs (COMP) and central venous pressure (C.V.P.) after 3 months of treatment r = -0.446



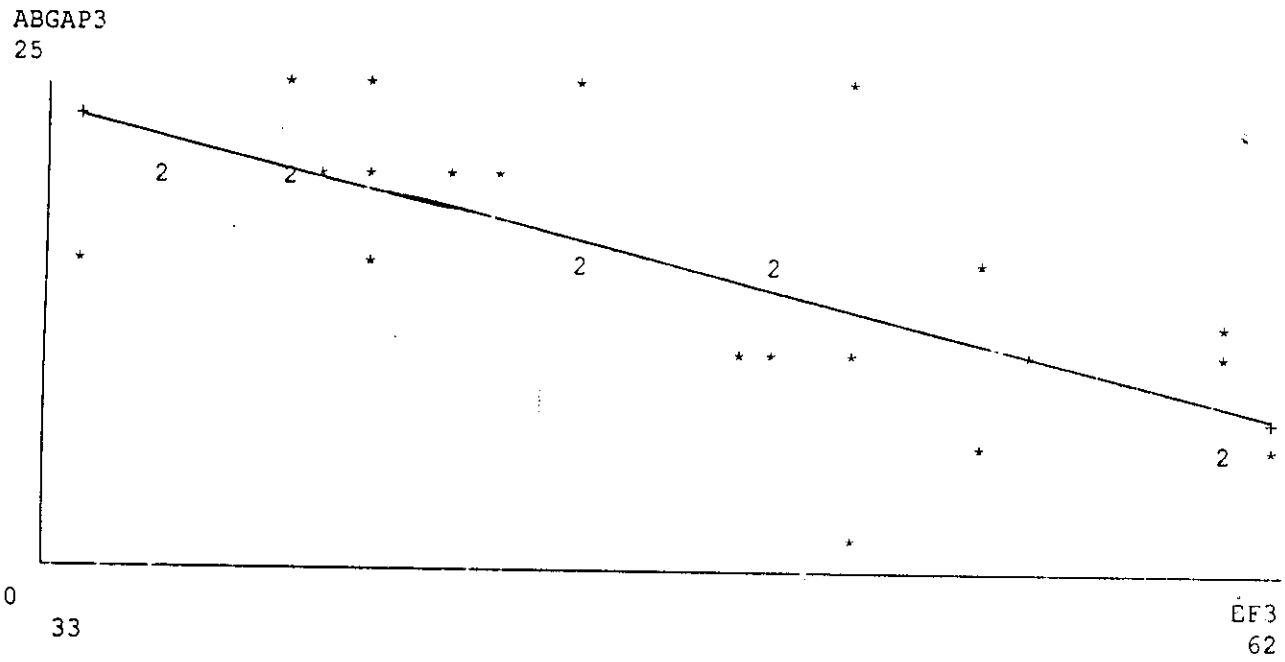
r = -.7727

Fig. (20):
Show good reversable correlation between Air/Bone gap (A/B gap)and Ejection fraction (E.F.)before treatment r = -0.7727



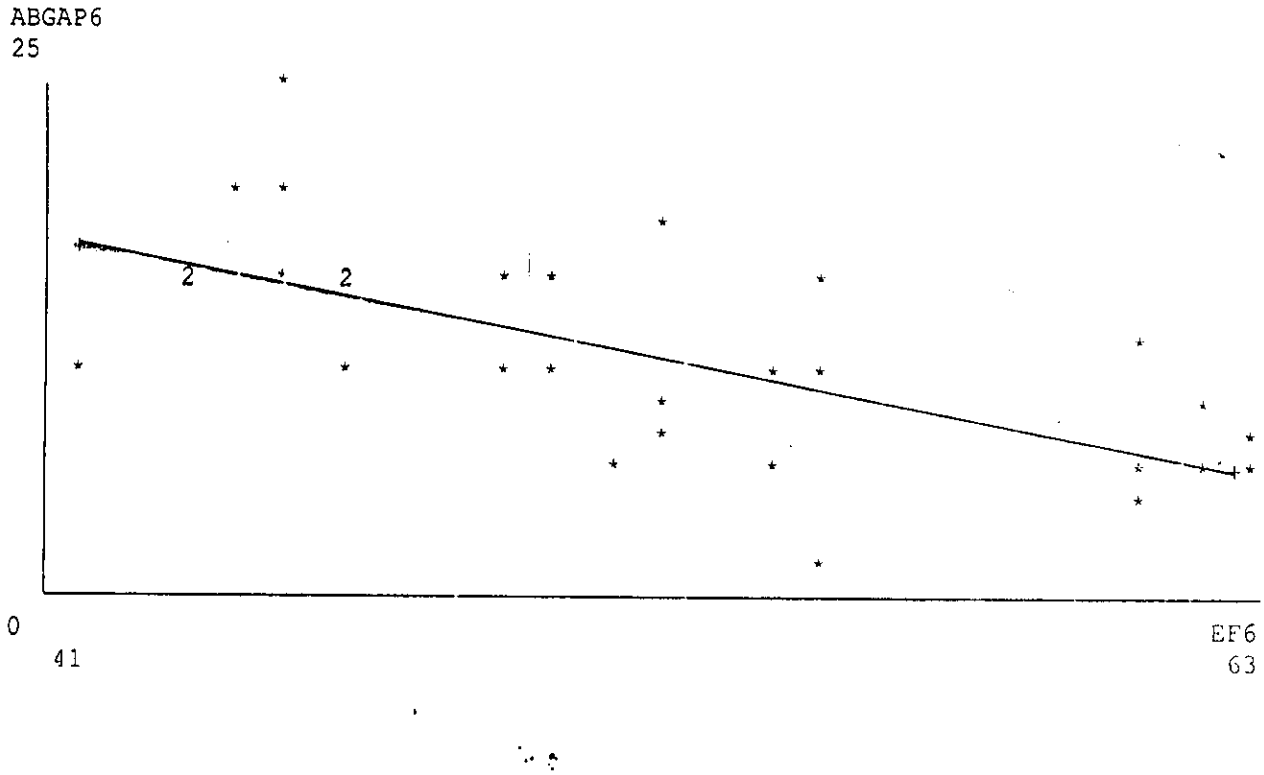
r = -.7337

Fig. (21):
Show moderate reversable correlation between Air/Bone gap (A/B gap) and Ejection fraction (E.F.) after one month of treatment r = -0.7337



r = -.7061

Fig. (22):
Show moderate reversable correlation between Air/Bone gap (A/B gap) and Ejection fraction (E.F.) after 3 months of treatment r = -0.7061



r = -.6363

Fig. (23):
Show moderate reversable correlation between Air/Bone gap (A/B gap) and Ejection fraction (E.F.) after 6 months of treatment r = -0.6363

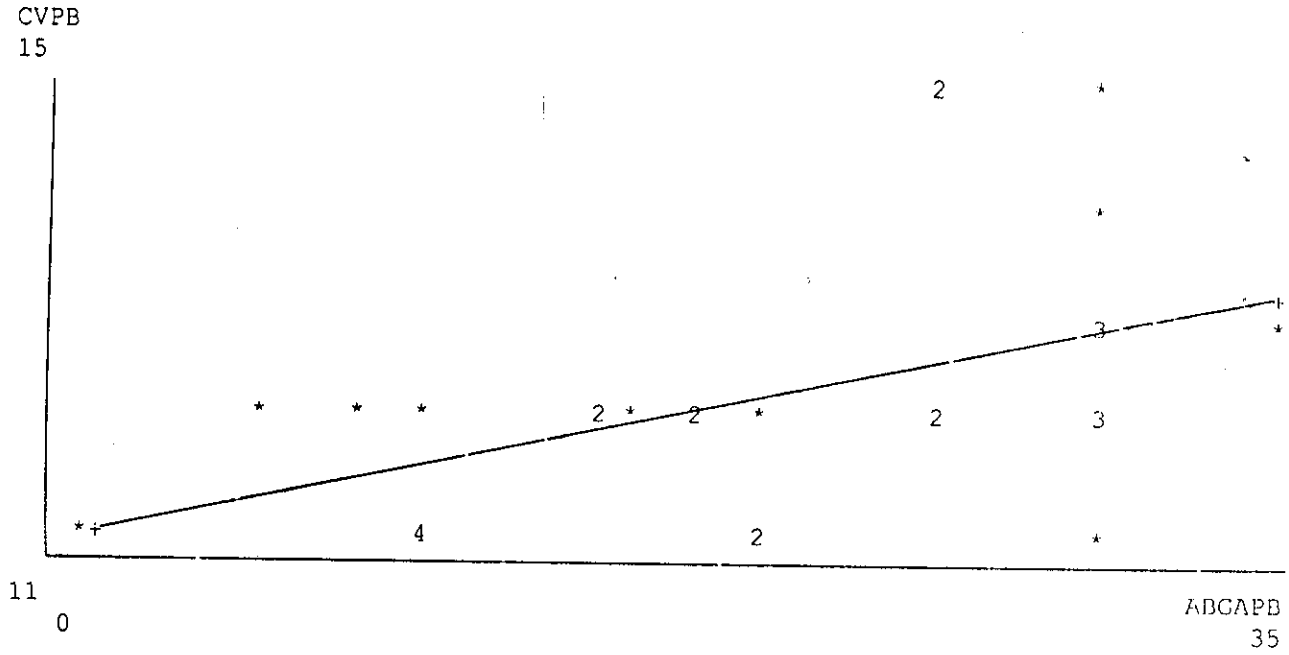


Fig. (24):
Show moderate correlation between Air/Bone gap (A/B gap) and central venous pressure (C.V.P.) before treatment r = 0.5301

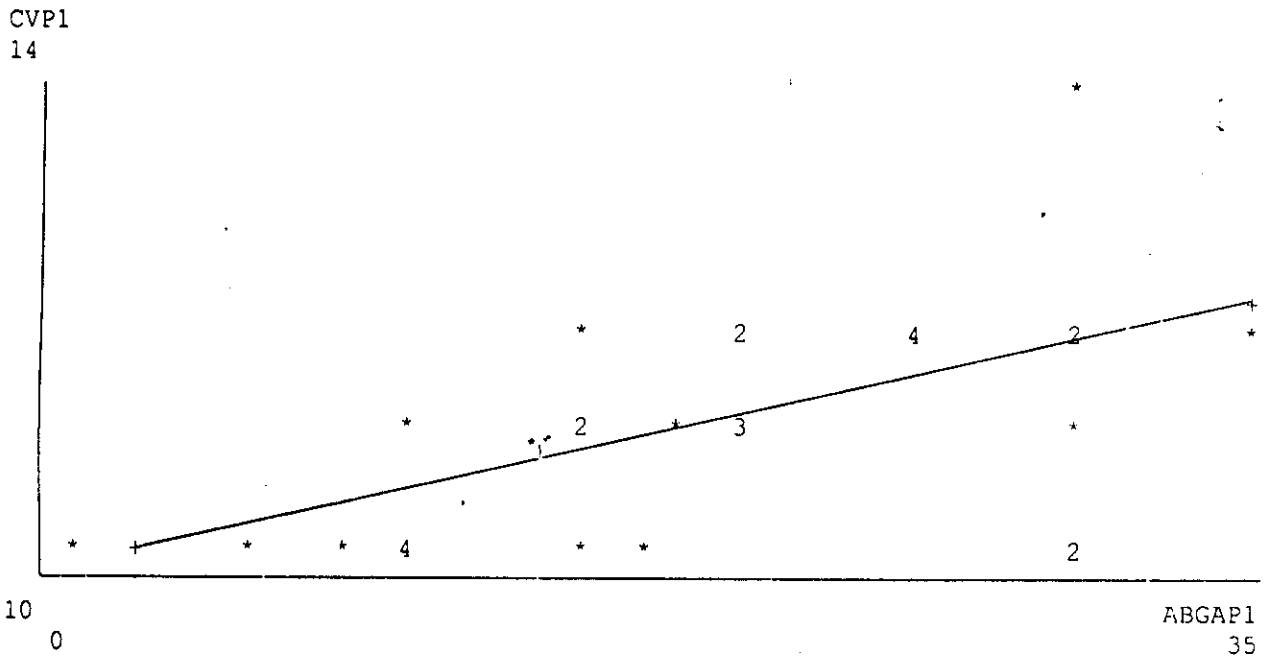
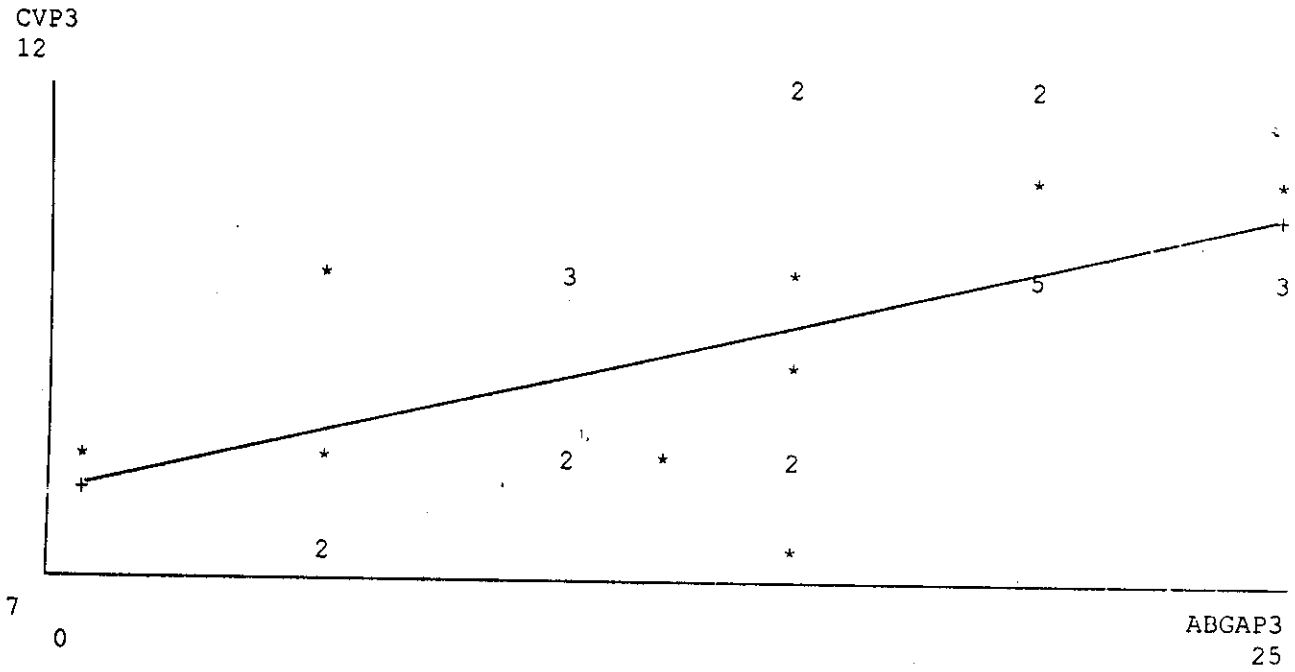
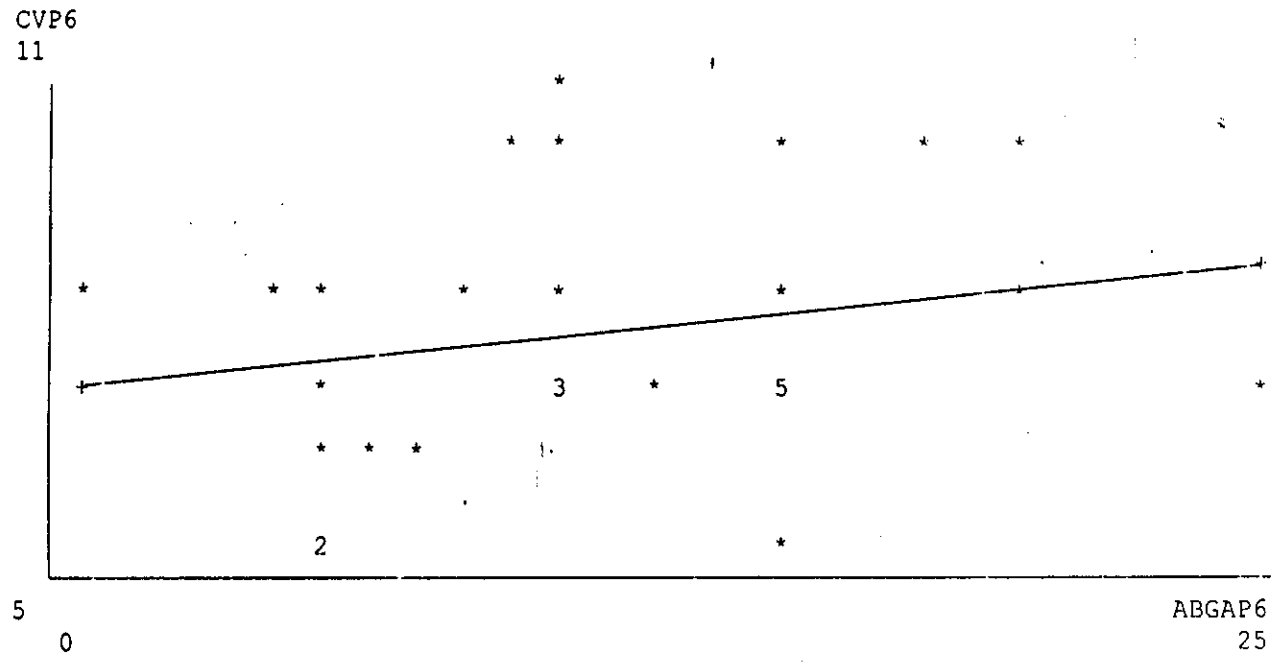


Fig. (25):
Show moderate correlation between Air/Bone gap (A/B gap) and central venous pressure (C.V.P.) after one month of treatment r = 0.6005



r = .5602

Fig. (26):
Show moderate correlation between Air/Bone gap (A/B gap) and central venous pressure (C.V.P.) after 3 months of treatment r = 0.5602



r = .2306

Fig. (27):
Show weak correlation between Air/Bone gap (A/B gap) and central venous pressure (C.V.P.) after 6 months of treatment r = 0.2306