

Results

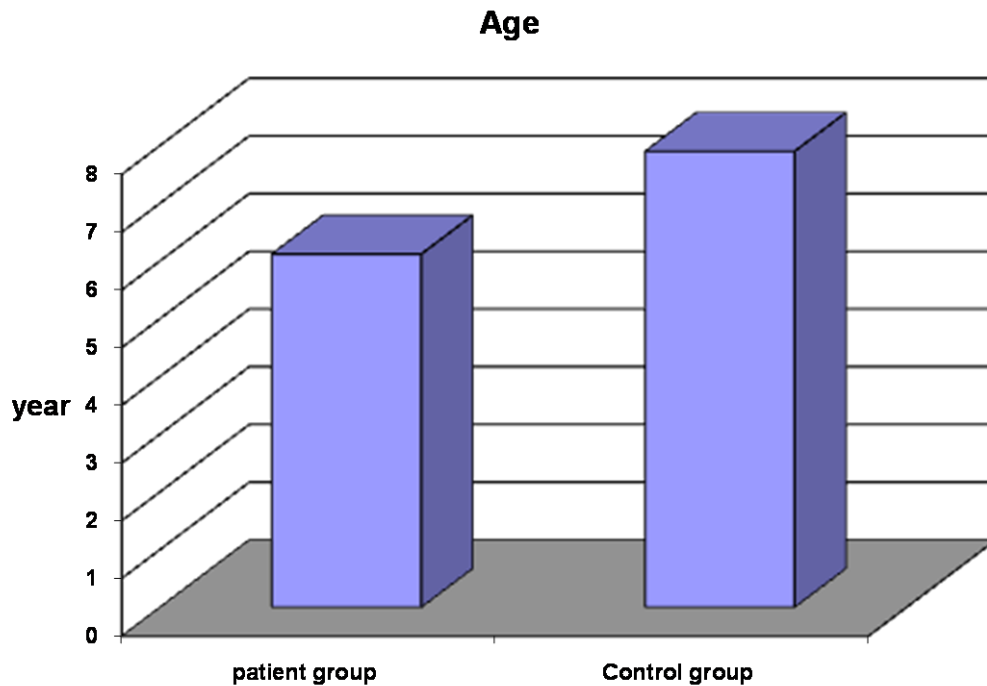
1. Twenty five patients with ALL included in the present study 17 male (68%) and 8 female (32%), their age were ranging from 2.5 years to 11 years as shown in figure (12).
2. There was low statistically significance difference between hemoglobin level before treatment and after three month treatment as shown in figure (20), while there was moderate statistically significance difference between total leucocytic count before treatment and after three month treatment as shown in figure (21), while there was high statistically significance difference between platelet count before treatment and after three month treatment as shown in figure (23), while there was high statistically significance difference between level of ZAP-70 expression and bone marrow blasts before treatment and after three month treatment as shown in figure (26).
3. Sixty eight percentage (17/25) were B-cell ALL with immuno-phenotyping CD10⁺, CD19⁺, CD20⁺, CD23⁺, Cyt.CD79a⁺(common ALL) as shown in figure (27).
4. Thirty two percentage (8/25) were T-cell ALL with immunophenotyping CD3⁺, CD5⁺, CD7⁺, CD4⁺, CD8⁺(common ALL) as shown in figure (27).
5. There was no statistically significance difference between ZAP-70 expression in B-ALL and T-cell either before or after treatment as shown in table (4).
6. There were significant negative correlations between level of ZAP-70 expression and hemoglobin level, and platelet count before treatment as shown in figure (29), and in figure (31) .While there were significant positive correlations between level of ZAP-70 expression , total leucocytic count before treatment as shown in figure (30) and bone marrow blasts before treatment as shown in figure (32).

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7. During the follow up period, two cases out of eight cases were T-cell died, while two cases out of fifteen cases were B-cell died as shown in table (5).
 8. Thirty two percentage (8/25) showed complete remission with significant lower level of ZAP-70 expression after treatment than before treatment as shown in table (6).
 9. While thirty six percentage (9/25) showed partial remission with significant lower level of ZAP-70 expression after treatment than before treatment as shown in table (6).
 10. While sixteen percentage (4/25) showed relapse with no statistically significant difference between the level of ZAP-70 expression before treatment and after treatment among these patients as shown in table (6).
 11. The percentage of ZAP-70 expression of clinical complications among the patient group during therapy was shown in figure (28).

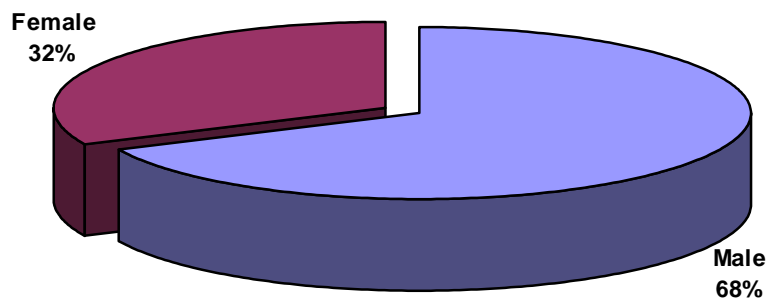
1A- Clinical analysis between patient group and control group:-

<i>Symptomes & Signs</i>	Patient group (n = 25)		Control group (n = 10)		<i>P-value</i>
	No.	%	No.	%	
Pallor	10	40 %	0	0 %	0.018**
Purpura	16	64 %	0	0 %	0.001***
Bone aches	14	56%	0	0 %	0.002**
Weight Loss	10	40%	0	0 %	0.018**
Lymphadenopathy	13	52%	0	0 %	0.004**
Fever	14	56%	0	0 %	0.002**
Sex: Male	17	68%	6	60%	0.652
Female	8	32%	4	40 %	
Age (mean in years)	6.12 \pm 2.07		6.90 \pm 2.18		0.130

* ≤ 0.05 Low Significance. ** ≤ 0.01 Moderate Significance. *** ≤ 0.001 Highly Significance.



Fig(11): Graphic data of Age in Patient group and control group .



Fig(12): Male and Female percentage of the cases.

1B- Clinical analysis between patient group and control group:-

	Patient group (n = 25) Mean \pm SD	Control group (n = 10) Mean \pm SD	<i>P-value</i>
Liver span (cm)	10.56 \pm 3.17	0.00 \pm 0.00	0.00***
Spleen (cm)	7.9 \pm 1.98	0.00 \pm 0.00	0.00***

* \leq 0.001 Highly Significance.

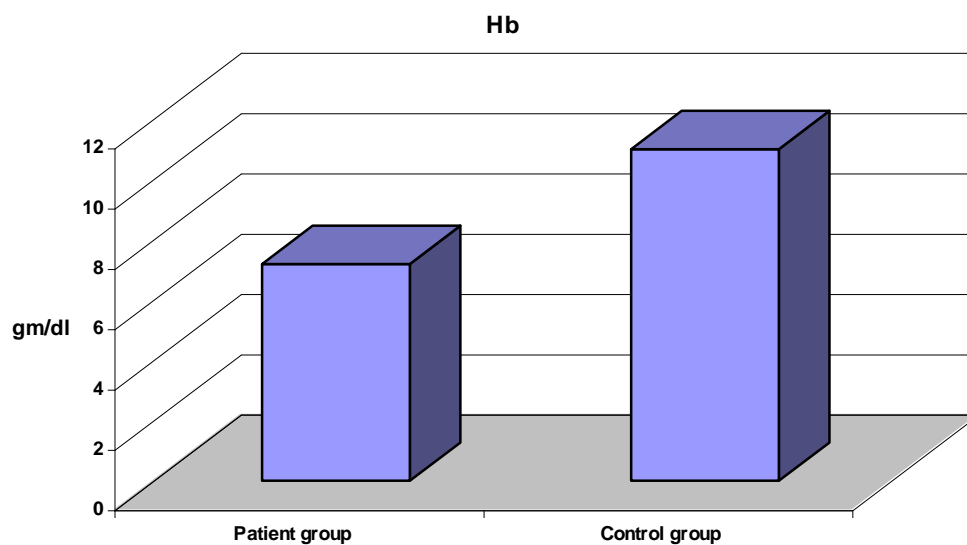
1C- Survival analysis between patient group and control group:-

<i>Symptomes & Signs</i>	Patient group (n = 25)		Control group (n = 10)		<i>P-value</i>
	No.	%	No.	%	
Survival:					
Alive	21	84 %	10	100 %	0.179
Dead	4	16 %	0	0	

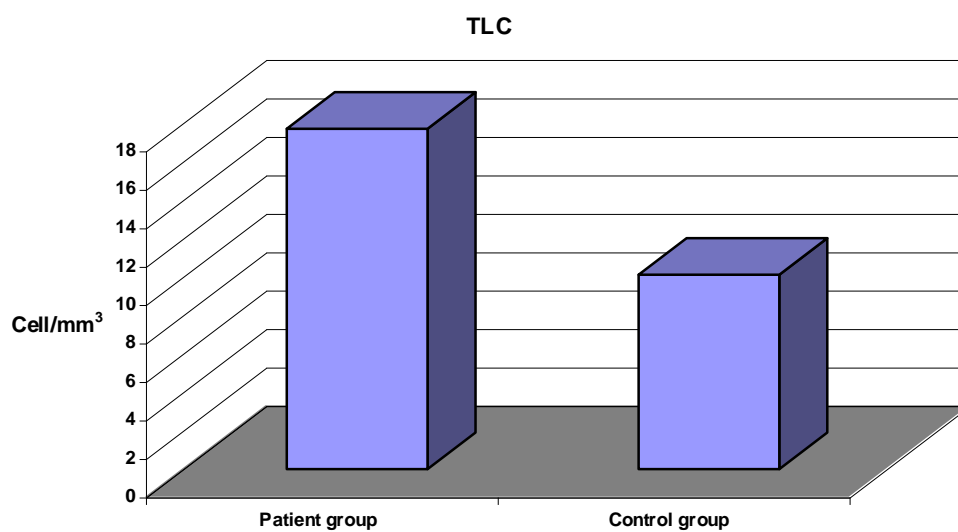
2- Comparison of laboratory results between patient group and control group :-

Laboratory Investigations:-	Patient group Mean \pm SD	Control group Mean \pm SD	P-value
HB (gm/dL)	7.19 \pm 1.75	11.00 \pm 1.57	0.000***
TLC (cell/mm³)	17.72 \pm 9.07	10.12 \pm 2.44	0.001***
Neutrophils (%)	24.35 \pm 9.79	38.13 \pm 11.23	0.001***
Lymphocyte (%)	68.34 \pm 11.63	45.55 \pm 6.85	0.000***
Platelet (cell/mm³)	36.99 \pm 19.64	222.13 \pm 35.14	0.000***
Uric acid (mg/dL)	4.17 \pm 0.58	2.61 \pm 1.13	0.002 **
Creatinin (mg/dL)	0.96 \pm 0.50	0.72 \pm 0.15	0.150
Bilirubin (mg/dL)	1.18 \pm 2.48	0.22 \pm 0.45	0.360
ALT (unit/L)	27.12 \pm 28.62	18.20 \pm 2.82	0.337
ZAP-70 before therapy	50.70 \pm 14.09	2.39 \pm 1.02	0.000***

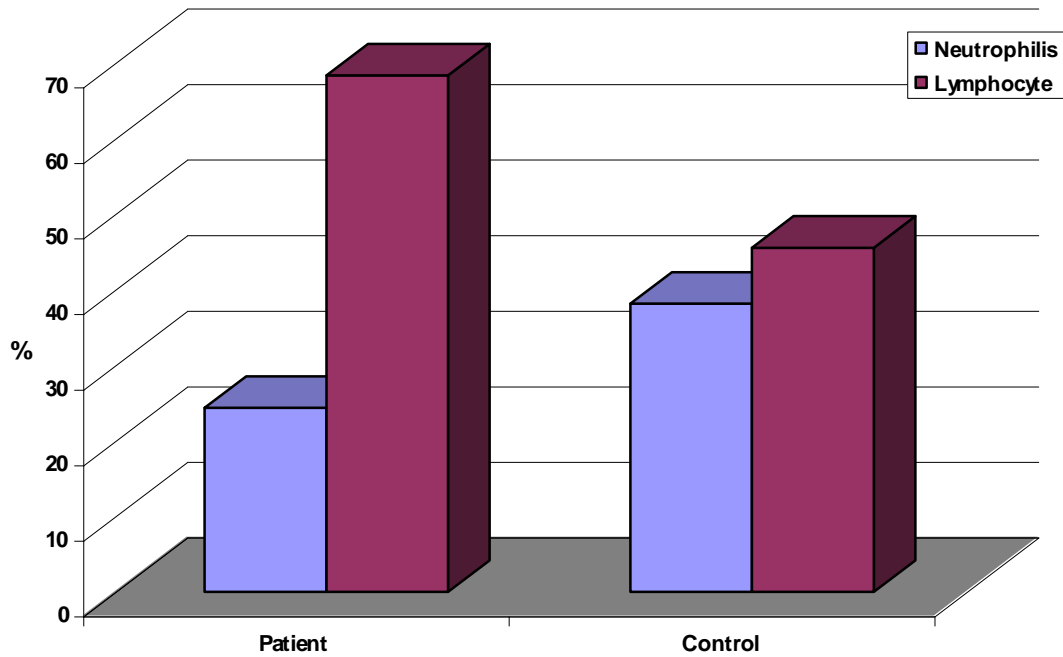
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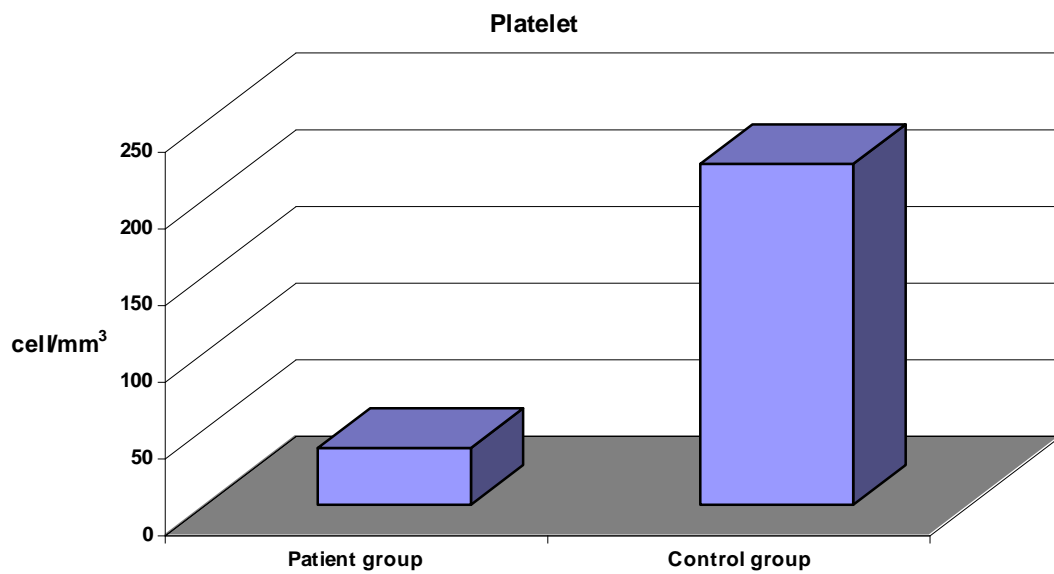
Fig(13): Graphic data of Haemoglobin in Patient group and control group.



Fig(14): Graphic data of Total leucocytic count in Patient group and control group.



Fig(15): Graphic data of Neutrophilis and Lymphocytes in Patient group and control group .



Fig(16): Graphic data of Platelets in Patient group and control group .

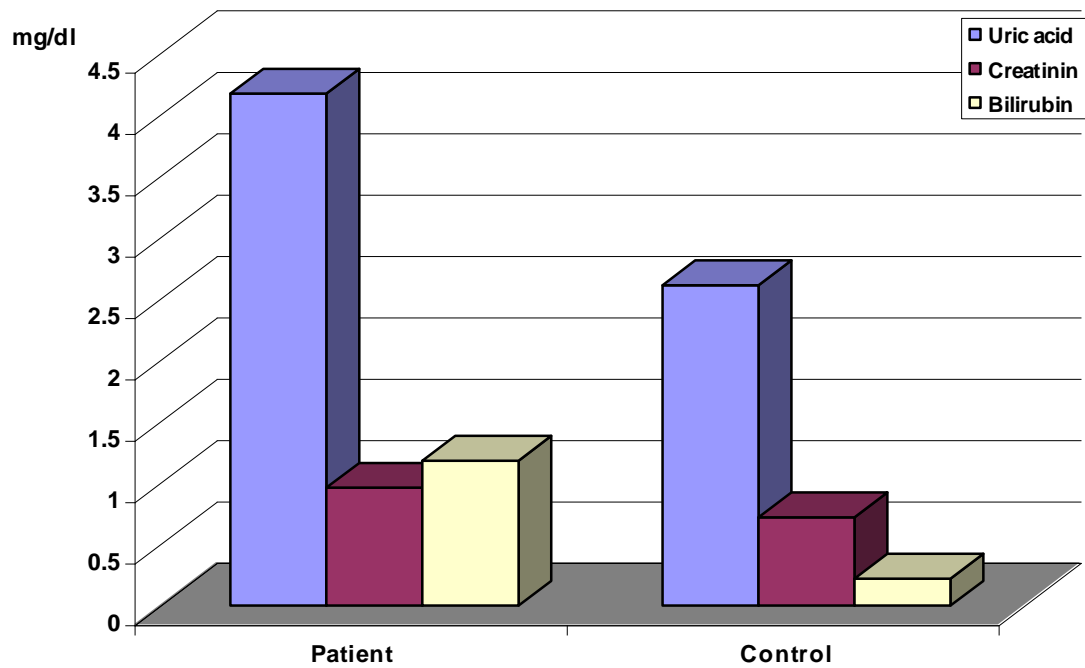
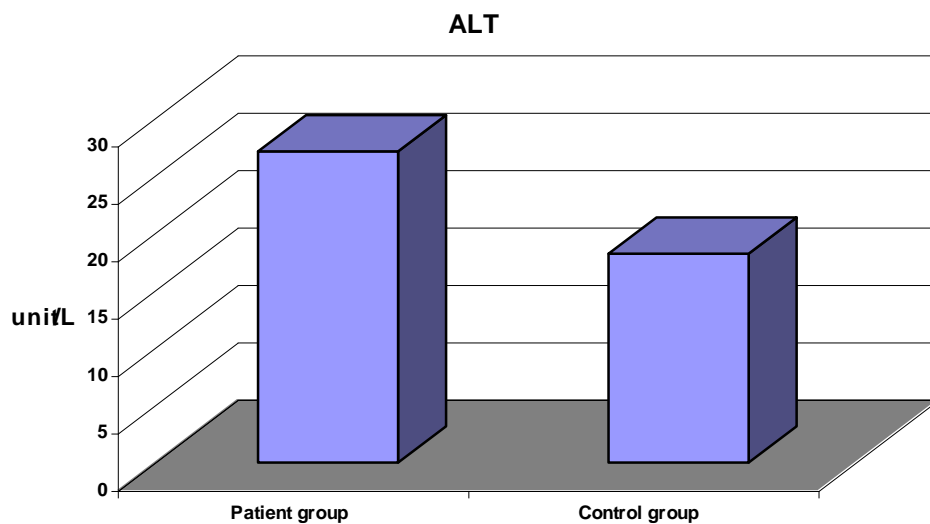
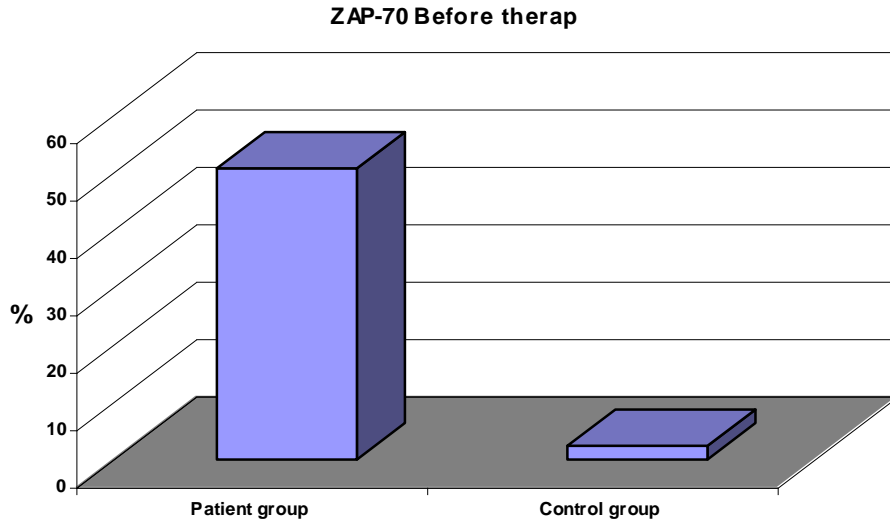


Fig (17): Graphic data of Uric acid, Creatinin and Bilirubin in Patient group and control group .



Fig(18): Graphic data of ALT in Patient group and control group.

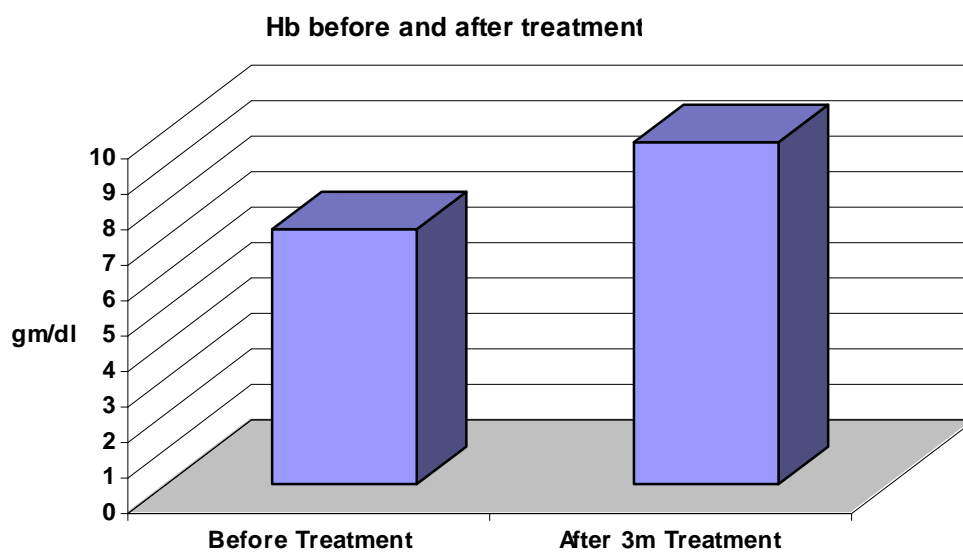


Fig(19): Graphic data of ZAP-70 before therapy in Patient group and control group.

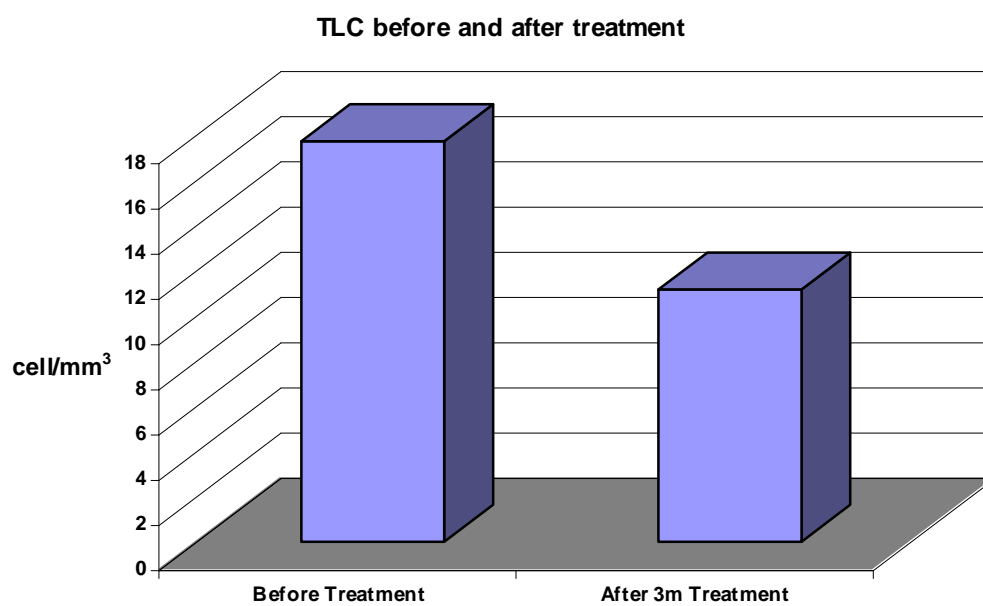
3- Comparison of laboratory findings before ttt & after ttt in patient group:-

<i>Laboratory Investigations:-</i>	Before ttt Mean ± SD	After 3 months ttt Mean ± SD	<i>P-value</i>
Hb (gm/dL)	7.19 ± 1.75	9.64 ± 2.24	0.016*
TLC (cell/mm ³)	17.72 ± 9.07	11.16 ± 4.59	0.005**
Neutrophilis (%)	24.35 ± 9.79	50.82 ± 10.92	0.000***
Lymphocyte (%)	68.34 ± 11.63	41.63 ± 9.97	0.000***
Platelet (cell/mm ³)	36.99 ± 19.64	70.64 ± 21.02	0.000***
Uric acid (mg/dL)	4.17 ± 0.58	3.91 ± 0.46	0.060
Creatinin (mg/dL)	0.96 ± 0.50	0.91 ± 0.27	0.650
Bilirubin (mg/dL)	1.18 ± 2.48	1.46 ± 1.48	0.611
ALT (unit/L)	27.12 ± 28.62	23.00 ± 16.78	0.532
Liver span (cm)	10.56 ± 3.17	10.08 ± 2.19	0.298
Spleen (cm)	7.9 ± 1.98	9.56 ± 1.66	0.004**
ZAP-70 (N < 20 %)	50.32 ± 14.26	33.04 ± 12.79	< 0.001***
Bone marrow blasts	66.96 ± 18.85	24.08 ± 20.42	< 0.001***

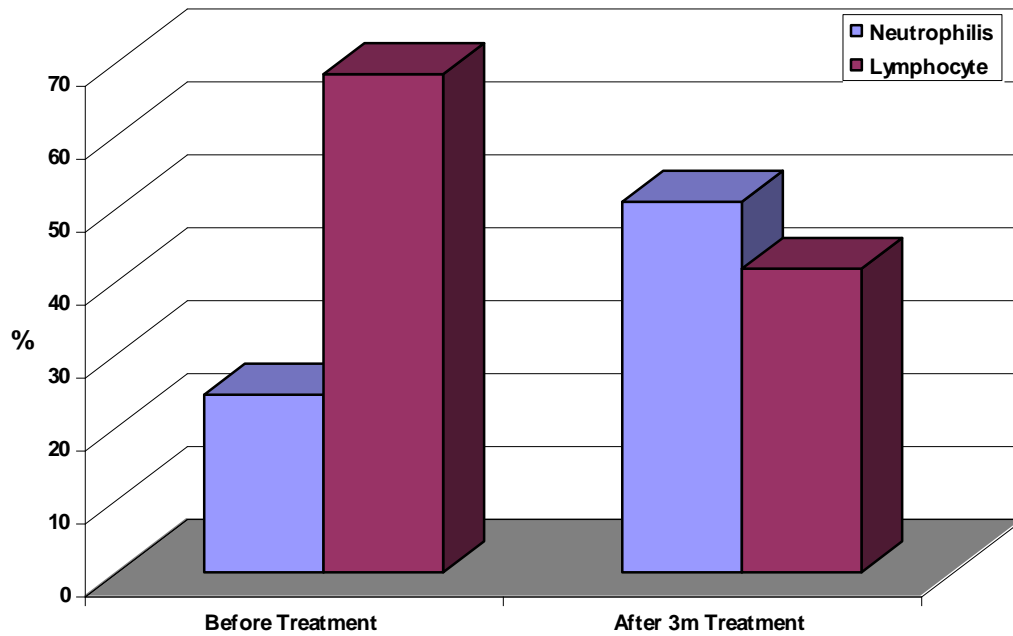
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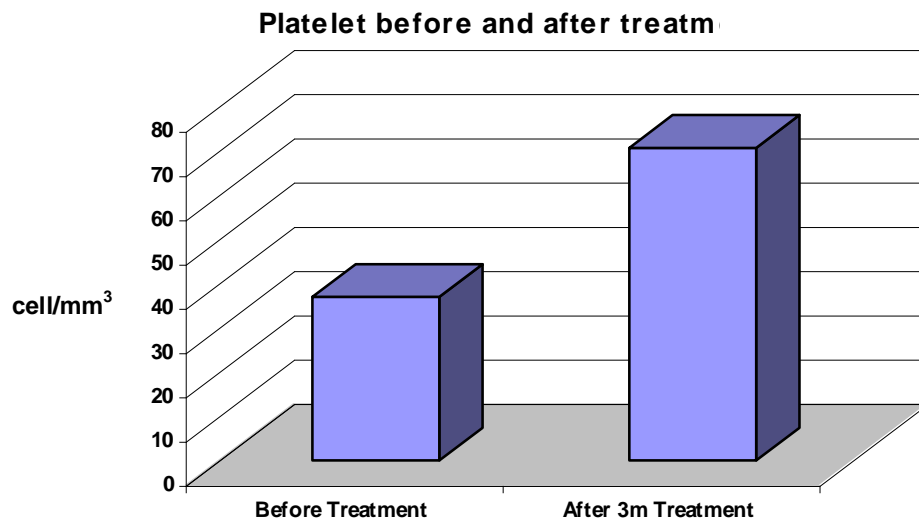
Fig(20): Graphic data of Haemoglobin before therapy and after 3 month therapy.



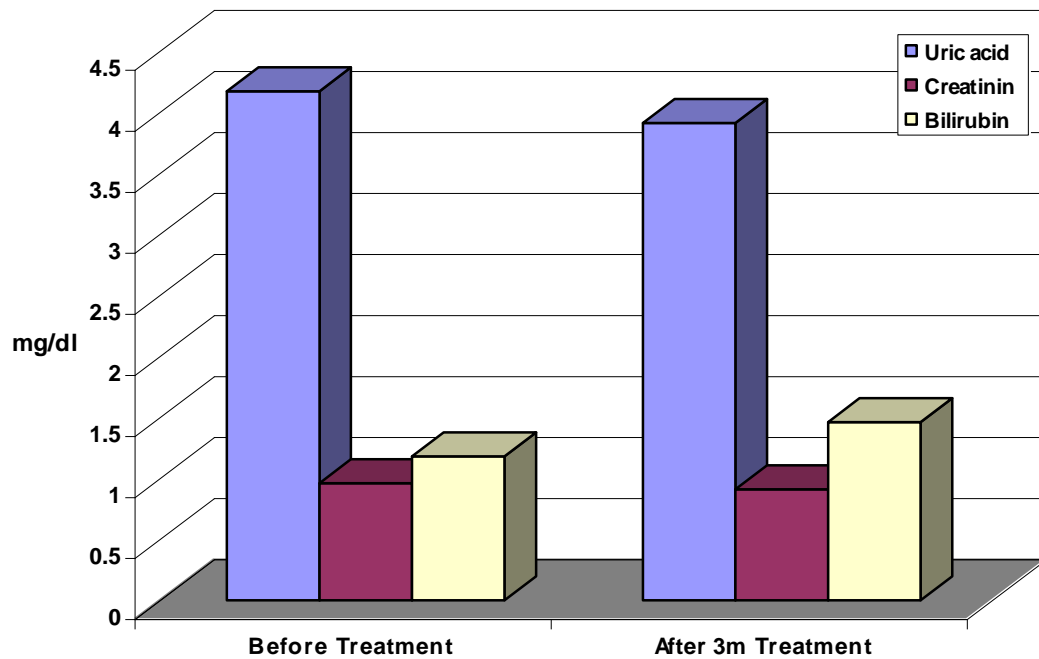
Fig(21): Graphic data of Total leucocytic count before therapy and after 3 month therapy.



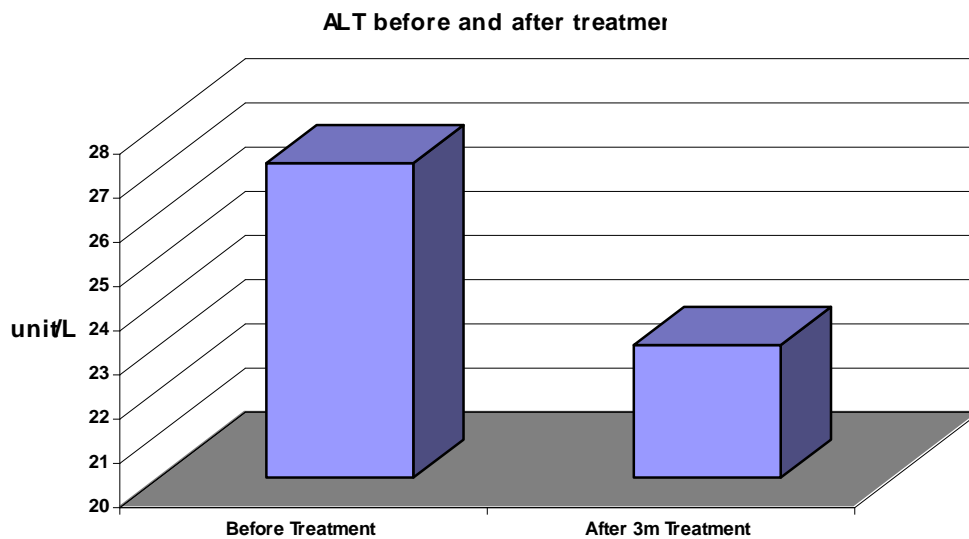
Fig(22):Graphic data of Neutrophilis and Lymphocytes before therapy and after 3 month therapy.



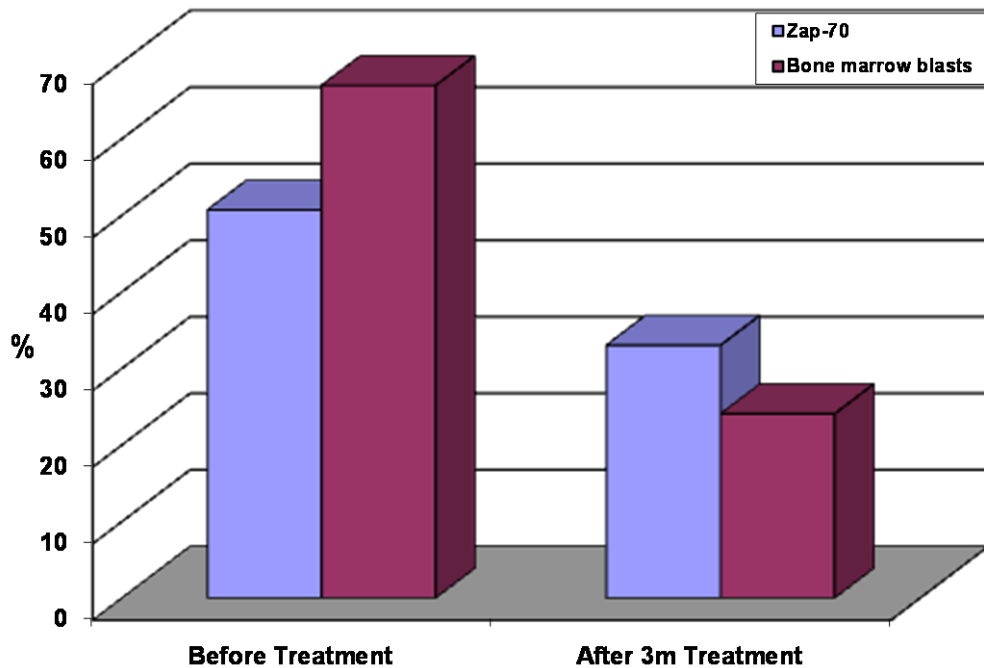
Fig(23): Graphic data of platelets before therapy and after 3 month therapy.



Fig(24): Graphic data of Uric acid, creatinin and Bilirubin before therapy and after 3 month therapy.



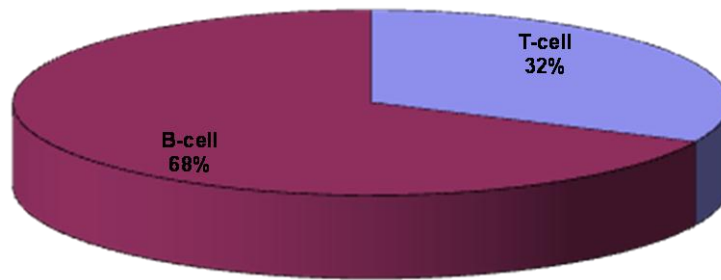
Fig(25): Graphic data of ALT before therapy and after 3 month therapy.



Fig(26): Graphic data of ZAP-70 and Bone marrow blasts before therapy and after 3 month therapy.

4- Relation between Zap-70 expression before therapy, after therapy and immunophenotype of the patient group:-

	Total No (25)	%	ZAP-70 before ttt Mean \pm SD (%)	ZAP-70 after ttt Mean \pm SD (%)
T –cell	8	32 %	51.88 \pm 18.05	29.57 \pm 15.58
B –cell	17	68 %	50.15 \pm 12.43	34.47 \pm 11.69
<i>P-value</i>			0.782	0.406



Fig(27): Immunophenotyping percentage of the patient group.

5-Relation between Zap-70 expression and Survival rate of the patients:-

	T-cell				B-cell			
	Live		Dead		Live		Dead	
	<u>NO.</u>	<u>Percentage</u>	<u>NO.</u>	<u>Percentage</u>	<u>NO.</u>	<u>Percentage</u>	<u>NO.</u>	<u>Percentage</u>
<i>Survival</i>	6	24 %	2	8 %	15	60 %	2	8 %
ZAP-70 before ttt	51.17 ± 20.95		54.0 ± 8.49		49.33 ± 12.89		56.35 ± 7.57	
ZAP-70 after ttt	32.0 ± 15.54		35.0 ± 28.28		32.27 ± 10.33		51.0 ± 8.49	
<i>P-value</i>	0.008**		0.404		< 0.001***		0.077	

*≤ 0.05 Low Significance. **≤ 0.01 Moderate Significance. ***≤ 0.001 Highly Significance.

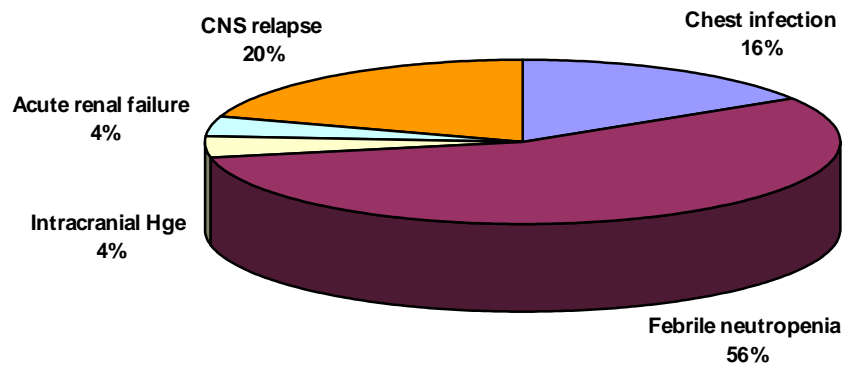
6- Relation between percentage of Zap-70 expression and fate of the patient group:-

	<i>Survival (21 Alive, 4 Dead)</i>		
	Complete remission (n = 8)	Partial remission (n = 9)	Relapse (n = 4)
T-cell	3 (37.5%)	3 (33.3%)	0 (0%)
B-cell	5 (62.5%)	6 (66.6%)	4 (100%)
ZAP-70 before ttt	39.36 ± 12.21	56.89 ± 14.95	55.0 ± 9.52
ZAP-70 after ttt	23.37 ± 9.40	37.67 ± 9.19	37.50 ± 11.61
<i>P-value</i>	0.004**	< 0.001***	0.087

*≤ 0.05 Low Significance. **≤ 0.01 Moderate Significance. ***≤ 0.001 Highly Significance.

7- Relation between percentage of ZAP-70 expression of clinical complications among the patient group during therapy:-

<i>Complications</i>	<i>Frequency</i>	<i>Percentage (%)</i>	<i>ZAP-70 before ttt</i> (Mean ± SD) %
Chest infection	4	16 %	56 ± 18.42
Febrile neutropenia	14	56 %	49.56 ± 15.58
Intracranial He	1	4 %	60
Acute renal failure	1	4 %	43
CNS relapse	5	20 %	49.34 ± 8.80
<i>Total</i>	25	100 %	

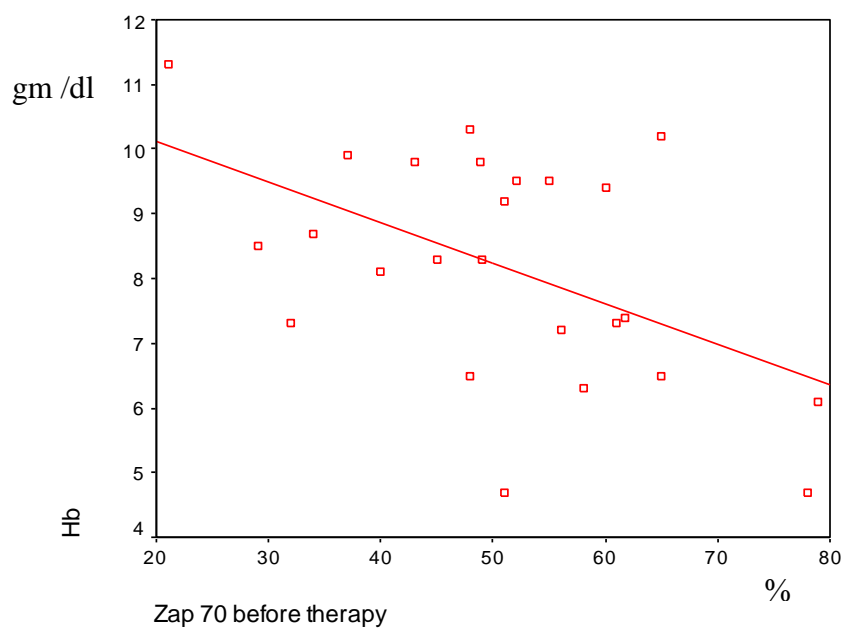


Fig(28): Percentage of clinical complications among the patient group during therapy.

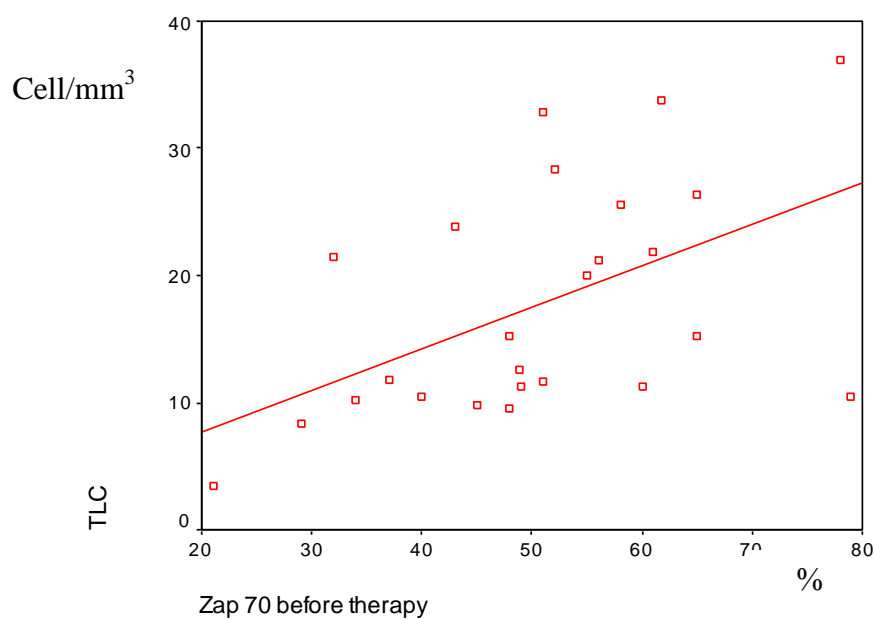
8- Correlations between ZAP-70 expression before therapy and laboratory data of the patients :

Laboratory Investigations:-	Zap-70 Before therapy	
	r-value	P-value
Hb (gm/dL)	- 0.505	0.010**
TLC (cell/mm ³)	0.508	0.009**
Neutrophilis (%)	0.147	0.485
Lymphocyte (%)	- 0.122	0.562
Platelet (cell/mm ³)	- 0.413	0.040*
Uric Acid (mg/dL)	0.167	0.425
Creatinin (mg/dL)	- 0.175	0.401
Bilirubin (mg/dL)	- 0.028	0.895
ALT (unit/L)	0.023	0.914
Spleen (in cm)	0.121	0.565
Bone marrow blasts	0.407	0.043*

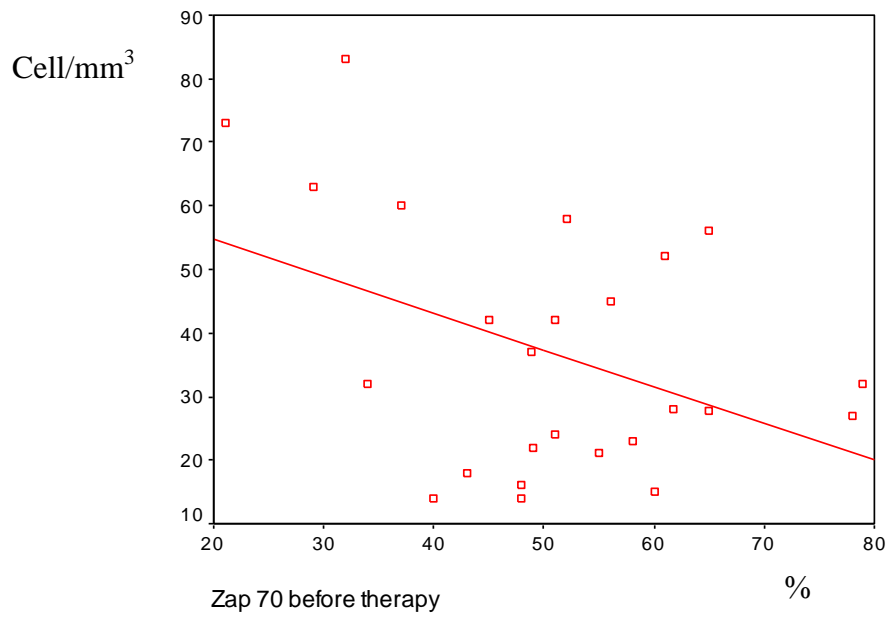
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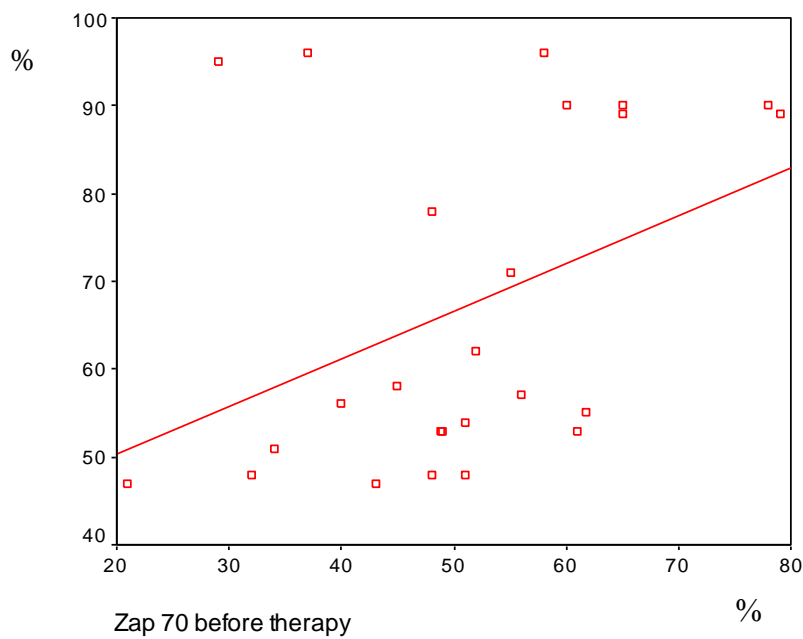
Fig(29): Correlation between Haemoglobin and Zap 70 before therapy in patients group.



Fig(30): Correlation between Total leucocytic count and Zap 70 before therapy in patients group.



Fig(31): Correlation between platelets and Zap 70 before therapy in patients group.

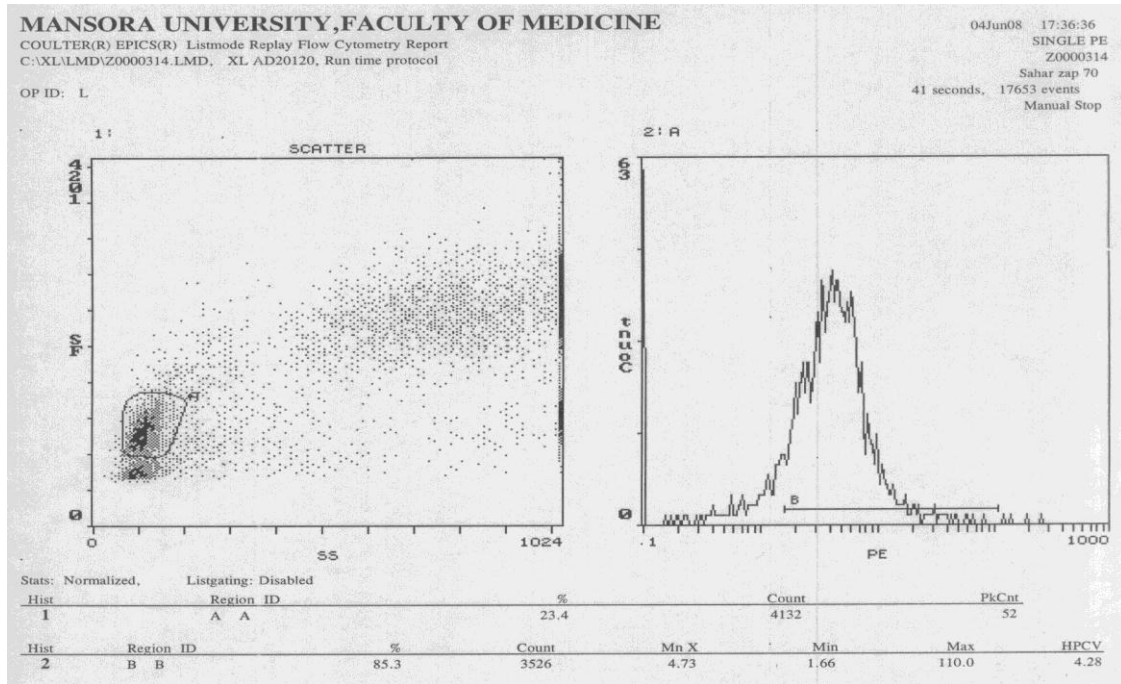


Fig(32): Correlation between bone marrow blasts and Zap 70 before therapy in patients group.

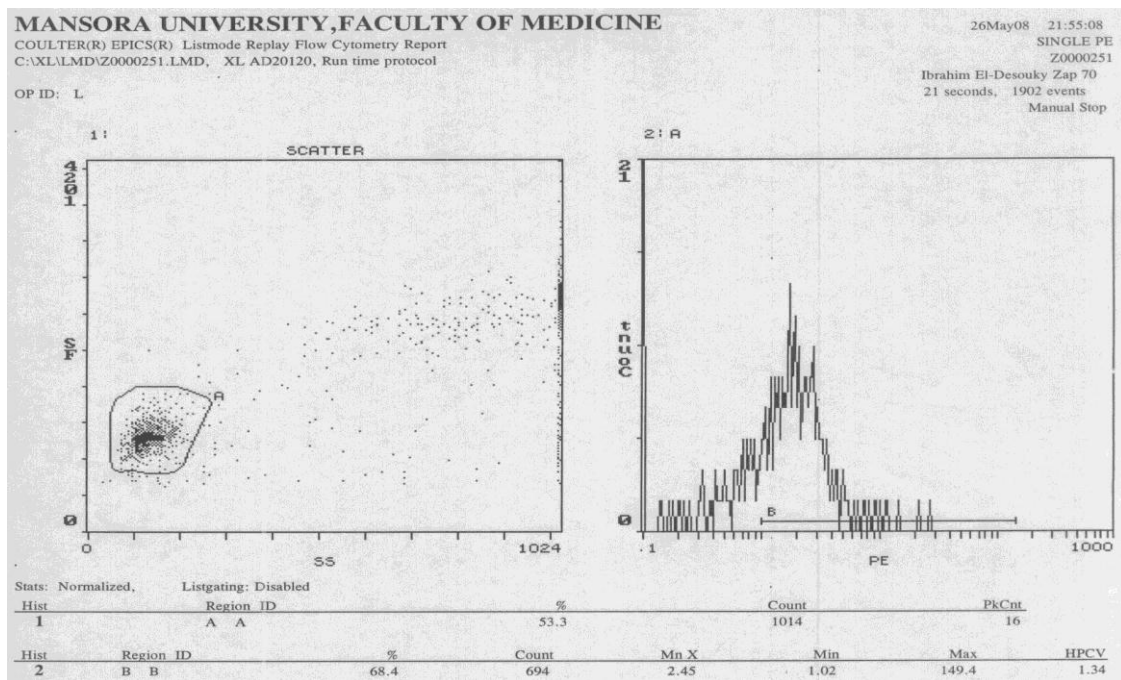
9- Correlations between ZAP-70 expression after therapy and laboratory data of the patients :

Laboratory Investigations:-	Zap-70 After therapy	
	r-value	P-value
Hb (gm/dL)	0.607	0.002**
TLC (cell/mm ³)	- 0.586	0.003**
Neutrophilis (%)	- 0.646	0.001***
Lymphocyte (%)	0.536	0.007**
Platelet (cell/mm ³)	0.587	0.003**
Uric Acid (mg/dL)	- 0.048	0.825
Creatinin (mg/dL)	- 0.096	0.654
Bilirubin (mg/dL)	- 0.115	0.592
ALT (unit/L)	- 0.497	0.013*
Bone marrow blasts	0.566	0.004**

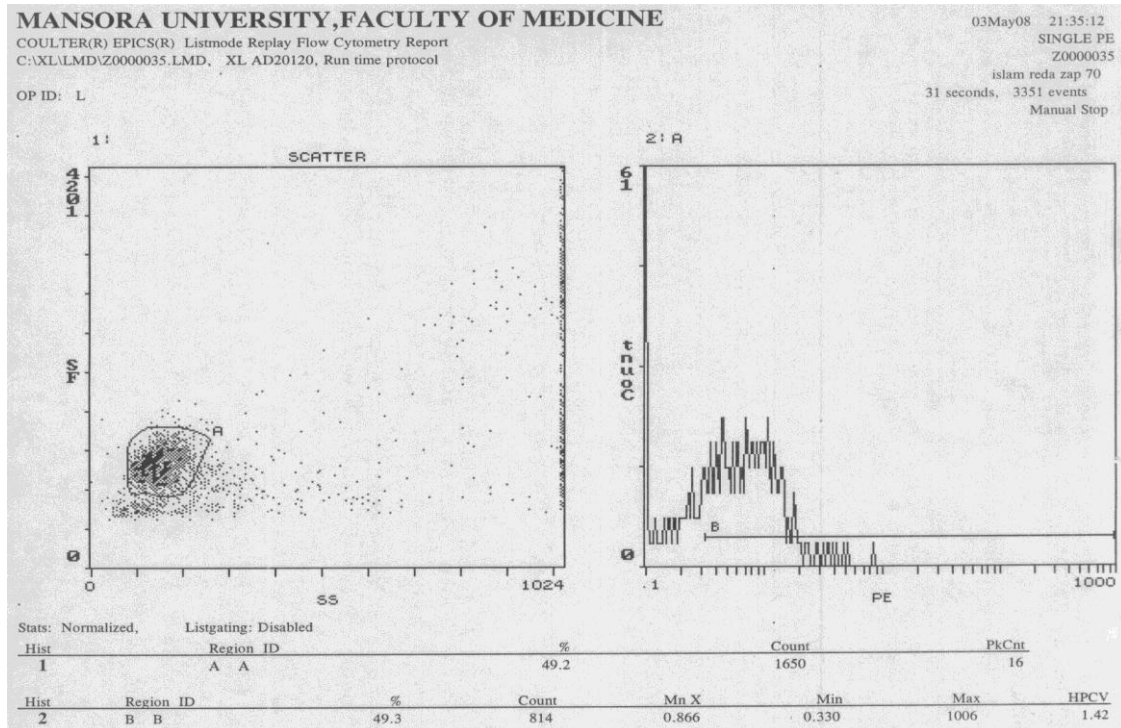
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Fig(33): Example for Immunophenotyping results for B-cell leukemia.
 (case no.16)

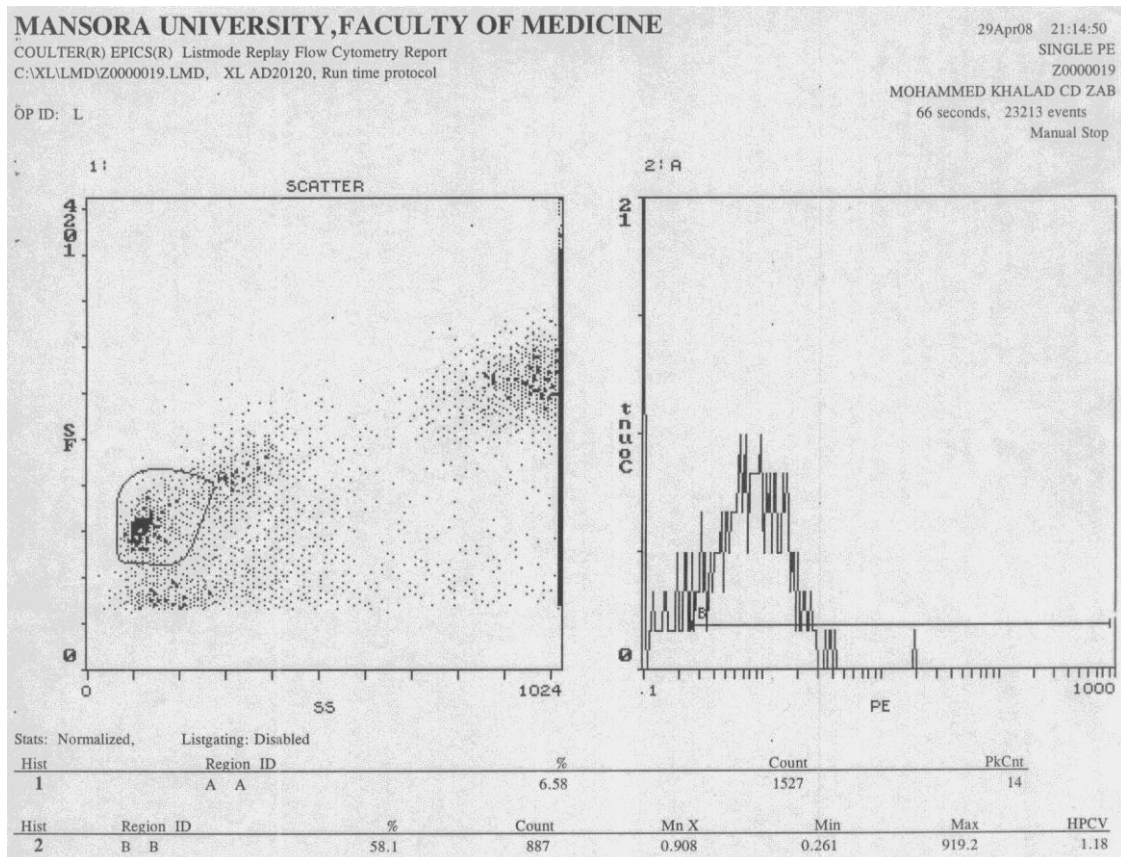


Fig(34): Example for Immunophenotyping results for B-cell leukemia.
 (case no.9)



Fig(35): Example for Immunophenotyping results for B-cell leukemia.

(case no.3)



Fig(36): Example for Immunophenotyping results for T-cell leukemia.

(case no.10)