RESULT

The study groups consisted of 30 neonates with RDS, their gestational ages ranging from 27 to 36 weeks, and birth weights ranging from (750 to 2600 g). And 20 preterm newborns without RDS, their gestational ages ranging from 31 to 36 weeks, and birth weights ranging from (1200 to 2700 g) were enrolled in this study as a control group.

The studied mothers and their newborns includes 19 neonates whose gestational age from 34 to 36 weeks; they represent 26% of infants with RDS and 55% of infants without RDS, 20 neonates whose gestational age from 31 to 33 weeks; they represent 36.6% of infants with RDS and 45% of infants without RDS, 11 neonates whose gestational age from 27 to 30 weeks; they represent 36.6% of infants with RDS.

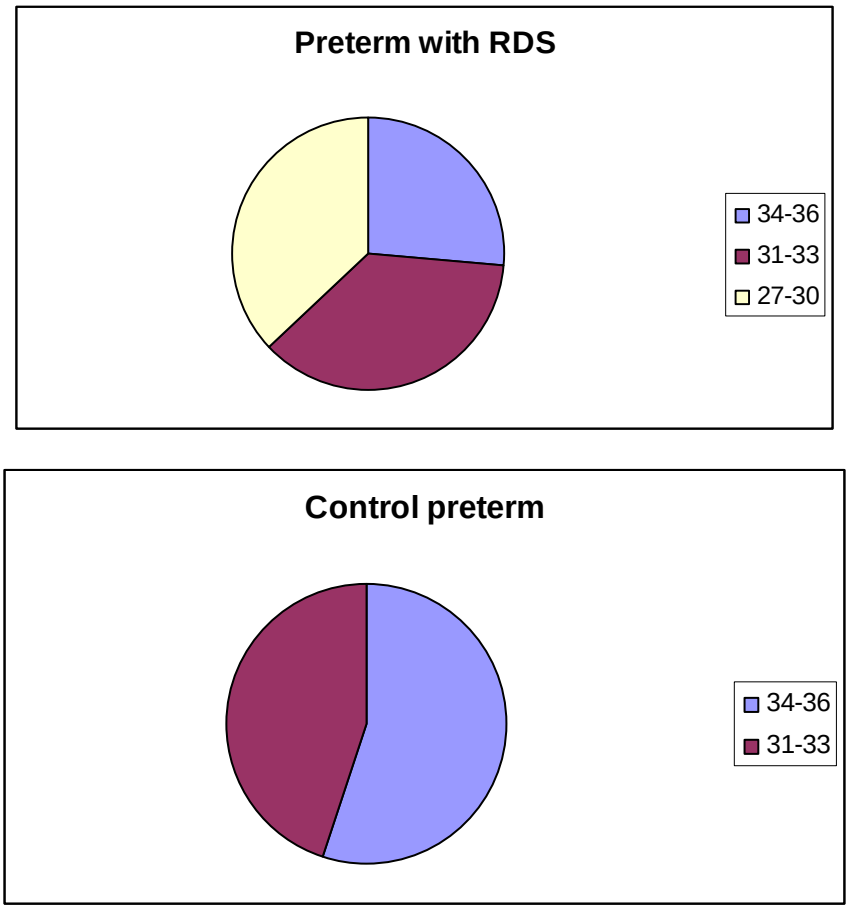

Figure (30) : Group classification

Table (6): Comparison between demographic characteristics and anthropometric measurements of RDS and non RDS groups

		Control (n=20)		Cases of RDS (n=30)		t	p
		Mean	S.D	Mean	S. D		
Gestational Age		33.60	1.698	31.67	2.670	3.1	<0.05
Weight		2.016	0.47	1.54	0.56	3.2	<0.05
Length		45.35	2.739	42.03	4.263	3.3	<0.05
Podernal index		21.268	2.5616	20.428	2.9010	1.1	>0.05
H.C		32.250	1.6263	30.250	2.1162	3.6	<0.05
A PGar at 1 min.		6.70	1.081	6.23	1.431	1.3	>0.05
A PGar at 5 min.		9.05	0.686	8.33	1.028	2.9	<0.05
		No.	%	No.	%	X^2	p
Sex	Female	12	60.0 %	11	36.7%	2.6	>0.05
	Male	8	40.0 %	19	63.3%		

S.D =standard deviation RDS=respiratory distress syndrome

H C = Head circumference ***t* - test**: Student's *t*-test ***P*– value:** Probability

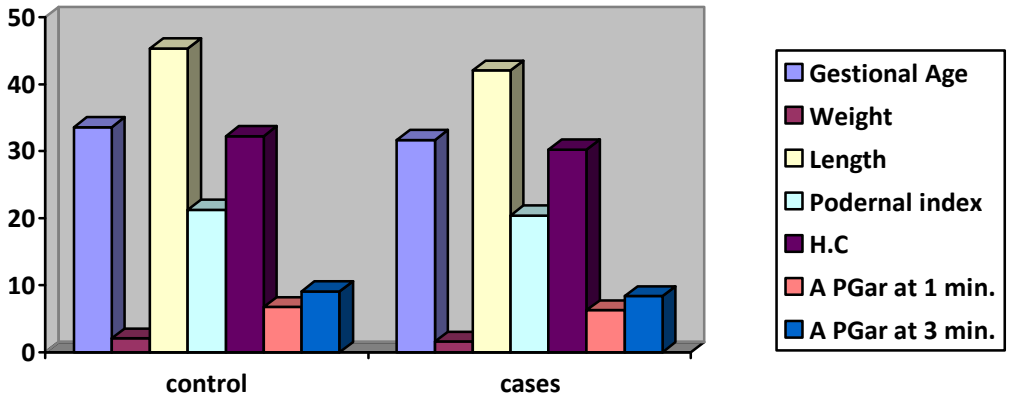

Figure (31): Demographic characteristics and anthropometric measurements of patient and control groups

As regards the gestational age, birth weight, length, head circumference, Apgar scores at 5 min were significantly lower in RDS compared to the control group and no significant difference of the

podernal index, sex and Apgar score at 1 min between RDS and control groups.

Table (7): Comparison between laboratory data of RDS and non RDS groups

	Control (n=20)		Cases of RDS (n=30)		t	p
	Mean	S.D	Mean	S. D		
Cholesterol	89.75	10.594	61.97	10.215	9.3	<0.001
TG	81.76	17.423	70.05	22.018	1.9	>0.05
HDL	37.16	7.547	22.24	6.895	7.2	<0.001
LDL	36.538	6.0685	25.172	5.6983	6.7	<0.001
VLDL	16.227	3.4615	14.007	4.4046	1.9	>0.05

HDL-C: High Density Lipoprotein-Cholesterol **LDL-C**: low density lipoprotein-cholesterol **TG**=Triglyceride **VLDL-C**: Very Low Density Lipoprotein-Cholesterol **RDS**: Respiratory distress syndrome **SD**: Standard deviation

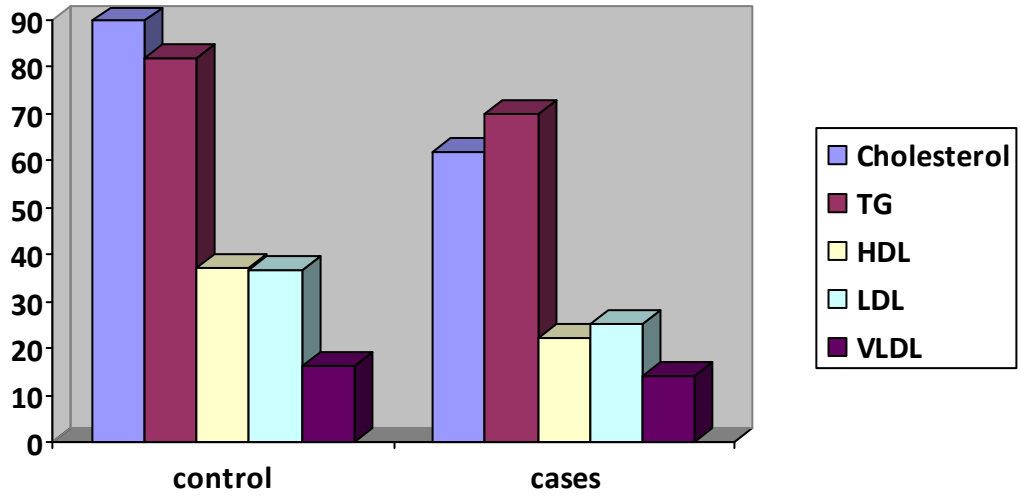

Figure (32): ***Neonatal serum triglyceride ,total cholesterol, VLDL, HDL and LDL of RDS and control groups***

There is a lower significant of total serum cholesterol, HDL-C, LDL-C levels, were significantly lower in neonates with RDS when compared to control group while their serum triglycerides and VLDL showed no significant difference.

Table (8): Comparison between demographic characteristics and anthropometric measurements of mothers of patient and control groups:

		Control Mothers (n=20)		Mothers of RDS (n=30)		t	p
		Mean	S.D	Mean	S. D		
Age		25.825	3.0100	24.600	3.3718	1.3	>0.05
Pre-gravid Weight		68.38	8.180	62.73	6.707	2.7	<0.05
Pre-gravid Height		161.85	5.752	161.70	4.928	0.1	>0.05
Gestaional weight gain		10.55	1.572	9.45	1.428	2.5	<0.05
Parity		2.25	1.164	2.10	1.029	0.5	>0.05
BMI		25.99	2.074	23.83	1.899	3.7	<0.05
		No.	%	No.	%	X^2	p
PROM	No	16	80.0%	23	76.7%	0.1	>0.05
	Yes	4	20.0%	7	23.3%		
Mode of delivery	C.S	10	50.0%	15	50.0%	---	---
	NVD	10	50.0%	15	50.0%		
Drug history	Negative	12	60.0%	25	83.3%	3.4	>0.05
	Received dexatha	8	40.0%	5	16.7%		

***t* - test**: Student's *t*-test **BMI**: Body mass index PROM =Premature rupture of memberanes
***P*–value**=Probability **SD**:Standerd deviation dextha=dexthmethasone(steroid)

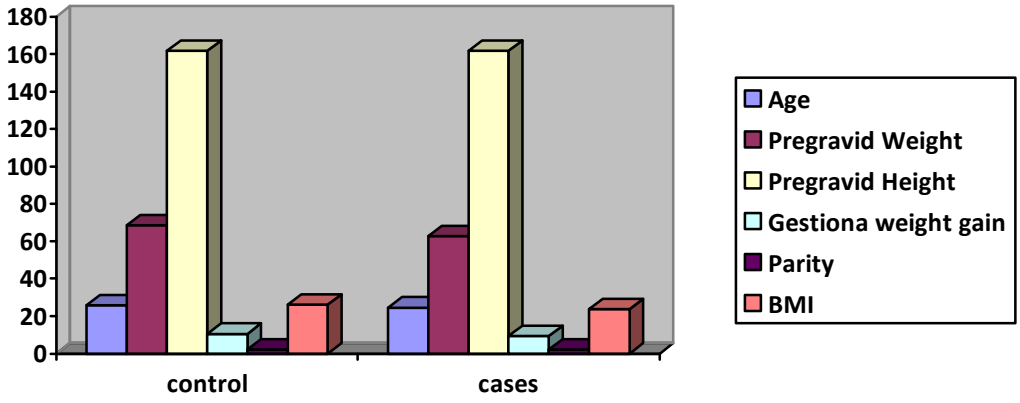

Figure (33): ***Demographic characteristics and anthropometric measurements of mothers of patient and control groups***

The pre-gravid BMI, pre-gravid weight and weight gain during pregnancy were significantly lower in the mothers of RDS compared to non RDS groups. However, no significant difference of the ruptured membrane > 24 h ,pregravid height, age ,parity, and receiving dexthamethasone between the mothers of RDS and mothers of the control group.

Table (9): Comparison between laboratory data of mothers of patient and control groups

	Control mothers (n=20)		Mothers of RDS (n=30)		t	p
	Mean	S.D	Mean	S. D		
Cholesterol	201.50	37.893	151.05	37.743	4.6	<0.001
TG	182.15	32.497	151.73	29.210	3.4	<0.05
HDL	48.98	6.940	38.61	6.658	5.3	<0.001
LDL	115.66	36.905	81.74	36.805	3.2	<0.05
VLDL	36.41	6.493	30.28	5.758	3.5	<0.05

HDL-C: High Density Lipoprotein-Cholesterol **LDL-C**: low density lipoprotein-cholesterol TG=Triglyceride **VLDL-C**: Very Low Density Lipoprotein-Cholesterol **RDS**: Respiratory distress syndrome **SD**: Standard deviation

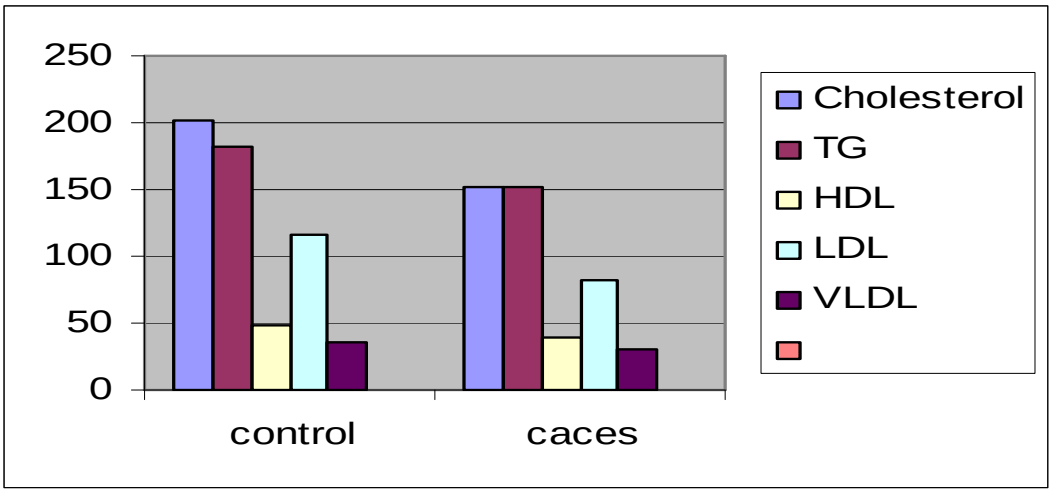

Figure (34): Maternal serum triglyceride , total cholesterol ,VLDL, HDL and LDL of patients and control groups

Lower significant of total cholesterol, HDL-C, LDL-C, triglycerides and VLDL-cholesterol levels in mothers of patient when compared to mothers of control group.

Table (10): Study the effect of sex on the neonatal lipid profile

	Male (n=27)		Female (n=23)		t	p
	Mean	S.D	Mean	S.D		
Cholesterol	69.70	15.532	77.05	18.437	1.5	>0.05
TG	74.02	19.890	75.57	22.518	0.3	>0.05
HDL	26.06	10.551	30.73	9.449	1.6	>0.05
LDL	29.291	6.9291	30.220	9.3727	0.4	>0.05
VLDL	14.726	3.9716	15.093	4.4601	0.3	>0.05

HDL-C: High Density Lipoprotein-Cholesterol **LDL-C**: low density lipoprotein-cholesterol TG=Triglyceride
VLDL-C:Very Low Density Lipoprotein-Cholesterol **RDS**: Respiratory distress syndrome **SD**: Standard deviation

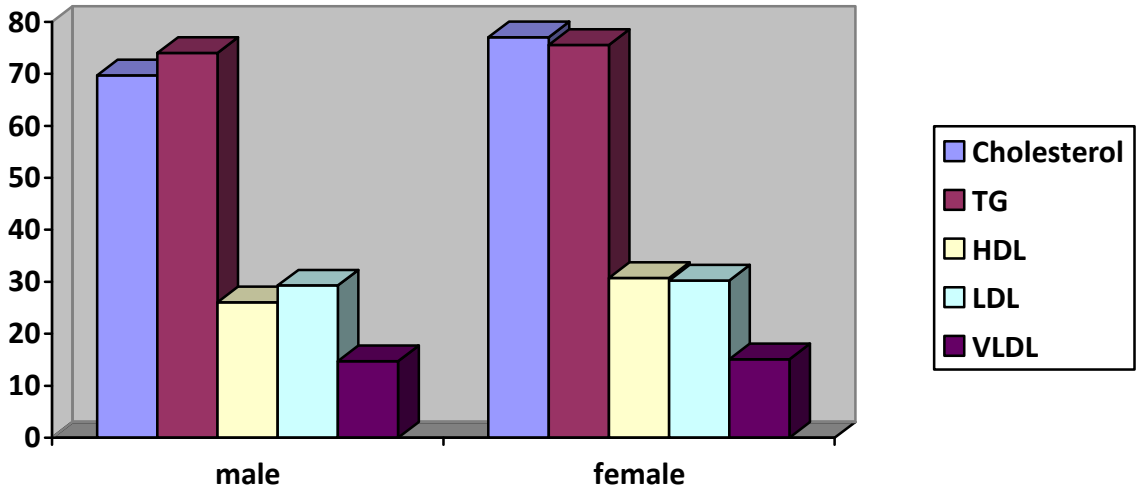

Figure (35): Correlation between neonatal lipid profile and sex

No correlation between neonatal lipid profile and sex. Compared the mean lipid profile levels between male and female. There was no significant difference.

Table (11): The effect of mode of delivery on the neonatal lipid profile

	C.S (n=25)		NVD (n=25)		t	p
	Mean	S.D	Mean	S.D		
Cholesterol	76.11	16.096	70.05	17.964	1.3	>0.05
TG	78.67	18.864	70.80	22.507	1.3	>0.05
HDL	29.04	10.810	27.38	9.769	0.6	>0.05
LDL	30.162	7.9523	29.274	8.3269	0.4	>0.05
VLDL	15.714	3.7286	14.076	4.4826	1.4	>0.05

HDL-C: High Density Lipoprotein-Cholesterol **LDL-C**: low density lipoprotein-cholesterol
TG=Triglyceride **VLDL-C**: Very Low Density Lipoprotein-Cholesterol
RDS: Respiratory distress syndrome **SD**: Standard deviation **C S =** cesarean section

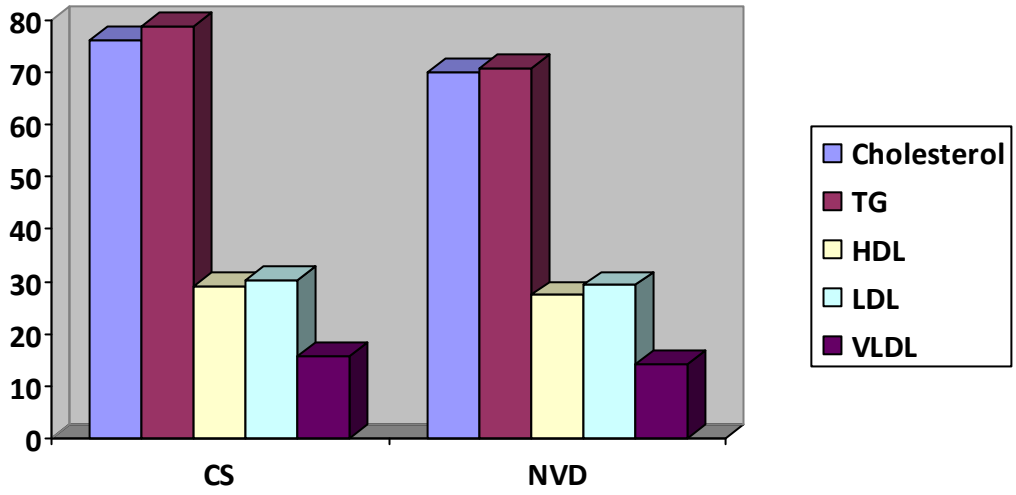

Figure (36): correlation between neonatal lipid profile and mode of delivery

No correlation between neonatal lipid profile and mode of delivery, Compared the mean level of lipid profile between infants born vaginally and those born by cesarean section. There was no significant difference.

Table (12): The effect of using dexamesathone as a drug of lung maturity on neonatal lipid profile:

	negative (n=12)		Received dexamethasone (n=38)		t	p
	Mean	S.D	Mean	S.D		
Cholesterol	72.20	18.430	75.71	13.750	0.6	>0.05
TG	74.35	19.234	77.56	26.395	0.5	>0.05
HDL	28.12	11.105	28.32	7.900	0.1	>0.05
LDL	28.818	8.4480	32.222	6.7849	1.3	>0.05
VLDL	14.814	3.8431	15.470	5.2079	0.4	>0.05

HDL-C: High Density Lipoprotein-Cholesterol **LDL-C**: low density lipoprotein-cholesterol TG=Triglyceride
VLDL-C: Very Low Density Lipoprotein-Cholesterol **SD**: Standard deviation

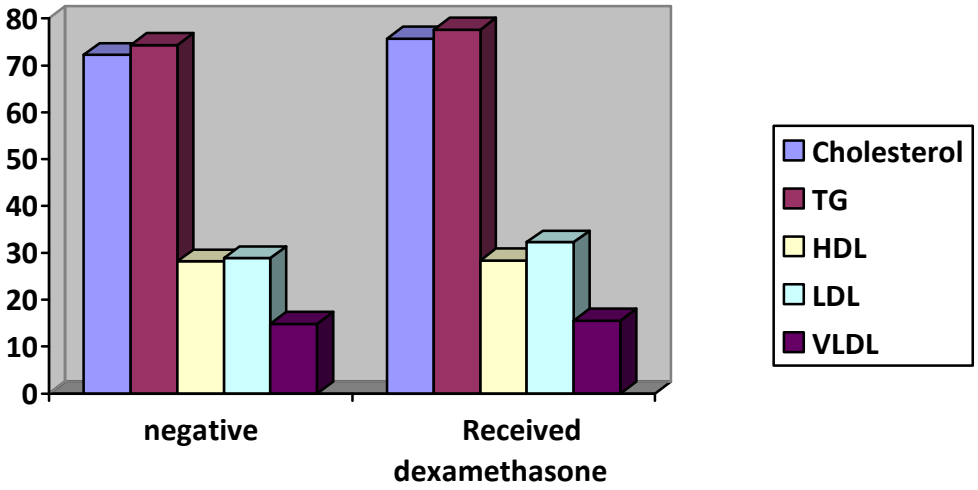

Figure (37): The effect of using dexamethasone as a drug of lung maturity on neonatal lipid profile:

Compared the mean level of lipid profile between infants whose mothers had received dexthamethasone and those whose mothers had not. There was no significant difference .

Table (13): Correlations between neonatal clinical characteristics and their lipid profile in infants with RDS

	Gestational Age		Weight		Length		Podernal index		H.C		A P Gar at 1 min		A P Gar at 5 min	
	r	p	r	p	r	p	r	p	r	p	r	p	r	p
Cholesterol	0.720	<0.001	-0.155	>0.05	0.531	<0.05	0.618	<0.05	0.677	<0.05	0.577	<0.05	0.356	>0.05
TG	0.255	>0.05	-0.165	>0.05	0.344	>0.05	-0.044	>0.05	0.346	>0.05	0.383	<0.05	0.456	<0.05
HDL	0.289	>0.05	00.146	>0.05	0.060	>0.05	0.474	<0.05	0.187	>0.05	0.242	>0.05	-0.092	>0.05
LDL	0.409	<0.05	-0.363	<0.05	0.257	>0.05	0.482	<0.05	0.407	>0.05	0.377	<0.05	0.230	>0.05
VLDL	0.256	>0.05	-0.165	>0.05	0.345	>0.05	-0.044	>0.05	0.347	>0.05	0.384	<0.05	0.456	<0.05

P: Probability **H DL-C**: High Density Lipoprotein-Cholesterol **TG** =triglyceride
LDL-C: low density lipoprotein-cholesterol **VLDL-C**: Very Low Density Lipoprotein-Cholesterol

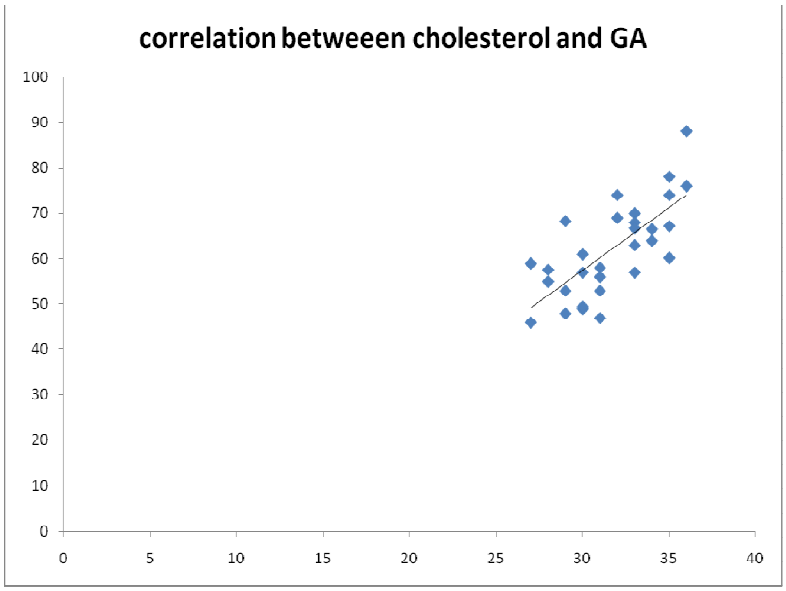

Figure (38): Positive correlation between gestational age and neonatal total cholesterol

* There is significant positive correlations between gestational age, length, ponderal index ,head circumference and the total neonatal cholesterol .

* There is significant positive correlations between gestational age, birth weight , ponderal index ,and the low density lipoprotein cholesterol(LDL) .

*There is significant positive correlations between ponderal index ,and high density lipoprotein HDL-C .

(14): Correlations between maternal characteristics and their neonates lipid profile in infants with RDS

	Cholesterol		TG		HDL		LDL		VLDL	
	r	p	r	p	r	p	r	p	r	P
Pregravid WT	0.721	<0.001	0.197	>0.05	0.405	<0.05	0.42	<0.05	0.196	>0.05
Pregnant Ht	0.522	<0.01	0.22	>0.05	0.38	<0.05	0.194	>0.05	0.22	>0.05
BMI	0.541	<0.01	0.12	>0.05	0.18	>0.05	0.439	<0.05	0.121	>0.05
Wt. gain during pregnancy	-0.09	>0.05	0.213	>0.05	0.166	>0.05	0.02	>0.05	0.214	>0.05
Cholesterol	0.44	<0.05	-0.339	>0.05	0.568	<0.01	0.138	>0.05	-0.338	>0.05
TG	0.51	<0.01	0.452	<0.05	0.136	>0.05	0.467	<0.01	0.452	<0.05
HDL	-0.18	>0.05	0.181	>0.05	0.178	>0.05	-0.071	>0.05	0.181	>0.05

LDL	0.439	<0.01	-0.419	<0.05	0.604	<0.001	0.089	>0.05	-0.418	<0.05
VLDL	0.489	<0.01	0.435	<0.05	0.135	>0.05	0.448	<0.05	0.435	<0.05

HDL-C: High Density Lipoprotein-Cholesterol **LDL-C**: low density lipoprotein-cholesterol **TG**=Triglyceride
VLDL-C: Very Low Density Lipoprotein-Cholesterol **SD**: Standard deviation BMI = body mass index
P: Probability

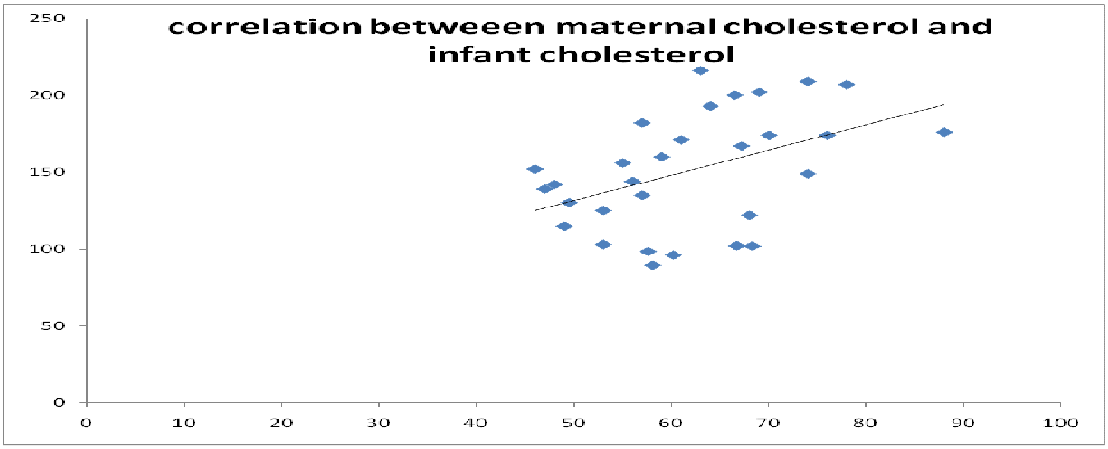

Figure (39): Positive correlation between maternal and neonatal total cholesterol

* There is a positive correlation between maternal cholesterol and neonatal cholesterol .
* There is a positive correlation between maternal total cholesterol and neonatal HDL-C.
* There is a positive correlation between maternal and neonatal triglycerides .
* There is a positive correlation between maternal triglyceride level and (neonatal total cholesterol, neonatal LDL-C and neonatal VLDL-C) .

* There is a positive correlation between maternal low density lipoprotein cholesterol, LDL-C and (neonatal Total cholesterol, neonatal TG , neonatal HDL-C and neonatal VLDL-C) .
* There is a positive correlation between maternal very low density lipoprotein cholesterol ,VLDL-C and (neonatal total cholesterol , neonatal LDL-C, neonatal VLDL-C and neonatal TG).
* There is a positive correlation between maternal pre gravid weight and (neonatal Total cholesterol, neonatal HDL-C and neonatal LDL-C) .
*There is a positive correlation between maternal height and (neonatal Total cholesterol and neonatal HDL-C) .

* There is a positive correlation between maternal BMI and (neonatal Total cholesterol and neonatal LDL-C) .

Table (15): maternal lipid profile in predicting RDS

	Beta	p
Cholesterol	0.803	>0.05
TG	0.116	>0.05
HDL	-0.676	<0.05
LDL	-1.008	>0.05
VLDL	-0.450	>0.05

HDL-C: High Density Lipoprotein-Cholesterol **LDL-C**: low density lipoprotein-cholesterol TG=Triglyceride
VLDL-C: Very Low Density Lipoprotein-Cholesterol ***P***: Probability

The maternal High Density Lipoprotein-Cholesterol HDL-C is the most significant in predicting RDS .

Table (16):Comparison between control preterm and preterm cases according to (US)data which was done within 1week before delivery:

	Control (n=20)		Cases of RD (n=30)		t	p
	Mean	Std. Deviation	Mean	Std. Deviation		
WT	2.0160	.46590	1.5643	.55032	3.1	<0.01
FL	61.9000	5.76651	54.8333	8.25074	3.5	<0.01
BPD	80.8000	6.65385	73.0333	8.30240	3.6	<0.01
AC	286.4000	21.24395	265.8333	24.00443	3.1	<0.01
USWT	2.0407	.48185	1.5991	.54882	2.9	<0.01

***t* - test**: Student's *t*-test **BPD**: Bi-parietal diameter **US WT**=ultrasongraphic weight
F L =Femoral length **A C** =Abdominal circumference WT =Birth Weight
***P*–value**=Probability **SD**:Standard deviation

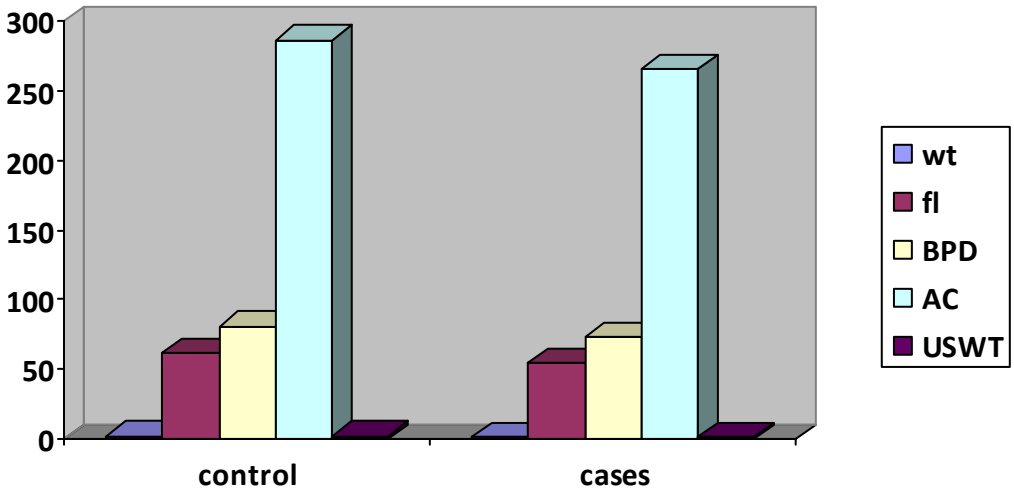

Figure (40): Ultrasound data of the RDS and control groups

Bi-parietal diameter, abdominal circumference ,femoral length, ultrasongraphic weight and birth weight were significantly lower in RDS neonates compared to non RDS group.