Results

The results of the present study are summarized in the following tables (from 8 to 14) and figures (from 17 to 23).

N.B:

Group I: Neonates with total bilirubin level of 15- 20 mg/ dl.

Group II: Neonates with total bilirubin level of >20- 25 mg/ dl.

Group III: Neonates with total bilirubin level of > 25 mg / dl.

Table (I): Distribution of Variables of Family History & Sex and Weight among the Studied Groups of Neonatal Jaundice.

Criteria	Studied groups						Total		χ^2	p-value
	Group I		Group II		Group III					
	No.	%	No.	%	No.	%	No.	%		
Family history of jaundice:									1.3	> 0.05
+ve	4	19.0	3	15.8	6	30.0	13	21.7		
-ve	17	81.0	16	84.2	14	70.0	47	78.3		
Total	21	100	19	100	20	100	60	100		
Sex:									2.02	> 0.05
Male	9	42.9	10	52.6	13	65.0	32	53.3		
Female	12	57.1	9	47.4	7	35.0	28	46.7		
Total	21	100	19	100	20	100	60	100		

Criteria	Studied groups			*Anova (F) test*	p- value
	Group I	Group II	Group III		
Weight of neonates in Kg ($\bar{X}\pm$ SD)	2.91± 0.41	3.04± 0.32	3.07± 0.38	1.1	> 0.05

Both previous tables shows there are no statistically significant difference among studied groups as regards family history of previous sibling have jaundice & sex & weight

Table (II): Distribution of Different Causes of Jaundice among the Studied Groups of Neonatal Jaundice.

Criteria	Studied groups						Total		χ^2	p-value
	Group I		Group II		Group III					
	No.	%	No.	%	No.	%	No.	%		
Causes of jaundice:										
ABO	2	9.5	4	21.1	13	65.0	19	31.7	23.8	< 0.0001
RH	2	9.5	2	10.5	5	25.0	9	15.0		
Others	17	81.0	13	68.4	2	10.0	32	53.3		
Total	21	100	19	100	20	100	60	100		

Figure (I): Different Causes of Jaundice among Studied Groups

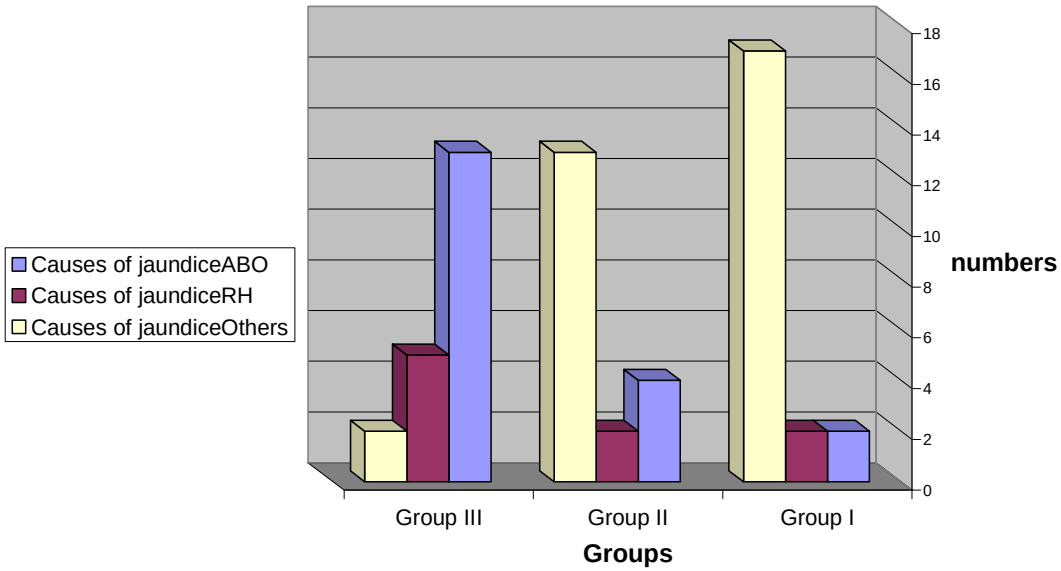


Table (II) and figure (I) show, a statistically significant difference among studied group as regard cause of jaundice. In **group I** (21, infants), 17 infant (81%) are due to causes other than ABO or Rh incompatibility. In **group II** (19 cases) 13 infant (68.4%) are due to causes other the ABO or Rh incompatibility. While in the last **group III** (20 cases) 13 infant (65%) due to ABO incompatibility and 90% due to ABO plus RH incompatibility.

Table (III): Relationship between Total Serum Bilirubin Level and Neurological Score.

Criteria	Neurological score				Total		χ^2	p-value
	Normal		Abnormal					
	No.	%	No.	%	No.	%		
Groups of S. bilirubin level:								
Group I	21	42.0	0	0.0	21	35.0	17.5	< 0.0001
Group II	18	36.0	1	10.0	19	31.7		
Group III	11	22.0	9	90.0	20	33.3		
Total	50	100.0	10	100.0	60	100.0	----	----

Figure (II): Neurological Score Results among Studied Groups.

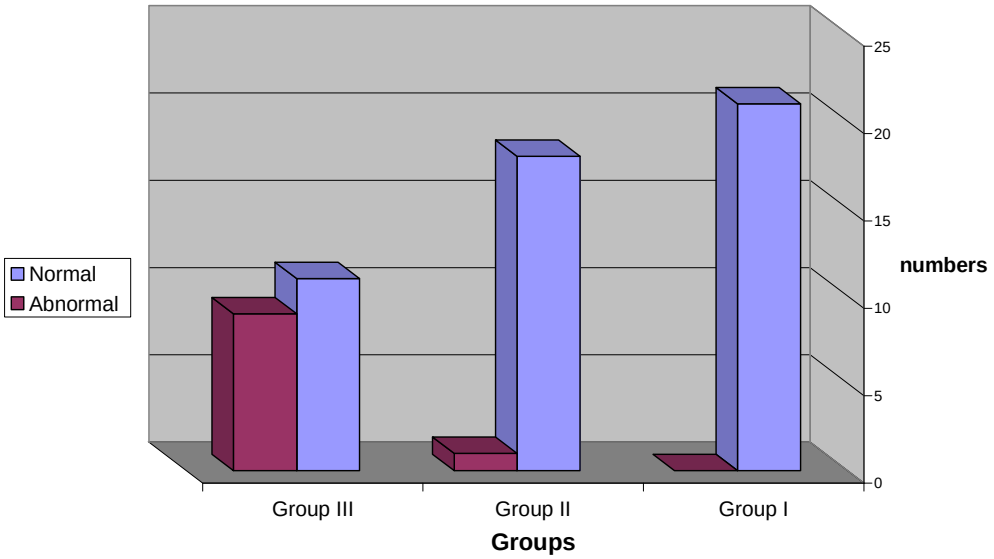


Table (III) and figure (II) show highly statistical difference among studied groups as regard neurological score. In group I there was no cases with abnormal neurological dysfunction, in group II reported one case of neurological dysfunction and in group III reported nine cases of neurological dysfunction. Which present 90% of abnormal cases.

Table (IV): Relationship between Mean of Neurological Score and Studied Groups

Criteria	Studied groups			*Anova (F) test*	p-value
	Group I	Group II	Group III		
Neurological score ($\bar{X}\pm$ SD)	153.3± 2.2	150.6± 4.4	142.2± 8.8	20.4	< 0.0001

(N.B) LSD (least significant difference) of the previous table showed that the significant difference is due to the difference in mean of neurological score between group III and both of group II & group I.

Table (V): Relationship between Different Causes of Jaundice and Neurological Score.

Criteria	Neurological score				Total		χ^2	p-value
	Normal		Abnormal					
	No.	%	No.	%	No.	%		
Causes of jaundice:								
ABO	14	28.0	5	50.0	19	31.7	10.5	< 0.005
RH	5	10.0	4	40.0	9	15.0		
Others	31	62.0	1	10.0	32	53.3		
Total	50	100.0	10	100.0	60	100.0	----	----

Figure (III): Correlation of Causes of Jaundice with Normal and Abnormal Results of Neurological Score.

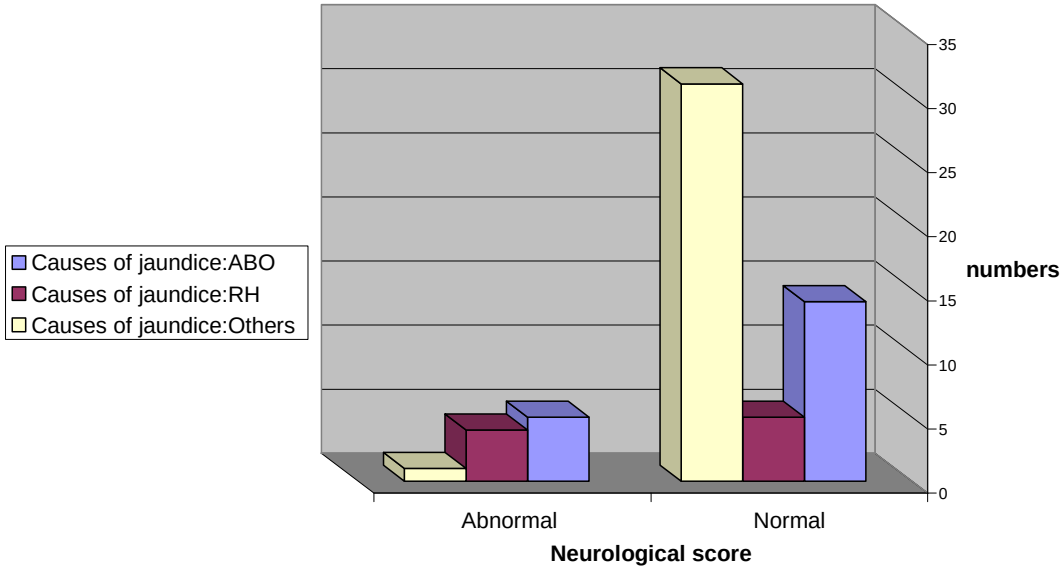
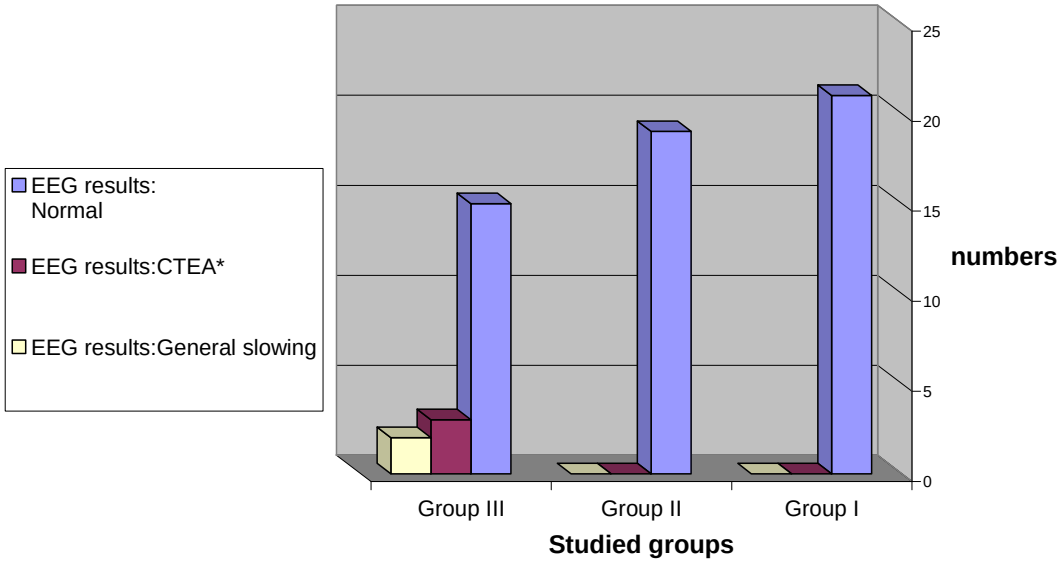


Table (V) and figure (III) show a statistical significant difference among cases as regard neurological score and cause of jaundice. the ABO and RH incompatibles show the major number of abnormal neurological score.

Table (VI): Distribution of Different Results of EEG among the Studied Groups of Neonatal Jaundice.

Criteria	Studied groups						Total		χ^2	p-value
	Group I		Group II		Group III					
	No.	%	No.	%	No.	%	No.	%		
EEG results:										
Normal	21	100.0	19	100.0	15	75.0	55	91.7	10.9	< 0.05
CTEA*	0	0.0	0	0.0	3	15.0	3	5.0		
General slowing	0	0.0	0	0.0	2	10.0	2	3.3		
Total	21	100.0	19	100.0	20	100.0	60	100.0	----	----

Figure (IV): EEG Results among Studied Groups



*** CTEA= Centotemporal Epileptiform Activity.**

Table (VI) and figure (IV) show a statistically significant difference among studied groups as regard EEG results where as the group III is the only group reported abnormal EEG results.

Table (VII): Distribution of Different Results of Auditory Brainstem Response (ABR) among the Studied Groups of Neonatal Jaundice.

Criteria	Studied groups						Total		χ^2	p-value
	Group I		Group II		Group III					
	No.	%	No.	%	No.	%	No.	%		
ABR results:										
Normal	21	100.0	19	100.0	17	85.0	57	95.0	6.32	< 0.05
Auditory dys-synchrony	0	0.0	0	0.0	3	15.0	3	5.0		
Total	21	100.0	19	100.0	20	100.0	60	100	----	----

Figure (V): ABR Results among Studied Groups

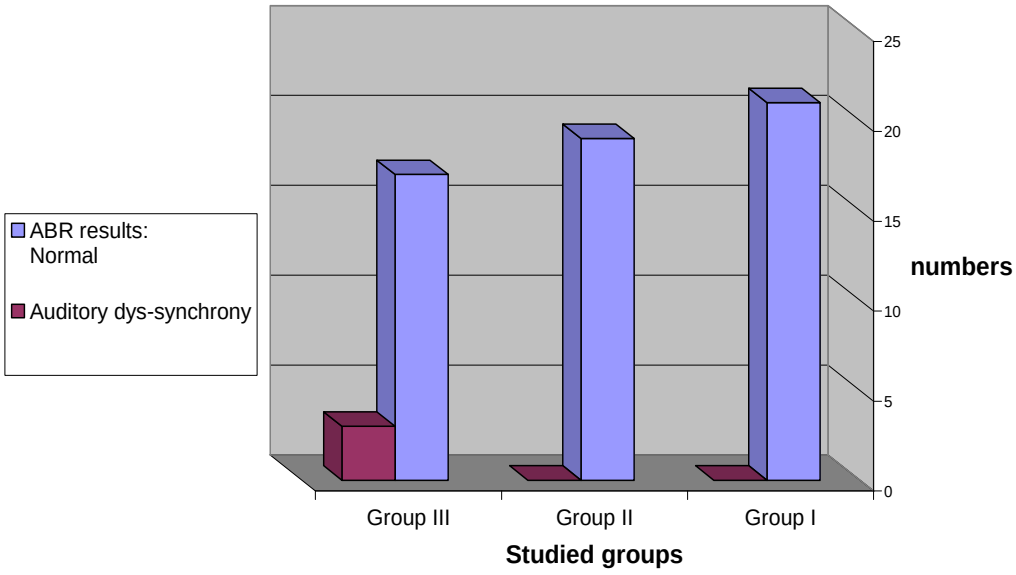


Table (VII) and figure (V) show a statistical significant difference among studied groups as regard ABR results where as the group III is the only group show abnormal auditory brain response test (ABR) in form of auditory dys-synchrony.

Table (VIII): Relationship between Results of Auditory Brainstem Response (ABR) and Neurological Score.

Criteria	Neurological score				Total		*Fischer's exact test*
	Normal		Abnormal				
	No.	%	No.	%	No.	%	
ABR results:							
Normal	50	100.0	7	70.0	57	95.0	p- value < 0.005
Auditory dyssynchrony	0	0.0	3	30.0	3	5.0	
Total	50	100.0	10	100.0	60	100.0	

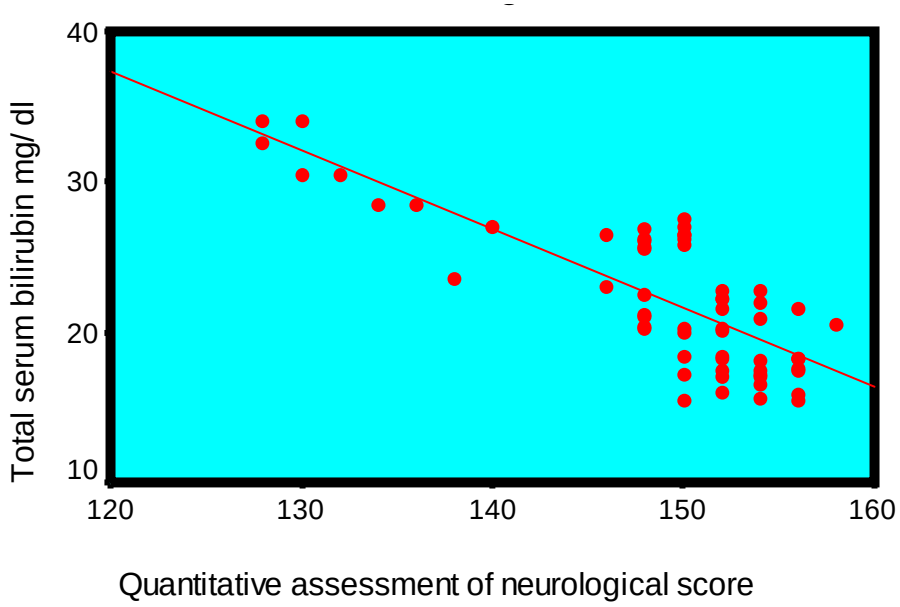
This table shows a statistically significant difference auditory brainstem response test results and neurological score

Table (IX): Correlation between Serum Total Bilirubin Level and Neurological Score of Infants with Neonatal Jaundice.

Parameters of correlation	($\bar{X}\pm$ SD)	Pearson's correlation coefficient (r)	p- value
Total serum bilirubin (mg/ dl) **Neurological score**	22.2± 4.9 148.8± 7.4	- 0.8	< 0.001

This table shows a high statistically correlation between mean of total serum bilirubin and neurological score. The increase of total serum bilirubin results in decrease in neurological score.

Figure (VI): Correlation between total serum bilirubin level and neurological score.



N.B: The previous figure shows that there is strong significant negative correlation between serum total bilirubin level and neurological score of infants with neonatal jaundice.