Result

- Two groups were included in this study . Group(1) included 25 cases with neonatal jaundice and were divided into 3 subgroups , group (1a) before starting phototherapy , group (1b)72 h after starting phototherapy , group (1c) 72 h after stopping phototherapy .

- Group(2)included 12 healthy controls at the time of examination.

Table (1): comparison between cases & control groups as regards the demographic data :

		Group 1		Group 2		Total		Test of significance	p
		No.	%	No.	%	No.	%		
Sex	Female	12	48.0%	6	50.0%	18	48.6%	0.1	>0.05
	Male	13	52.0%	6	50.0%	19	51.4%		
	Total	25	100.0%	12	100.0%	37	100.0%		
Mode of delivery	CS	16	64.0%	4	33.3%	20	54.1%	3.1	>0.05
	NVD	9	36.0%	8	66.7%	17	45.9%		
	Total	25	100.0%	12	100.0%	37	100.0%		

	Group 1		Group 2		Test of significance	p
	MEAN	SD	MEAN	SD		
Wt (KG)	3.07	0.41	3.33	0.33	1.8	>0.05
GA/weeks	37.8	1.52	37.7	1.13	0.1	>0.05
Post natal days	3.4	1.22	4.4	1.67	2.01	>0.05

This table shows no statistically significant differences between patients and controls regarding gestational age, postnatal age and birth weight. However, patients had significantly higher frequency of birth by CS when compared with controls.

Figure (1) shows comparison between cases and control as regards sex and mode of delivery :
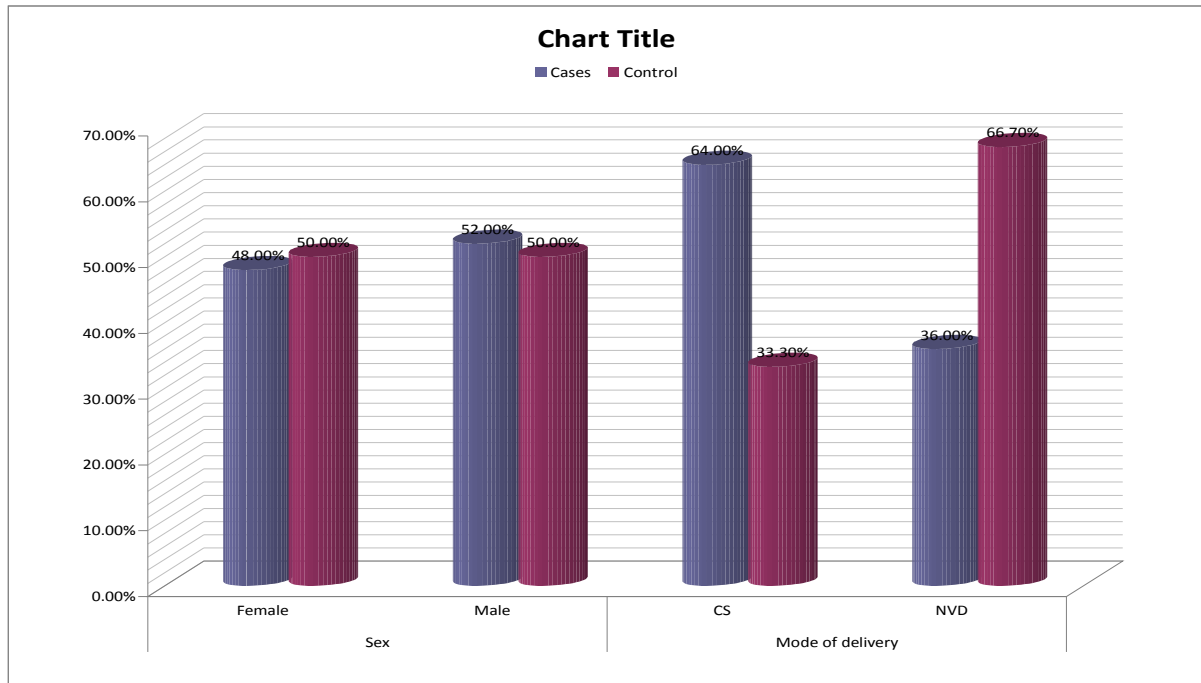

Figure (2) shows comparison between cases and control as regards weight , gestational age and postnatal days :
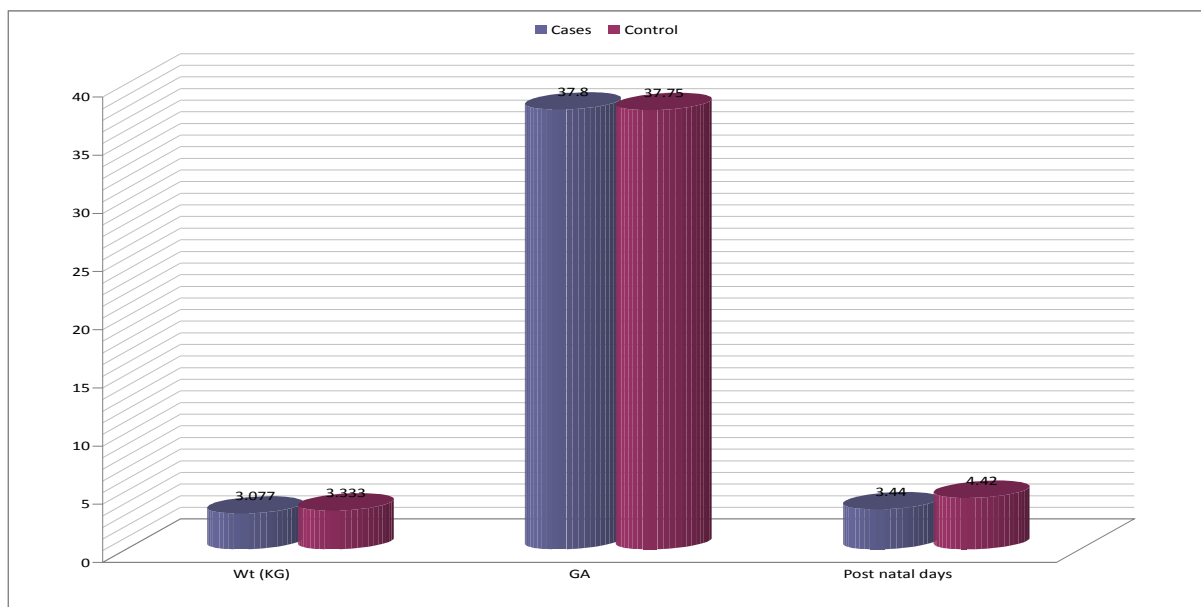
Table (2): comparison between cases (subgroup 1a)& control group (group 2) as regards CBC :

	Group 1a		Group 2		Test of significance	p
	MEAN	SD	MEAN	SD		
WBCs $\times 10^3$	9.63	4.46	8.6	1.77	0.7	>0.05
HB gm\dl	14.14	1.52	15.1	1.93	1.7	>0.05
RBCs $\times 10^6$	4.98	0.43	4.7	0.32	1.5	>0.05
Platelets $\times 10^3$	227.5	59.4	259.7	60.03	1.5	>0.05

This table shows that there was no significant difference between patients and control as regard WBCs , HB , RBCs and platelets.

Figure (3) : comparison between cases (subgroup 1a)& control group (group 2)as regards CBC at 1st examination (before phototherapy) :
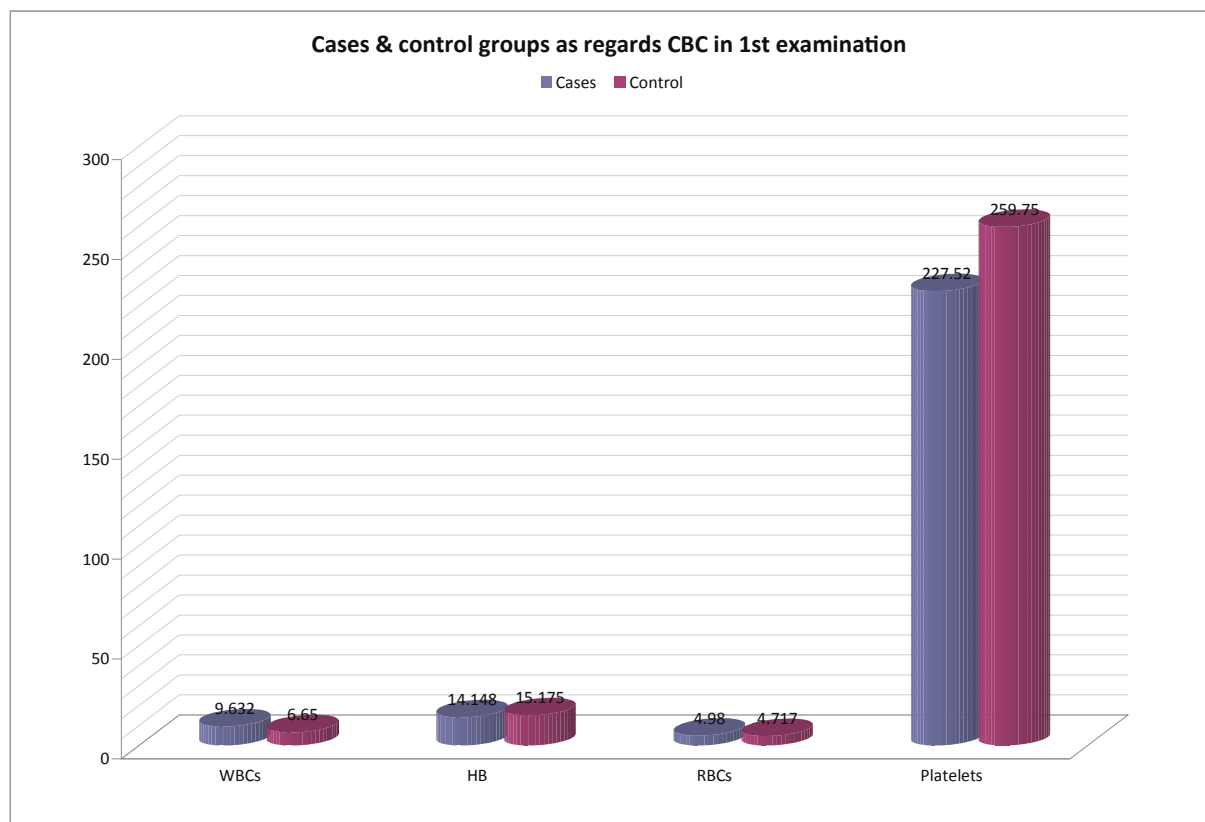
Table (3): comparison between cases (subgroup 1a)& control group (group 2) as regards Billirubin :

	Group 1a		Group 2		Test of significance	p
	MEAN	SD	MEAN	SD		
TB mg/dl	18.03	1.73	1.27	0.19	47.6	**<0.001**
DB mg/dl	0.6	0.18	0.49	0.10	1.7	>0.05

This table shows that patients had significantly higher total bilirubin when compared with controls.

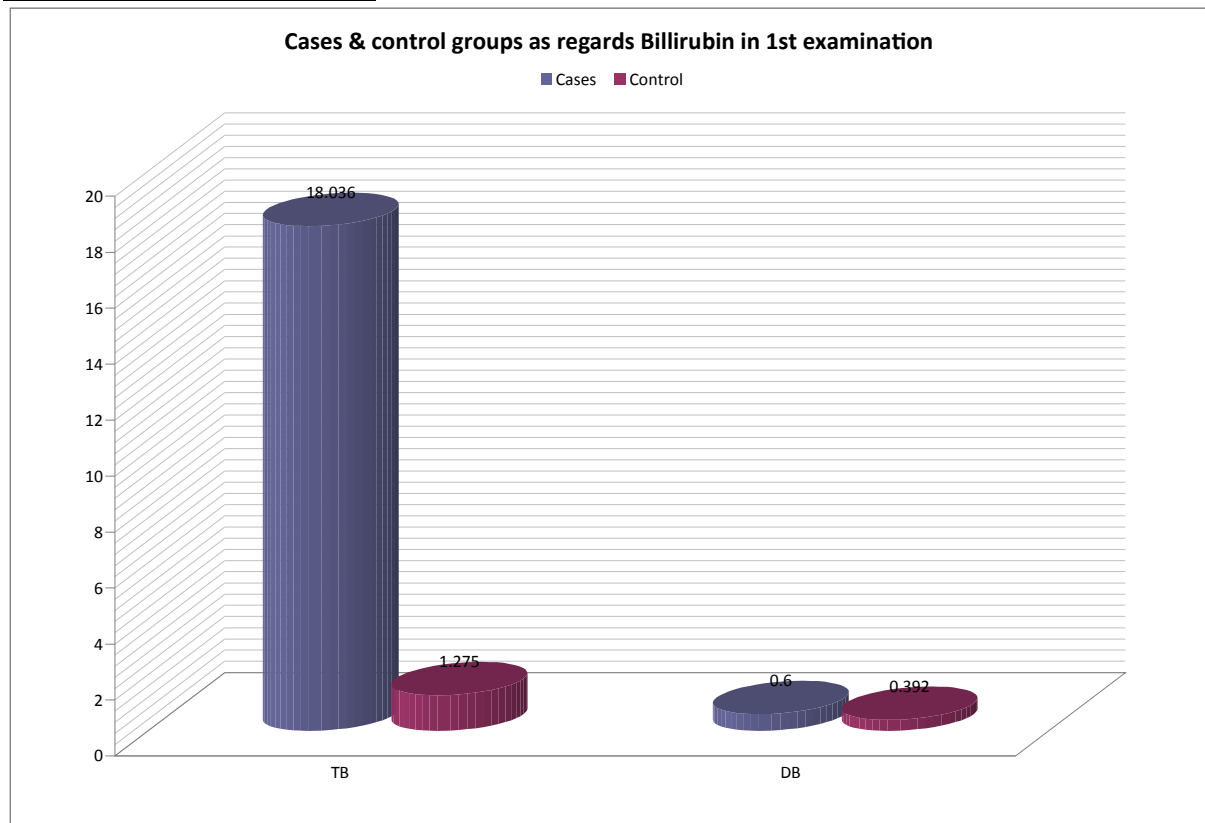**Figure (4) : comparison between cases (subgroup 1a)& control group (group 2)as regards Billirubin :**

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Table (4): comparison between cases (subgroup 1a)& control group (group 2) as regards TNF-α & IL-6 :

	Group 1a		Group 2		Test of significance	p
	MEAN	SD	MEAN	SD		
TNF-α pg/ml	286.7	208.3	215.8	114.3	1.3	>0.05
IL-6 pg/ml	114.4	322.6	12.9	2.4	1.6	>0.05

This table shows no significant difference between patients and control groups as regards TNF-α and IL-6 at the first examination.

Figure (5) : comparison between cases (subgroup 1a)& control group (group 2) as regards TNF-α & IL-6:
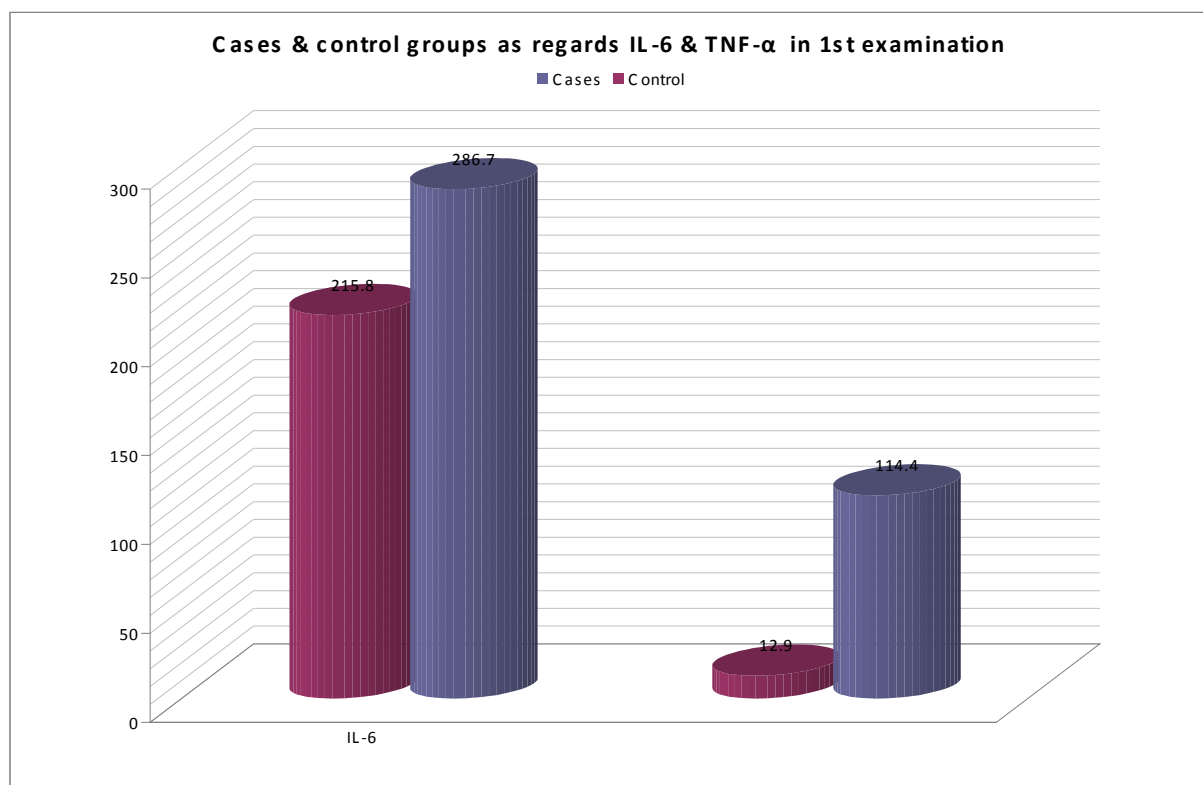
Table (5): comparison between cases(subgroup 1b) & control group(group 2) as regards CBC :

	Group 1b		Group 2		Test of significance	p
	MEAN	SD	MEAN	SD		
WBCs×10³	8.3	1.93	8.6	1.77	0.5	>0.05
HB gm/dl	14	1.12	15.1	1.9	1.9	>0.05
RBCs×10	4.7	0.35	4.7	0.32	0.4	>0.05
Platelets×10³	246.2	52.2	259.7	60	0.7	>0.05

This table shows no significant difference between patients and control groups as regards WBCs , HB , RBCs and Platelets .

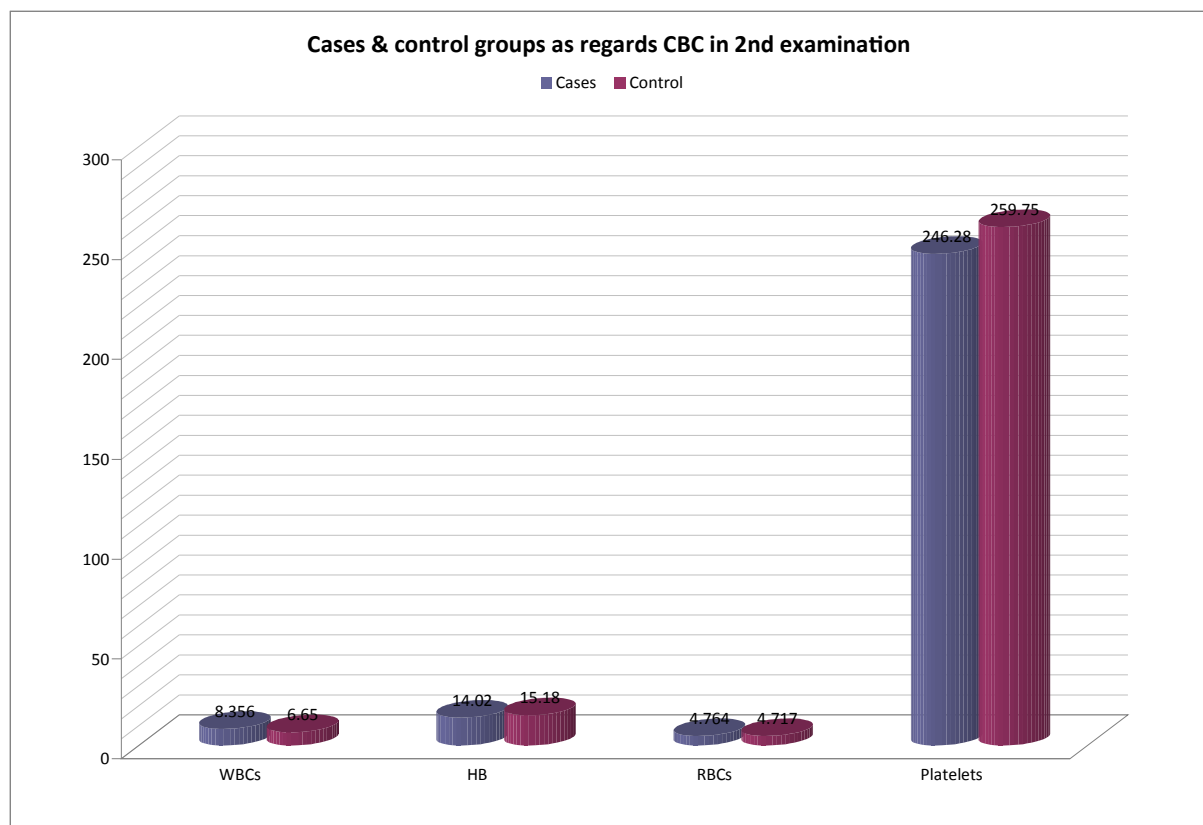**Figure (6): comparison between cases (subgroup 1b) & control group(group 2 as regards CBC :**

Cases & control groups as regards CBC in 2nd examination

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Table (6): comparison between cases(subgroup 1b) & control group (group 2) & as regards Billirubin:

	Group 1b		Group 2		Test of significance	p
	MEAN	SD	MEAN	SD		
TB mg/dl	9.84	1.77	1.2	0.19	23.8	**<0.001**
DB mg/dl	0.56	0.14	0.4	0.10	1.6	>0.05

This table shows that patients after72 hours of starting phototherapy had significantly higher total bilirubin levels when compared with controls.

Figure (7) :comparison between cases (subgroup 1b) & control group(group 2) as regards Billirubin :
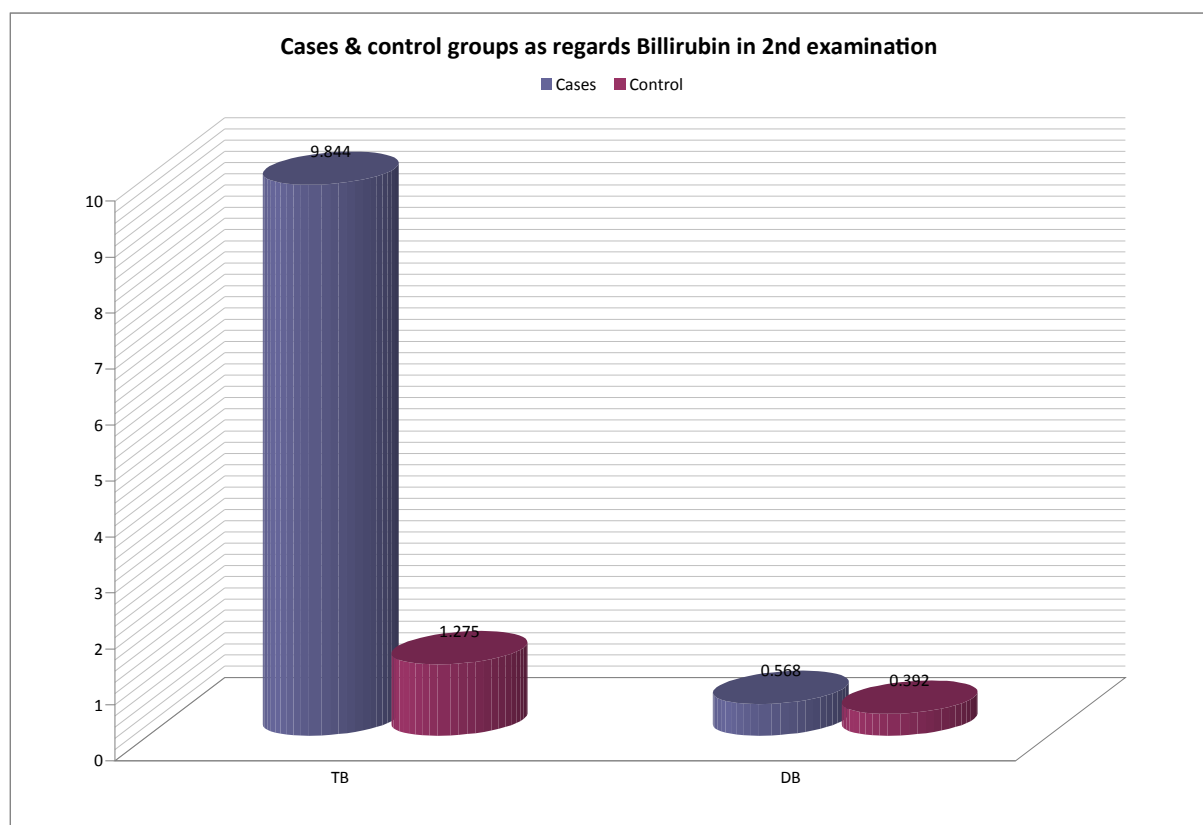

Cases & control groups as regards Billirubin in 2nd examination

Table (7): comparison between cases (subgroup 1b) & control group(group 2)as regards TNF-α & IL-6 :

	Group 1b		Group 2		Test of significance	p
	MEAN	**SD**	**MEAN**	**SD**		
TNF-α pg/ml	354.4	294.2	215.8	114.3	2.1	**<0.05**
IL-6 pg/ml	63.1	104.1	12.9	2.4	1.7	>0.05

This table shows that patients after72 hours of starting phototherapy had significantly higher TNF-α when compared with controls.

Figure (8) : comparison between cases (subgroup 1b) & control group(group 2)as regards TNF-α & IL-6 :
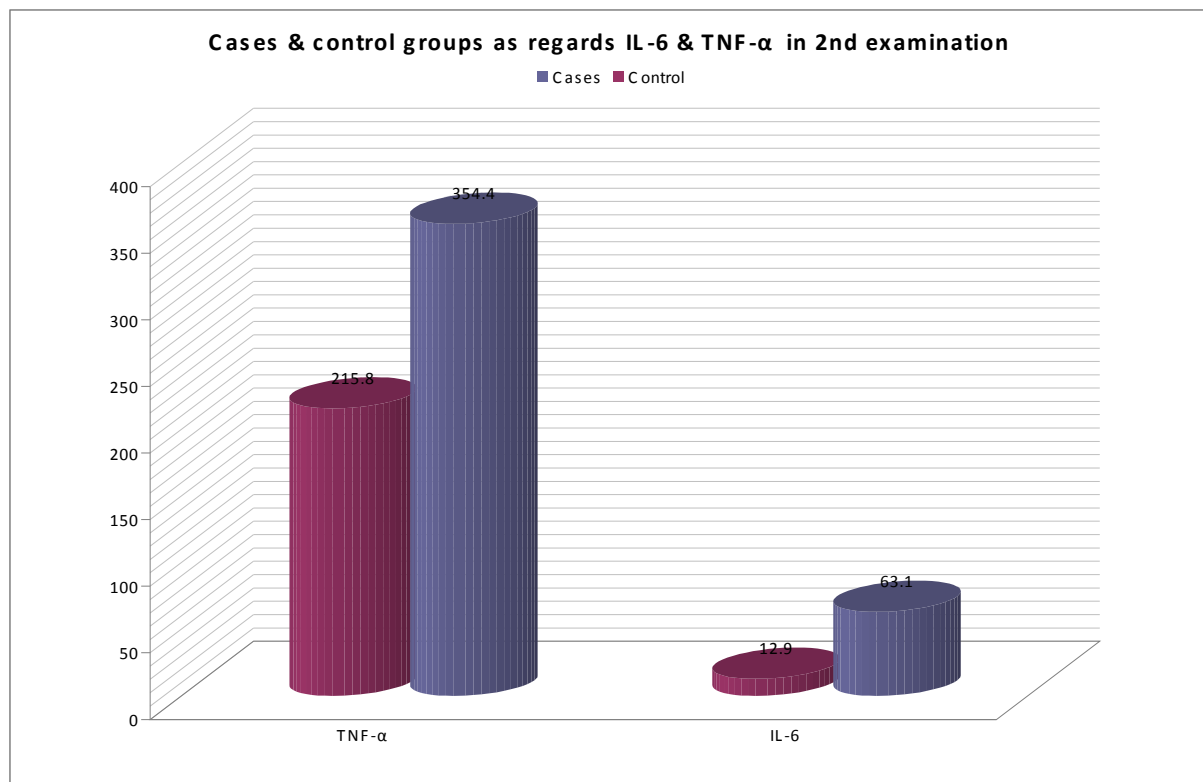
Table (8): comparison between cases (subgroup 1c) & control group(group 2)as regards CBC :

	Group 1c		Group 2		Test of significance	p
	MEAN	**SD**	**MEAN**	**SD**		
WBCs $\times 10^3$	7.09	1.63	6.6	1.77	0.7	>0.05
HB gm/dl	14.3	1.08	15.1	1.9	1.6	>0.05
RBCs $\times 10$	4.8	.30	4.7	.32	1.2	>0.05
Platelets $\times 10^3$	284.1	73	259.7	60	1.01	>0.05

This table shows no significant difference between patients and control groups as regards WBCs , HB , RBCs and Platelets .

Figure (9) : comparison between cases (subgroup 1c) & control group(group 2)as regards CBC :
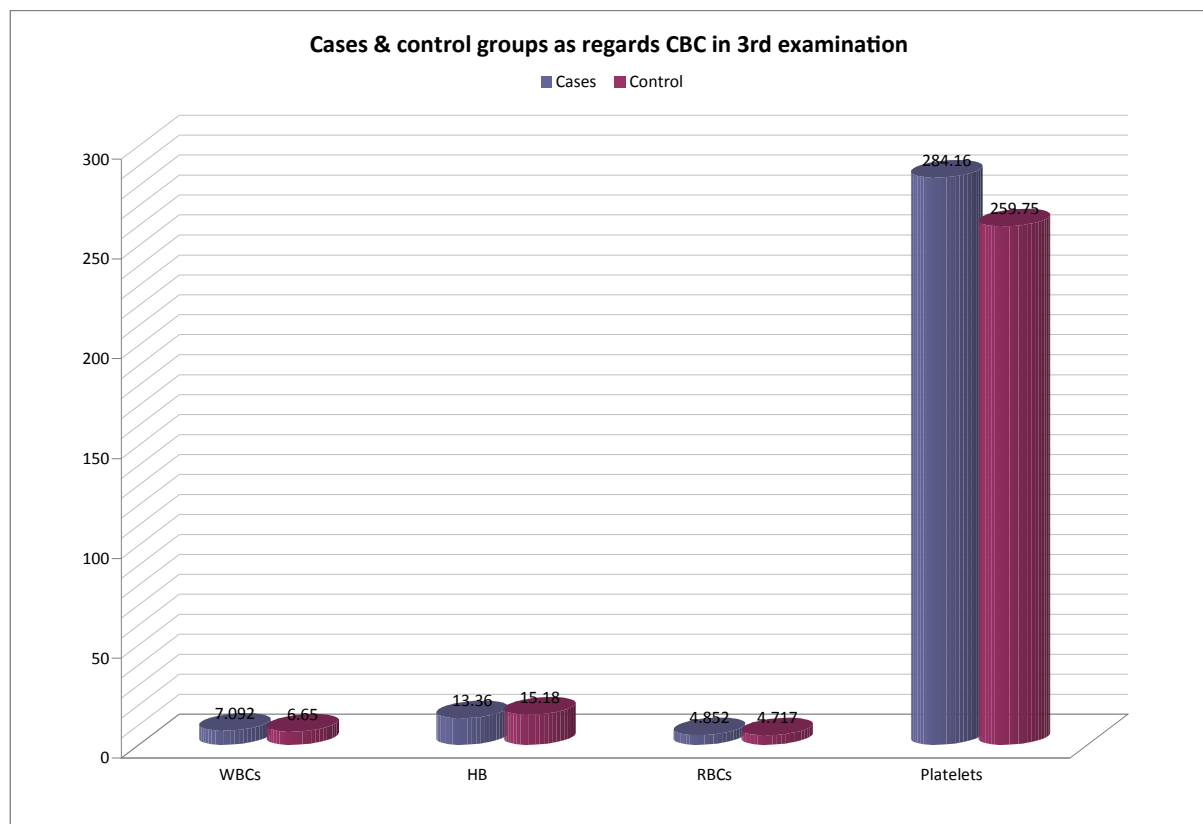

Cases & control groups as regards CBC in 3rd examination

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Table (9): comparison between cases (subgroup 1c) & control group(group 2)as regards Billirubin :

	Group 1c		Group 2		Test of significance	p
	MEAN	**SD**	**MEAN**	**SD**		
TB mg/dl	2.7	0.84	1.2	0.19	8.1	**<0.001**
DB mg/dl	0.5	0.08	0.4	0.10	3.6	>0.05

This table shows that patients after72 hours of starting phototherapy had significantly higher total bilirubin levels when compared with controls.

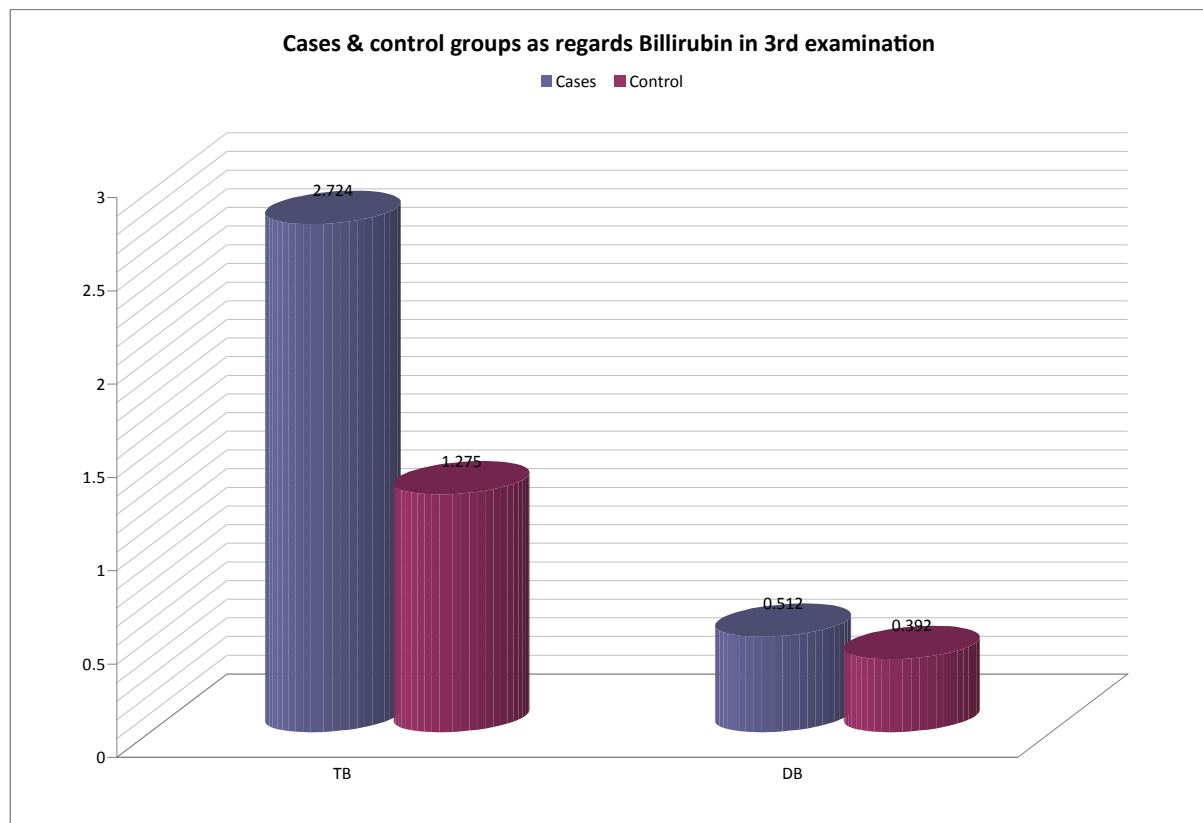**Figure(10) : comparison between cases (subgroup 1c)& control group(group 2)as regards Billirubin :**

Table (10): comparison between cases (subgroup 1c) & control group(group 2)as regards TNF-α & IL-6 :

	Group 1c		Group 2		Test of significance	p
	MEAN	SD	MEAN	SD		
TNF-α pg/ml	200.0	53.1	215.8	114.3	0.8	>0.05
IL-6 pg/ml	32.9	43.8	12.9	2.4	1.7	>0.05

This table shows that patients after72 hours of stopping phototherapy had no significante changes in TNF-α level when compared with controls.

Figure (11) ; comparison between cases (subgroup 1c)& control group(group 2)as regards TNF-α & IL-6 :
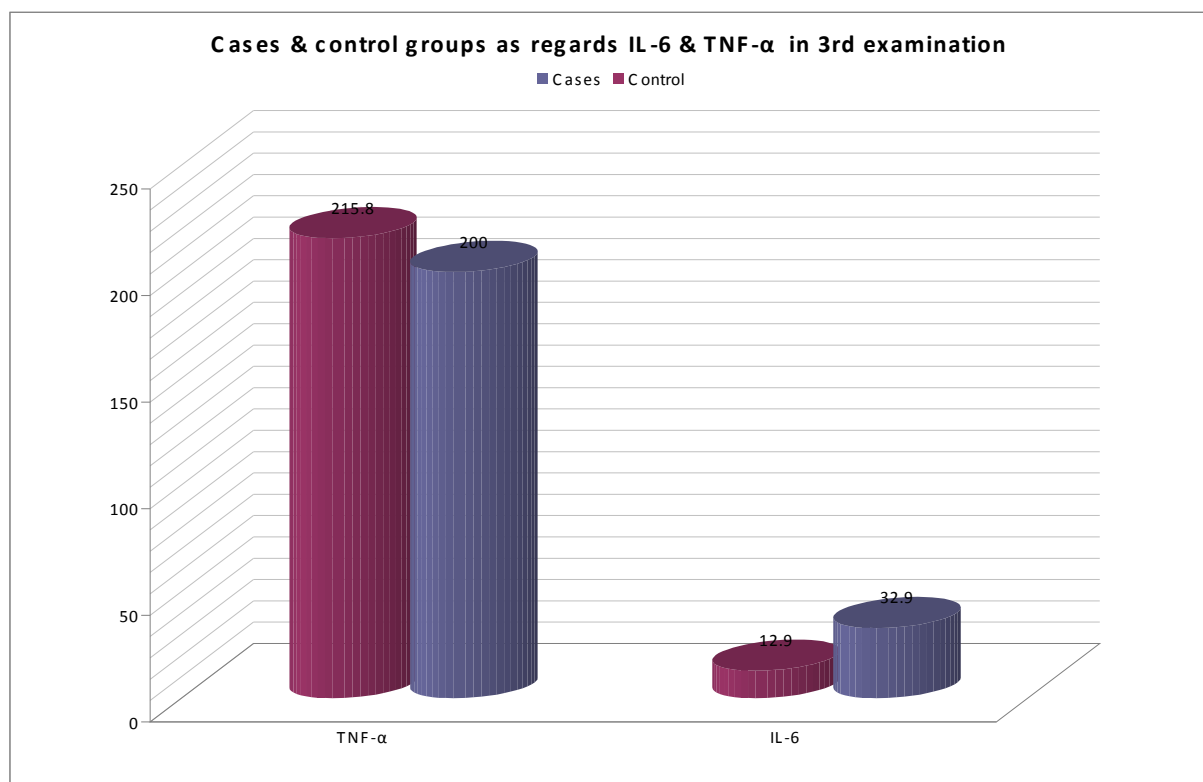
Table (11): comparison of CBC between the three subgroups (1a , 1b and 1c)

	1a		1b		1c		Test of significance	p	Between groups
	MEAN	SD	MEAN	SD	MEAN	SD			
WBCs ×10³	9.63	4.46	8.35	1.93	7.09	1.63	4.6	**<0.05**	P1>0.05
									P2<0.05
									P3>0.05
HB gm/dl	14.14	1.52	14.02	1.33	13.4	1.08	19.9	>0.05	P1>0.05
									P2>0.05
									P3>0.05
RBCs× 10	4.98	0.43	4.76	0.35	4.85	0.3	4.5	>0.05	P1>0.05
									P2>0.05
									P3>0.05
Platelets ×10³	227.5	59.4	246.2	52.2	284.1	73.0	5.4	**<0.05**	P1>0.05
									P2<0.05
									P3<0.05

P1: between a & b   P2 :between a & c   P3 :between b & c
This table shows significant difference among WBCs and platelets levels before phototherapy, 72 hours after phototherapy and 72 hours after cessation of phototherapy**.**

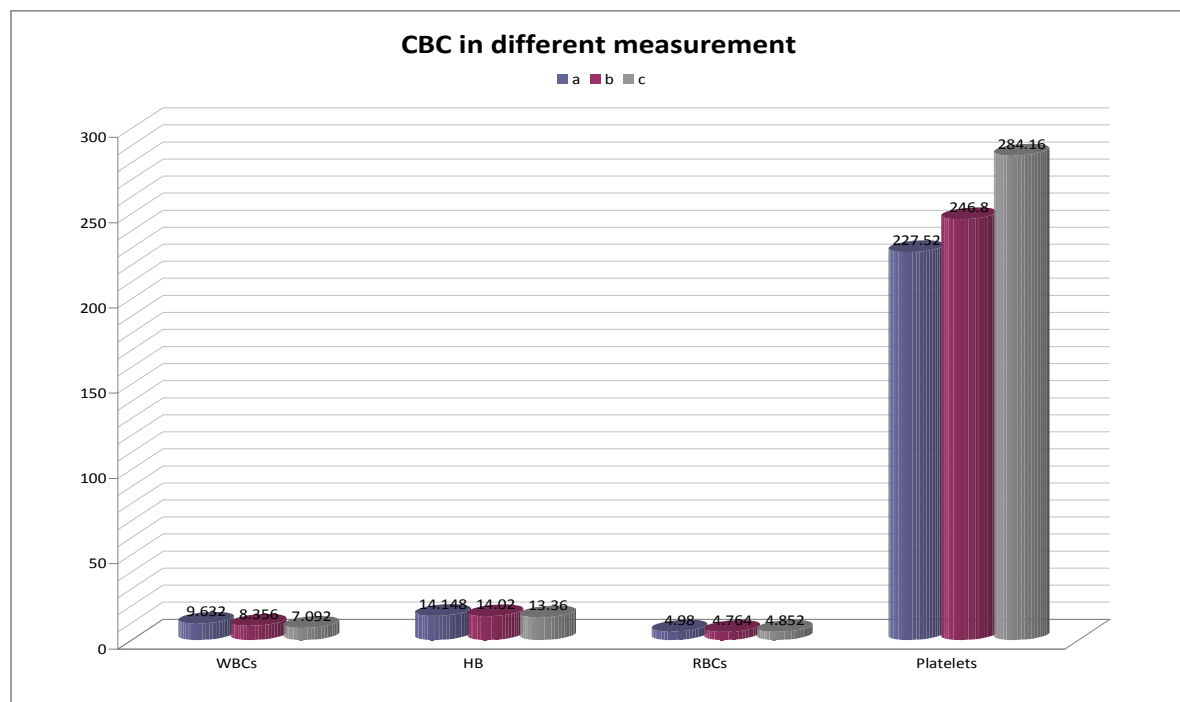**Figure (12) :comparison of CBC between the three subgroups (1a , 1b and 1c)**

Table (12): comparison of TB & DB in the three subgroups (1a , 1b and 1c):

	1a		1b		1c		Test of significance	p	Between groups
	MEAN	SD	MEAN	SD	MEAN	SD			
TB mg/dl	18	1.7	9.8	1.77	2.7	0.84	6.3	**<0.001**	**P1<0.05**
									P2<0.05
									P3<0.05
DB mg/dl	0.6	0.18	0.5	0.14	0.5	0.08	1.5	>0.05	P1>0.05
									P2>0.05
									P3>0.05

P1 between a & b   P2 between a & c   P3 between b & c

This table shows significant difference among total bilirubin levels before phototherapy, 72 hours after phototherapy and 72 hours after cessation of phototherapy .

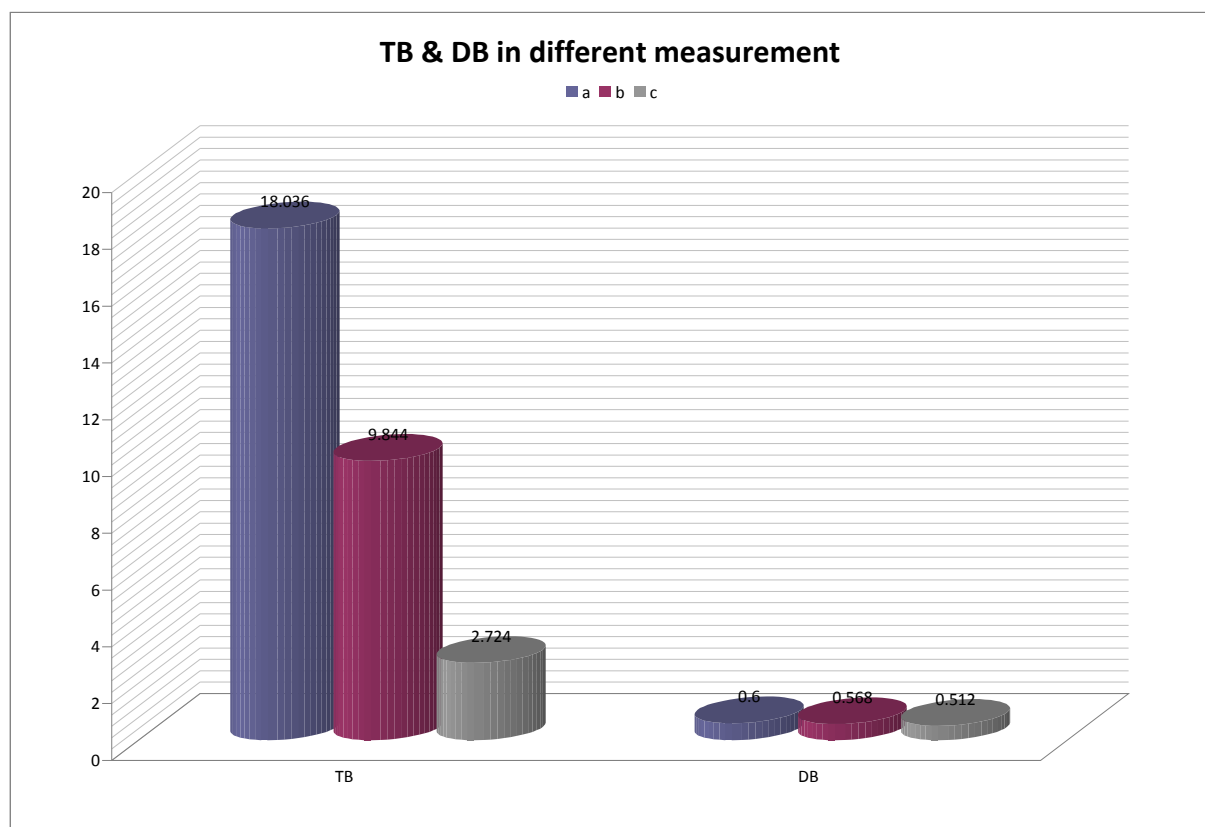**Figure (13): comparison of TB & DB in the three subgroups (1a , 1b and 1c):**

Table (13): comparison of TNF-α& IL-6   in the three subgroups (1a , 1b and 1c):

	1a		1b		1c		Test of significance	p	Between groups
	MEAN	SD	MEAN	SD	MEAN	SD			
TNF-α pg/ml	286.7	208.3	354.4	294.2	200	53.1	3.9	**<0.05**	**P1<0.05**
									P2<0.05
									P3<0.05
IL-6 pg/ml	114.4	322.6	63.1	104.1	32.9	43.8415	1.1	>0.05	P1>0.05
									P2>0.05
									P3>0.05

P1 :between a & b   P2: between a & c   P3: between b & c

This table shows significant difference among TNF-α levels before phototherapy, 72 hours after phototherapy and 72 hours after cessation of phototherapy ,however no significant difference among IL-6 .

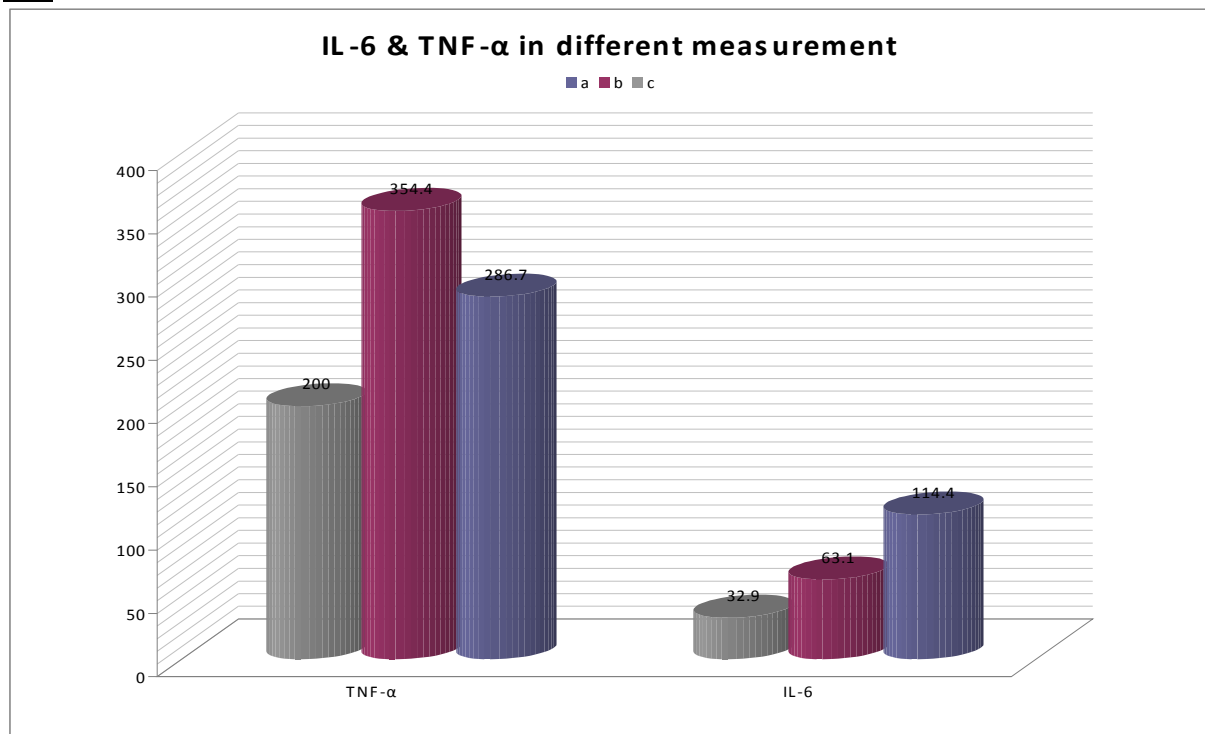**Figure (14) : comparison of TNF-α& IL-6 in the three subgroups (a , b and c):**

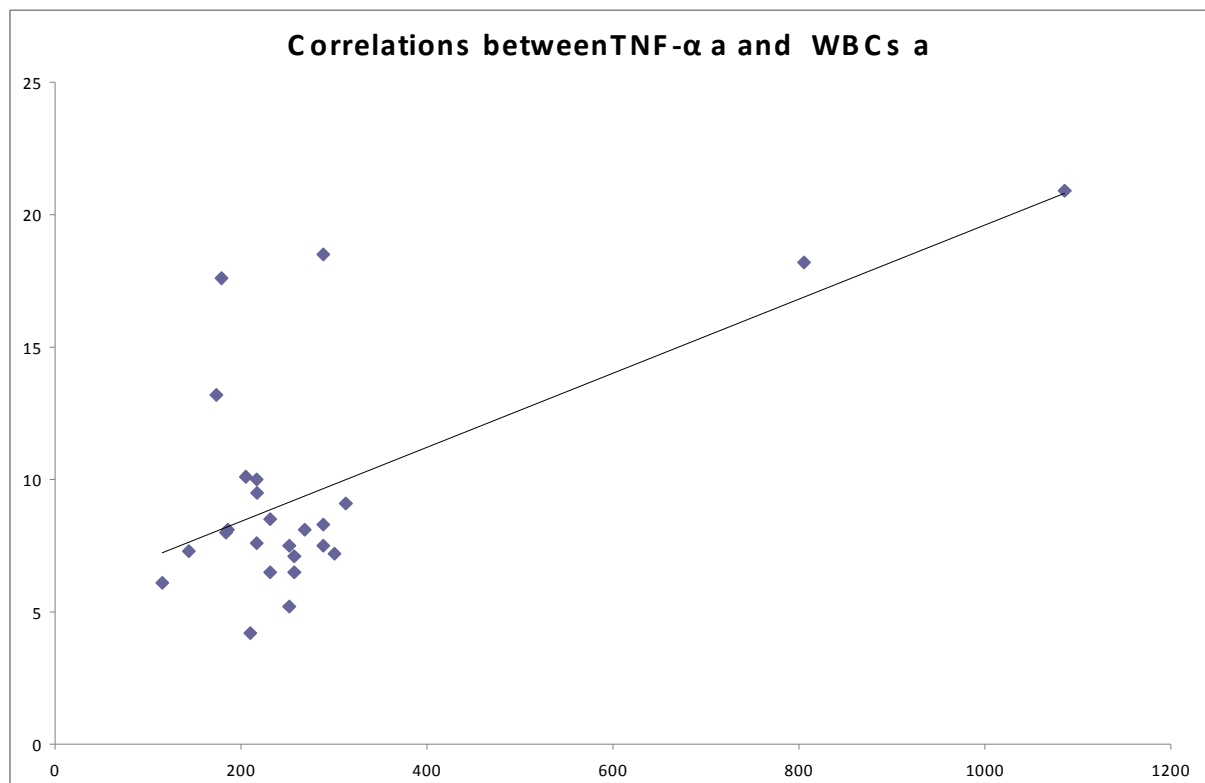**Table (14) correlations between TNF -α and lab. data in the three subgroups :**

1) -TNF-α-a and lab data-a:

	r	**p**
TB mg/dl	0.037	>0.05
WBCs ×10³	0.653	**<0.05**

TB :total bilirubin level
WBCs : white blood cell count

Figure(15): correlations between TNF-α and WBCs in subgroup 1a (before phototherapy) :

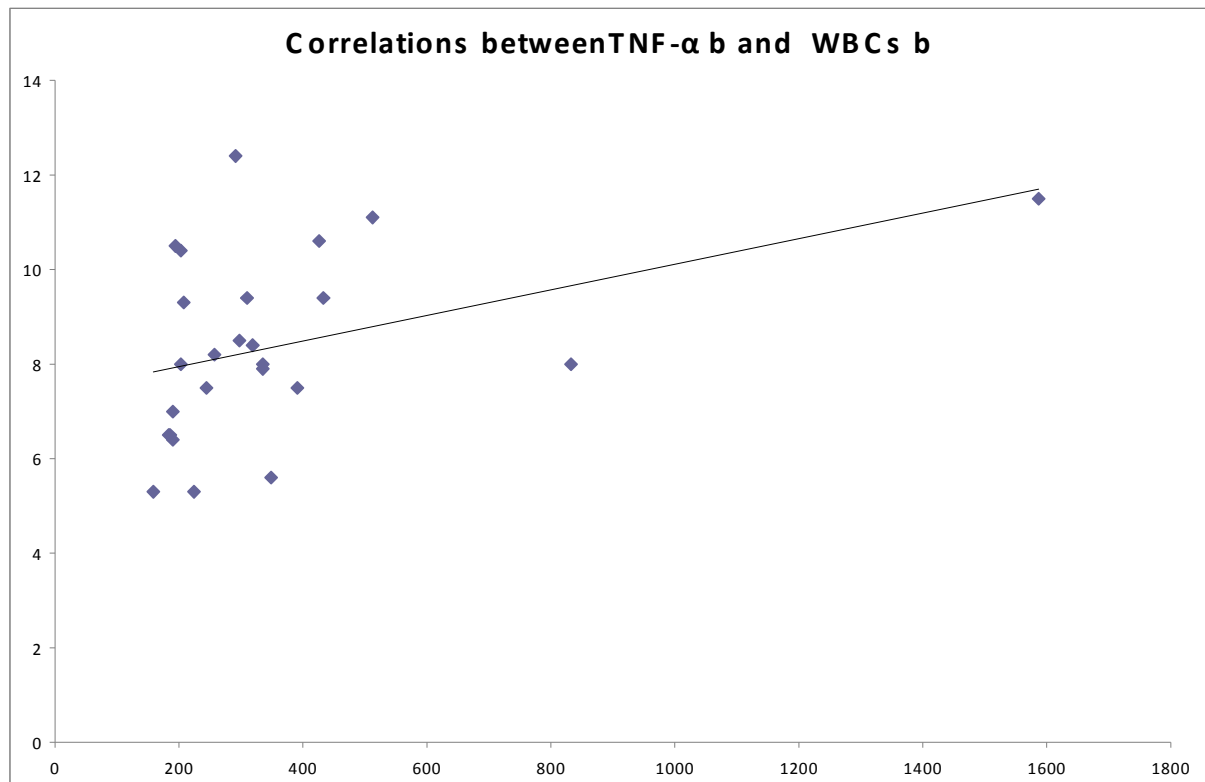This figure shows significant positive correlation between TNF-α and WBCs in subgroup 1a .

2) -TNF-α-b and lab data-b:

	r	p
TB mg/dl	0.05	>0.05
WBCs ×10³	0.41	**<0.05**

TB :total bilirubin level
WBCs : white blood cell count

Figure (16):. correlations between TNF-α and WBCs   in subgroup 1b (72 h of starting phototherapy) :

This figure shows significant positive correlation between TNF-α and WBCs in subgroup 1b .
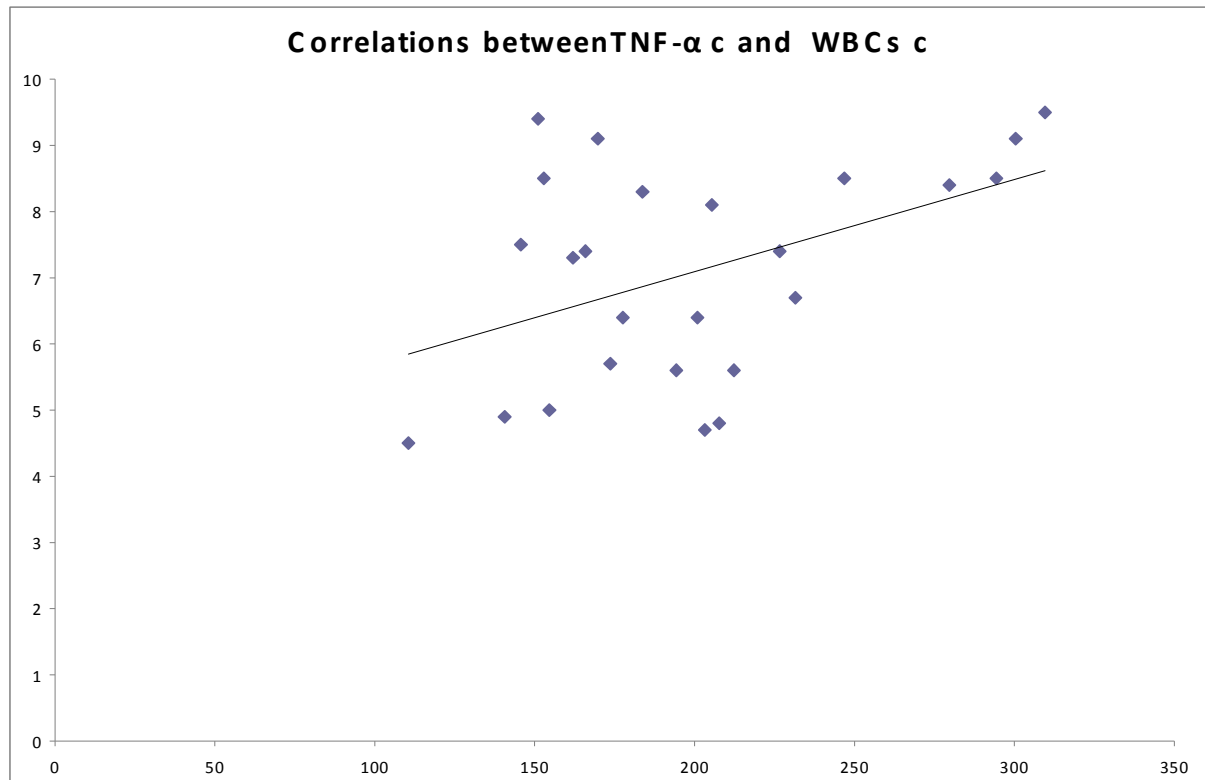
-TNF-c and lab data-b:

	r	p
TB mg/dl	0.037	>0.05
WBCs $\times 10^3$	0.453	**<0.05**

TB :total bilirubin level
WBCs : white blood cell count

Figure (17):. correlations between TNF-α and platelets in subgroup 1c (72 h of starting phototherapy) :

This figure shows significant positive correlation between TNF-α and WBCs in subgroup 1c .

Table (15) correlations between IL-6 and lab. data in the three subgroups (a , b and c) :

-IL-6-a and lab data-a:

	r	**p**
TB mg/dl	0.02	>0.05
WBCs $\times 10^3$	0.18	>0.05

-IL-6-b and lab data-b:

	r	**p**
TB mg/dl	0.2	>0.05
WBCs $\times 10^3$	-0.1	>0.05

-IL-6-c and lab data-c:

	r	**p**
TB mg/dl	0.1	>0.05
WBCs $\times 10^3$	-0.01	>0.05

This table shows no significant correlations between IL-6 and total bilirubin and WBCs .