Results

Table (1): Frequency of delivery.

No. of delivery	N	%
0	10	20.00
1	12	24.00
2	12	24.00
3	13	26.00
4	3	6.00
Total	50	100.00

Table 1and figure 1 shows frequency of delivery where the 1st delivery represent (20%), 2 nd delivery represent (24%), 3rd delivery represent (24%), 4th delivery represent (26%) and 5th delivery represent (6%).

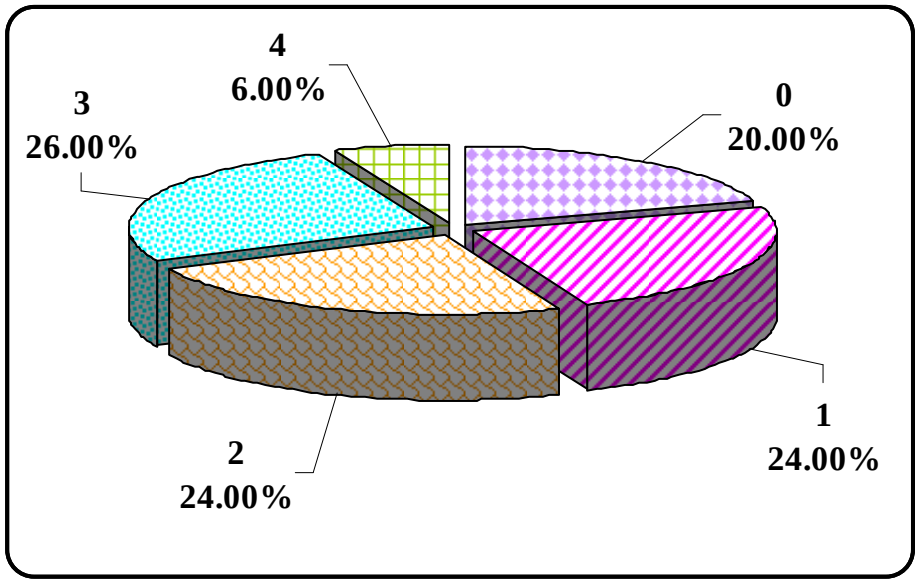

Figure (1): Frequency of delivery.

Table (2): Other siblings with neonatal jaundice.

Other siblings with N.J.	N	%
Negative	40	80.00
Positive	10	20.00
Total	50	100.00

Table 2 and figure 2 shows other siblings with neonatal jaundice with 20% positive history and 80% negative history of cases.

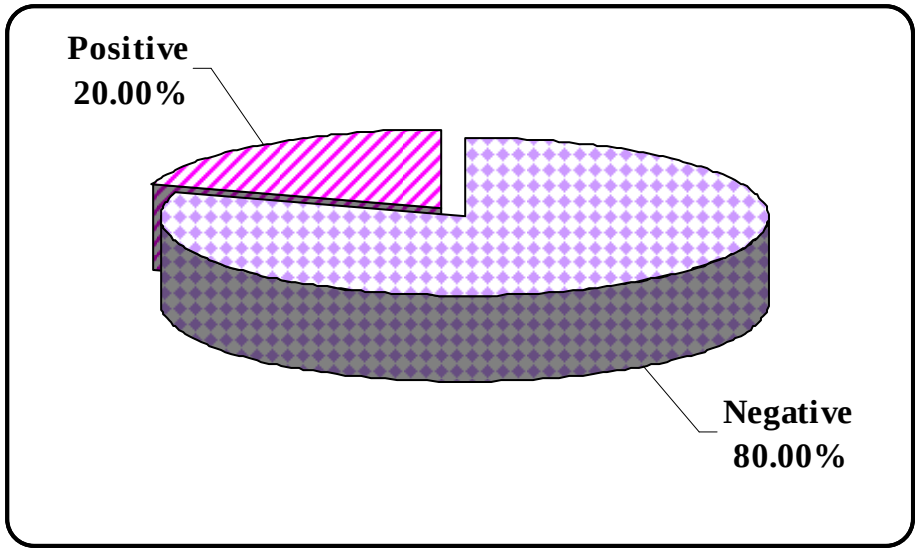

Figure (2): Other siblings with neonatal jaundice.

Table (3): Mode of delivery among neonates.

mode of delivery	N	%
C.S	30	60.00
N.D	20	40.00
Total	50	100.00

Table 3 and figure 3 shows mode of delivery among neonates where normal vaginal delivery represents 40% and caesarean section represents 60%.

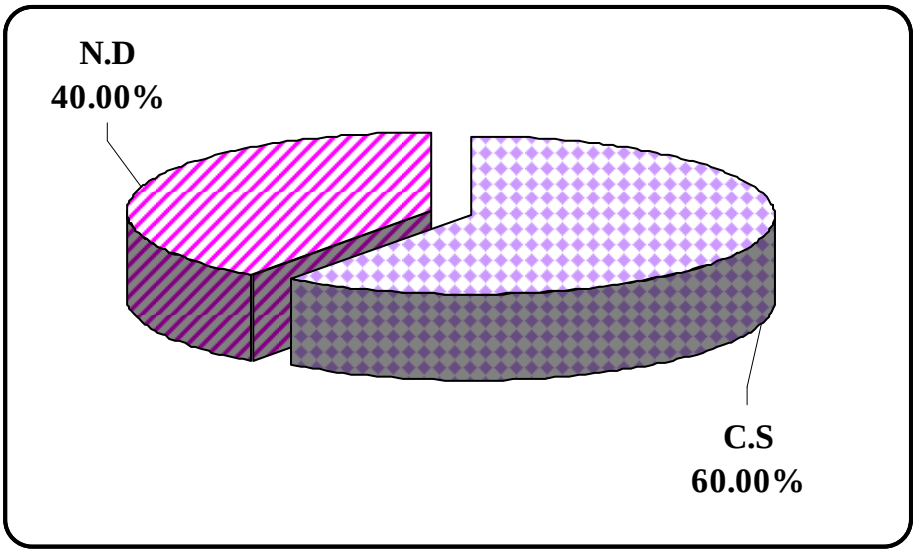

Figure (3): Mode of delivery among neonates.

Table (4): Sex distribution among neonates.

sex	N	%
Male	29	58.00
Female	21	42.00
Total	50	100.00

Table 4 and figure 4 shows sex distribution among neonates where male represent 58% and female represent 42%.

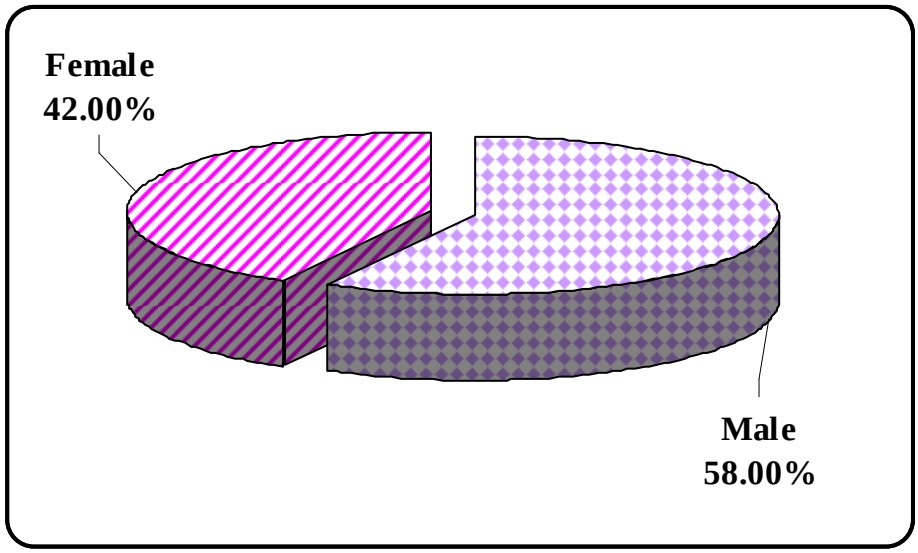

Figure (4): Sex distribution among neonates.

Table (5): Descriptive data for age of the mother and other parameters of the newborns.

	Range	Mean ± SD
age	20.0 - 34.0	26.840 ± 3.655
G.A. Wks	38.0 - 41.0	39.320 ± 0.844
APGAR	8.0 - 10.0	8.780 ± 0.507
weight (baby)	2.9 - 4.2	3.244 ± 0.232
head circumference	34.0 - 36.0	35.080 ± 0.499
length	48.0 - 51.0	49.760 ± 0.870
Hb mg/dl	13.4 - 18.6	15.918 ± 1.3107
MCV	77.0 - 99.0	91.730 ± 4.586
WBCs	5.6 - 11.8	8.814 ± 1.442
Thrombocytes	170.0 - 330.0	255.480 ± 34.538
Retic.s %	0.5 - 6.0	1.898 ± 1.349

Table 5 shows descriptive data for age of the mother and gestional age in weeks, APGAR score, weight, head circumference, length, Hb, MCV, WBCs, Retic.s and thrombocytes for the baby where:

- Age of mothers ranging between 20 to 34 years with mean 26.840 ± 3.655.
- Gestational age in weeks ranging between 38 to 41 weeks with mean 39.32 ± 0.844.
- Weight of the baby ranging between 2.9 to 4.2 kg with mean 3.244 ± 0.232.
- Head circumference ranging between 34 to 36 cm with mean 35. 08 ± 0.499.

- Length of the baby ranging between 48 to 51 cm with mean49.760 ± 0.870.
- Hb mg/dl ranging between 13.4 to18.6 mg/dl with mean 15.918 ± 1.3107.
- MCV ranging between 77.0 to 99.0 with mean 91.730 ± 4.586.
- WBCs ranging between 5.6 to 11.8 with mean 8.814 ± 1.442.
- Thrombocytes ranging between 170 to 330 thousands with mean 255.480 ± 34.538.
- Retic.s % ranging between 0.5 to 6.0 with mean 1.898 ± 1.349.

Table (6): Distribution of the blood groups for the mothers.

blood group (mother)	N	%
A+	14	28.00
B+	4	8.00
AB+	7	14.00
O+	23	46.00
O-	2	4.00
Total	50	100.00

Table 6 and figure 5 shows distribution of the blood groups for the mother where A +ve14 cases represent 28%, B +ve 4 cases represent 28%, AB +ve7 cases represent 14%, O +ve 23 cases represent 46% and O –ve 2 cases represent 4%.

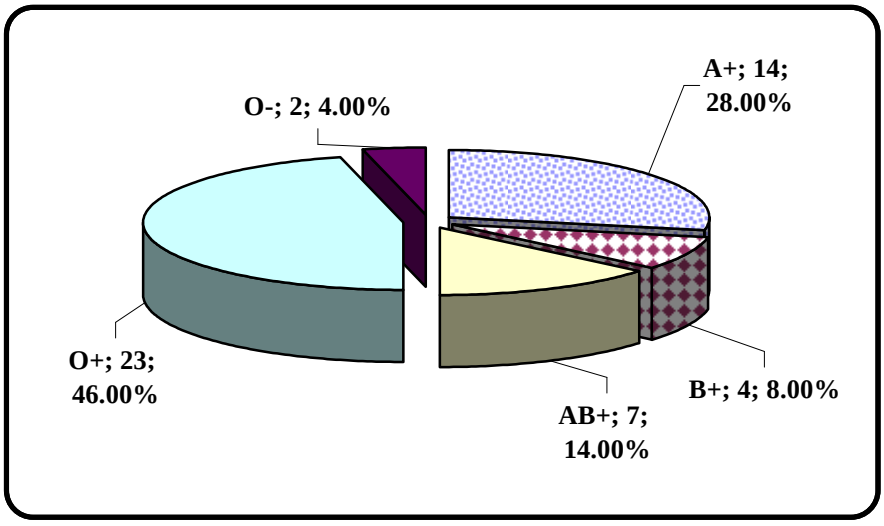

Figure (5): Distribution of the blood groups for the mothers.

Table (7): Distribution of the blood groups among neonates.

blood group (baby)	N	%
A+	12	24.00
B+	10	20.00
AB+	14	28.00
O+	14	28.00
Total	50	100.00

Table 7 and figure 6 shows distribution of the blood groups among neonates where A +ve12 cases represent 24%, B +ve10 cases represent 20%, AB +ve14 cases represent 28% and O +ve14 cases represent 28% .

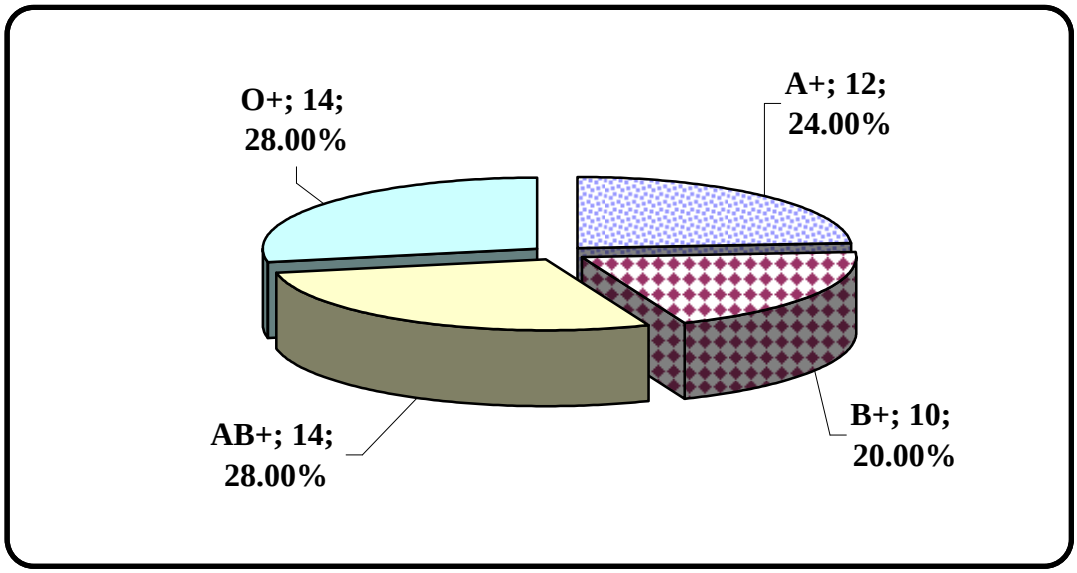

Figure (6): Distribution of the blood groups among neonates.

Table (8): Total bilirubin in first and fifth day.

	Total Bilirubin		Paired t-test	
	Range	Mean ± SD	t	P-value
1st	1.2 - 3.6	2.144 ± 0.549		
5th	1.6 - 19.5	10.186 ± 5.687	-10.553	0.001

Table ٨ and figure ٧ shows total bilirubin in first day ranging between 1.2 to 3.6 mg/dl with mean 2.144 ± 0.549 and in fifth day total bilirubin ranging between 1.6 to 19.5 mg/dl with mean 10.186 ± 5.687 which is statistically highly significant.

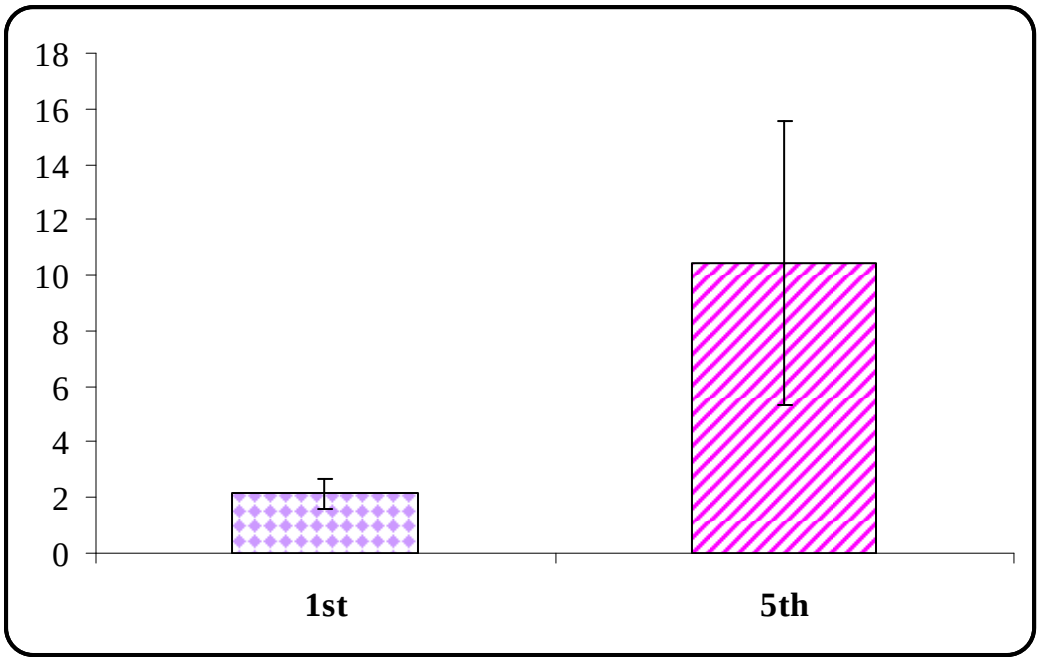

Figure (7): Total bilirubin in first and fifth day.

Table (9): Direct bilirubin in first and fifth day.

	Direct Billirubin		Paired t-test	
	Range	Mean ± SD	t	P-value
1st	0.2 - 1.2	0.642 ± 0.237		
5th	0.1 - 2.0	0.940 ± 0.438	-4.814	< 0.001

Table 9 and figure 8 shows direct bilirubin in first day ranging between 0.2 to1.2 mg/dl with mean 0.642 ± 0.237 and direct bilirubin in fifth day ranging between 0.1 to 2 mg/dl with mean 0.940 ± 0.438 which is statistically highly significant.

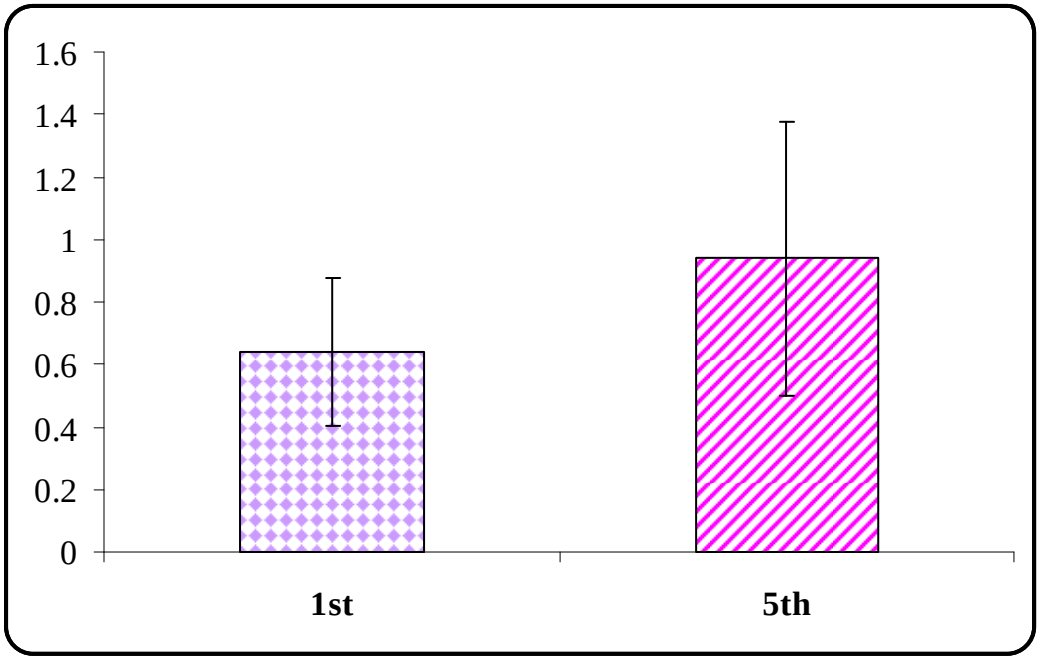

Figure (8): Direct bilirubin in first and fifth day.

Table (10): Haptoglobin in first and fifth day.

	Hp		Paired t-test	
	Range	Mean ± SD	t	P-value
1st day (0-13)	1.30 - 11.91	4.40 ± 2.94	-7.74	<0.001*
5th day (0-143.5)	1.40 - 100.40	33.16 ± 28.01		

Table 10 and figure 9 shows Hp in first day ranging between 1.30 to 11.91 mg/dl with mean 4.40 ± 2.94 and Hp in fifth day ranging between 1.40 to 100.40 with mean 33.16 ±28.01 which is statistically highly significant.

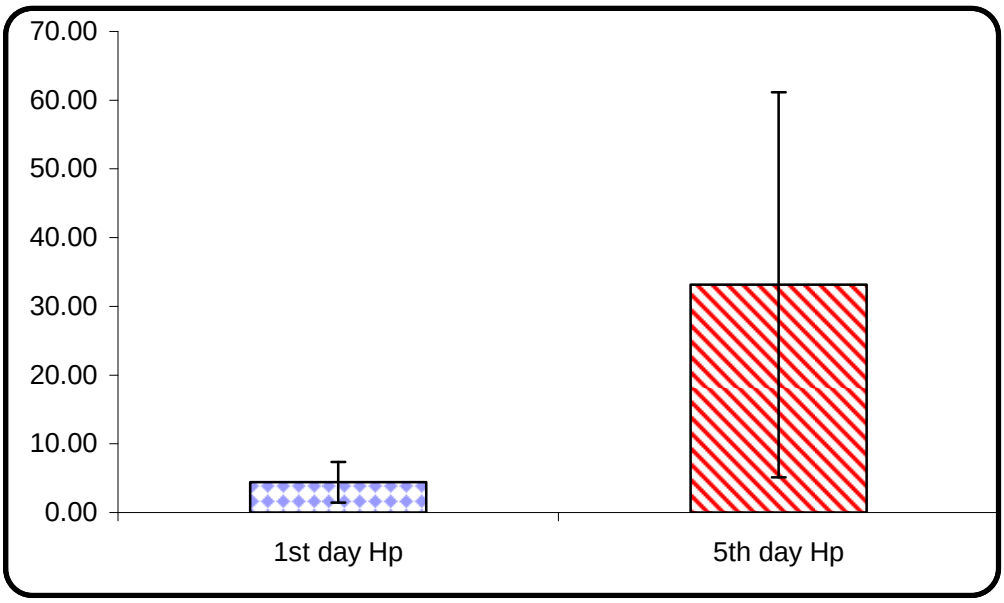

Figure (9): Haptoglobin in first and fifth day.

Table (11): Comparison between male and female sex as regard 1st and 5th day TB, DB and Hp.

	Sex			
	Male	Female	**T-test**	
	Mean ± SD	Mean ± SD	t	P-value
Total Bilirubin 1st	2.145 ± 0.581	2.143 ± 0.516	0.012	0.990
Total Bilirubin 5th	10.393 ± 5.151	10.471 ± 5.161	-0.053	0.958
Direct Bilirubin 1st	0.655 ± 0.221	0.624 ± 0.261	0.459	0.648
Direct Bilirubin 5th	0.917 ± 0.463	0.971 ± 0.410	-0.428	0.670
1st day Hp	4.680 ± 3.269	4.019 ± 2.430	0.782	0.438
5th day Hp	31.290 ± 27.048	35.738 ± 29.772	-0.550	0.585

Table 11 shows comparison between male and female sex as regard 1st and 5th day total bilirubin, direct bilirubin and haptoglobin which is statistically insignificant.

Table (12): Comparison between mode of delivery as regard 1st and 5th day TB, DB and Hp.

	mode of delivery			
	C.S	N.D	**T-test**	
	Mean ± SD	Mean ± SD	t	P-value
Total Bilirubin 1st	2.013 ± 0.463	2.340 ± 0.619	-2.134	0.038
Total Bilirubin 5th	9.867 ± 4.746	11.265 ± 5.615	-0.948	0.348
Direct Bilirubin 1st	0.580 ± 0.227	0.735 ± 0.225	-2.375	0.022
Direct Bilirubin 5th	0.827 ± 0.424	1.110 ± 0.412	-2.341	0.023
1st day Hp	4.880 ± 3.225	3.685 ± 2.337	1.518	0.136
5th day Hp	35.773 ± 27.897	29.235 ± 28.443	0.806	0.424

Table 12 shows comparison between mode of delivery C.S or N.D as regard first and fifth day total bilirubin, direct bilirubin and haptoglobin which is statistically insignificant.

Table (13): Correlation between 1st day haptoglobin and other parameters for the newborn.

	1st day Hp	
	r	**P-value**
age	0.096	0.508
G.A. Wks	0.103	0.478
APGAR	0.080	0.581
weight (baby)	-0.007	0.963
head circumference	0.055	0.705
length	-0.071	0.625
Hb mg/dl	0.175	0.223
MCV	0.161	0.265
WBCs	0.055	0.704
thrombocytes	0.031	0.830
Retic.s %	-0.405	0.004*
Total Bilirubin 1st	-0.471	0.001*
Total Bilirubin 5th	-0.703	0.001*
Direct Bilirubin 1st	-0.097	0.502
Direct Bilirubin 5th	-0.161	0.265

Table 13 shows significant negative correlation between 1st day haptoglobin and total bilirbin in 1st and 5th day and Retic.s and no significant correlation for other parameters.

Table (14): Correlation between 5th day haptoglobin and other parameters for the newborn.

	5th day Hp	
	r	**P-value**
age	0.306	0.031*
G.A. Wks	0.066	0.649
APGAR	-0.011	0.942
weight (baby)	0.207	0.149
head circumference	0.187	0.193
length	-0.003	0.984
Hb mg/dl	0.221	0.123
MCV	0.299	0.035*
WBCs	-0.093	0.522
thrombocytes	-0.122	0.398
Retic.s %	-0.491	0.001*
Total Bilirubin 1st	-0.436	0.002*
Total Bilirubin 5th	-0.805	0.001*
Direct Bilirubin 1st	-0.165	0.251
Direct Bilirubin 5th	-0.189	0.195

Table 14 shows significant correlation between 5th day haptoglobin and age, MCV and significant negative correlation for bilirubin in 1st and 5th day, Retic.s, and MCV and no significant correlation for other parameter.

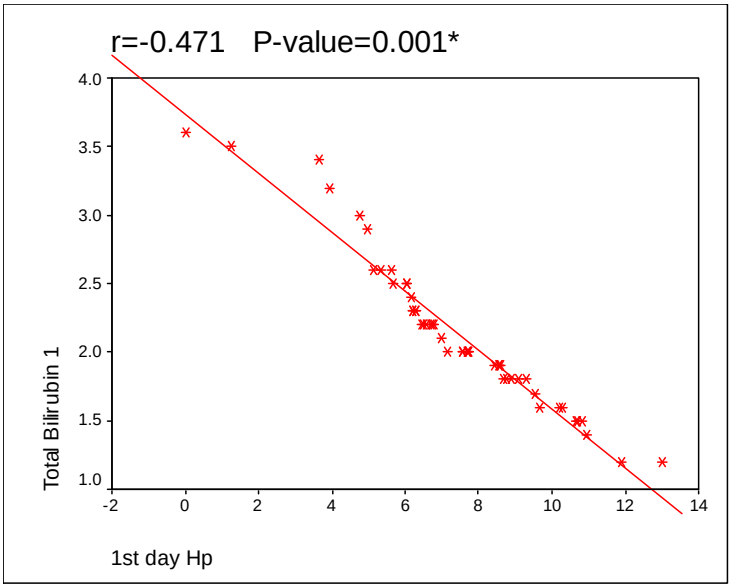

Figure (10): Shows statistically highly significant negative correlation between1st day haptoglobin and 1st day total bilirubin.

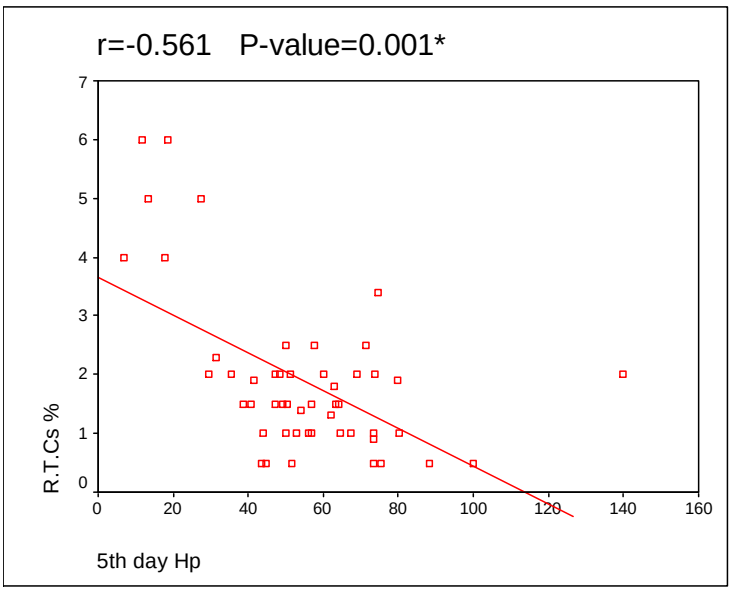

Figure (11): Shows statistically highly significant correlation between 5th day haptoglobin and Retic.s.

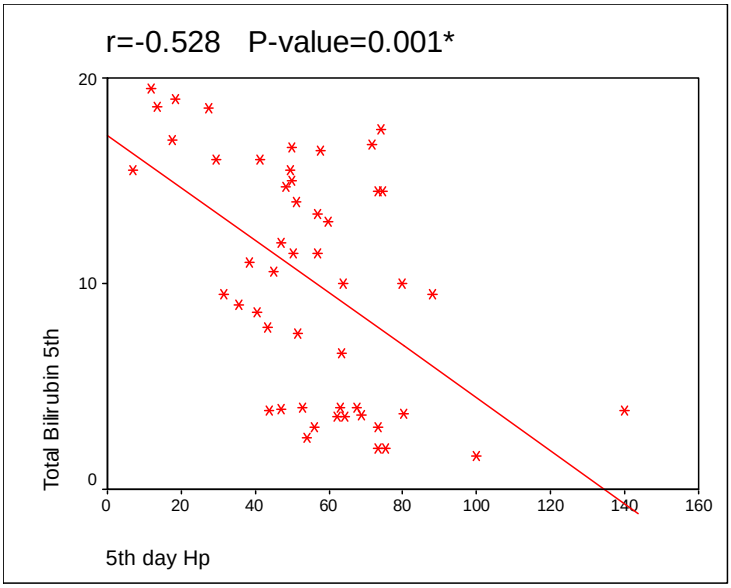

Figure (12): Shows statistically highly significant negative correlation between 5th day haptoglobin and 5th day total bilirubin.

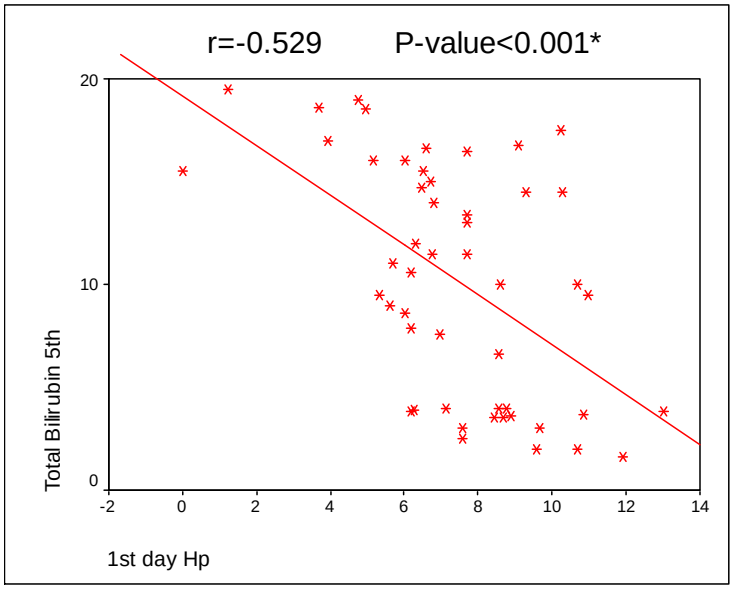

Figure (13): Shows statistically highly significant negative correlation between 1st day haptoglobin and 5th day total bilirubin.

Table (15): Roc curve between positive (cases with pathological jaundice) and negative (cases with physiological jaundice or cases without jaundice) as regard 1st day Hp.

ROC curve between positive and negative as regard 1st day Hp					
Cutoff	Sens.	Spec.	PPV	NPV	Accuracy
<=2.4	86.7	91.4	81.2	94.1	0.937

Table 15 and figure 14 shows sensitivity and specificity between positive (cases with pathological jaundice) and negative cases (cases with physiological jaundice or cases without jaundice) in 5th day as regard Hp in 1st at a cut off level 2.4 where sensitivity was more than 86 %, specificity more than 91%, positive predictive value was more than 81%, negative predictive value 94 % and accuracy was more than 93%.

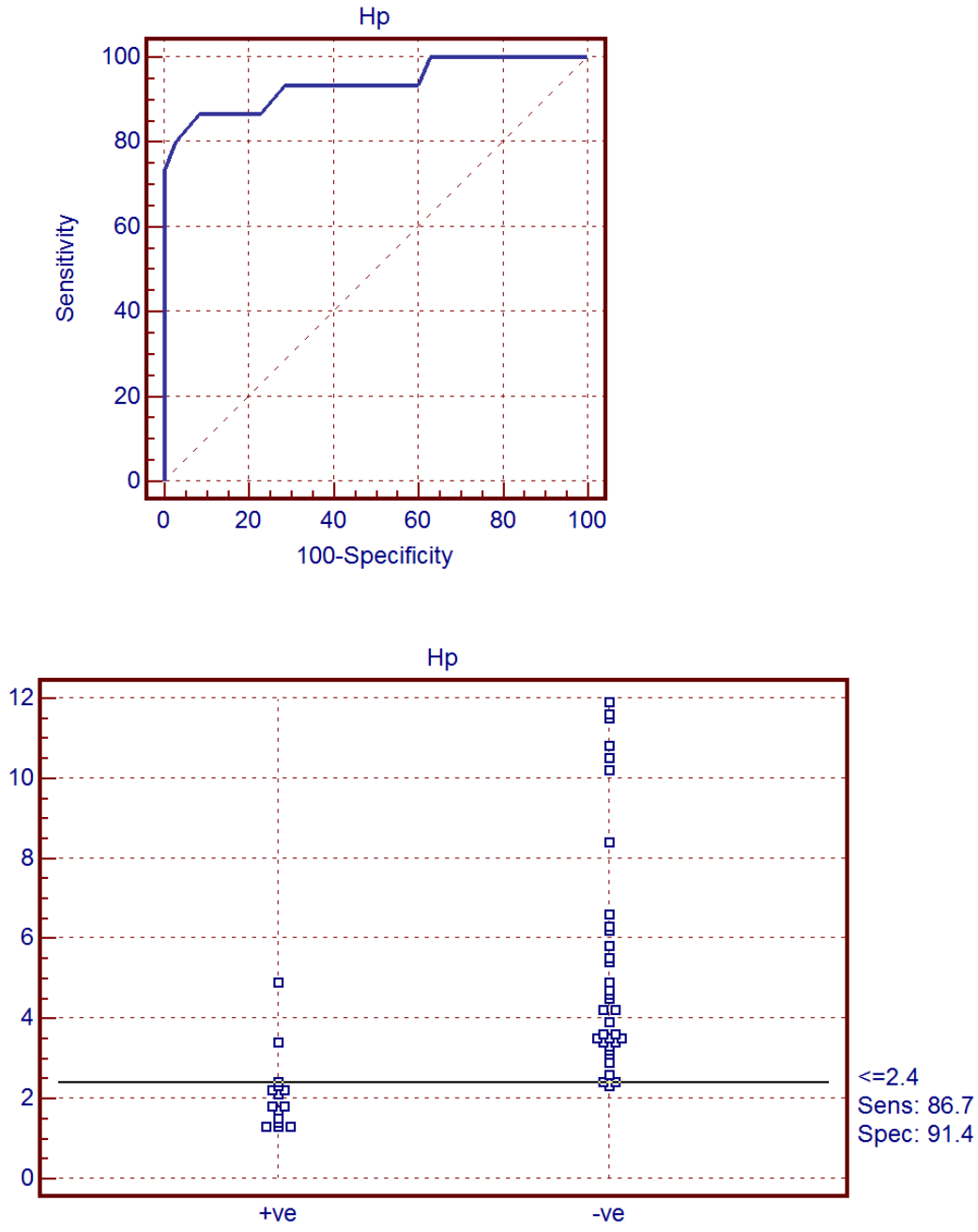

Figure (14): Roc curve between positive (cases with pathological jaundice) and negative (cases with physiological jaundice or cases without jaundice) as regard 1st day Hp.