Results

RESULTS

Table (1) Shows a total of 40 newborns were included in the study: 20 in the asphyxiated group and 20 in the control group. Patients from both groups were similar in terms of sex, mode of delivery gestational age. There was no statistically significant difference between the two groups regarding mean birth weight and mean gestational age. Apgar scores at the first and fifth minutes ere significantly lower in the asphyxiated group than in the control group ($P < 0.001$).

Table (2) gasometric data from cord blood: the groups presented statistically different values for mean umbilical cord PH, carbon dioxide tension (PaCO2). Oxygen pressure (PaO2) ($P < 0.001$).

Table (3) Gasometric data in the arterial blood collected 18 to 24H after birth there were no significant difference between the groups in the mean values of PH, paCO2 and found in arterial blood sample collected between 18 and 24 h after birth. PaO2 was significantly higher in the asphyxiated group. None of the patients nor the controls presented PH less than 7.30.

Table (4) Mean levels of thyroid hormones and TSH in the umbilical cord blood were similar in both groups.

Table (5) Serum level of thyroid hormones and thyroid stimulating hormone in neonatal arterial blood collected 18 – 24 H after birth.

(i) All hormone results were higher in the control group than the asphyxiated group ($P < 0.001$).

(ii) In the asphyxiated group, mean T4, T3 and TSH levels in the aterial blood collected 18 to 24 h after birth were lower than those found in the cord blood ($P < 0.001$).

(iii) On the other hand, in the control group, the levels of these hormones were higher in the arterial blood than in the cord blood ($P < 0.001$). Concerning FT4, the mean behavior patterns were similar in both groups, that is, increased levels were observed in the blood sample collected 18 to 24 after birth. However, this increase was more significant in the control group ($P < 0.001$).

Table (6): TSH Correlations

(i)- TSH in neonatal arterial blood collected 18-24 hours after birth has negative correlations with gestational age and weight in grams but these relations are statistically non significant.

(ii)- TSH in neonatal arterial blood collected 18-24 hours after birth has negative correlation with $PaCO_2$ but this relation is statistically significant.

(iii)- TSH in neonatal arterial blood collected 18-24 after birth hours has positive correlation with Apgar score at one minute, Apgar score at five minutes and PH (of the cord blood) and these relations are statistically significant.

(iv)- TSH in neonatal arterial blood collected 18-24 hours after birth has positive correlation with PaO_2 but this relation is statistically non significant.

Table (7): T3 correlations:

(i) T3 in neonatal arterial blood collected 18-24 hours after birth has negative correlation with gestational age but this relation is statistically non significant.

(ii) T3 in neonatal arterial blood collected 18-24 hours after birth has Positive correlation with weight in grams but this relation is statistically non significant.

(iii) T3 in neonatal arterial blood collected 18-24 hours after birth has Positive correlations with Apgar score at one minute, Apgar score at 5 minutes, PH (cord blood) and PaO2 (cord blood) and these relations are statistically significant.

(iv) T3 in neonatal arterial blood collected 18-24 hours after birth has negative correlation with $PaCO_2$ (cord blood) and this relation is statistically significant.

Table (8): FT4 correlations:

(i) FT4 in neonatal arterial blood collected 18-24 hours after birth has Positive correlation with Gestational age but this relation is statistically non significant.

(ii) FT4 in neonatal arterial blood collected 18-24 hours after birth has negative correlation with weight in grams but this relation is statistically non significant.

(iii) FT4 in neonatal arterial blood collected 18-24 hours after birth has positive correlation with Apgar score at one

minute, Apgar score at 5 minutes, and PH (cord blood) and these relations are statistically significant.

(iv) FT4 in neonatal arterial blood collected 18-24 hours after birth after birth has negative correlation with PaCO2 (cord blood) and this relation is statistically significant.

(v) FT4 in neonatal arterial blood collected 18-24 hours after birth after birth has positive correlation with PaO_2 (cord blood) and this relation is statistically significant.

Table (9) : T4 Correlations:

(i) T4 in neonatal arterial blood collected 18-24 hours after birth has negative correlations with Gestational age and weight in grams but these relations are statistically non significant.

(ii) T4 in neonatal arterial blood collected 18-24 hours after birth has Positive correlations with Apgar score at one minute, Apgar score at 5 minutes and PH (cord blood) and these relations are statistically significant.

(iii) T4 in neonatal arterial blood collected 18-24 hours after birth has negative correlation with PaCO2 (cord blood) and this relation is statistically significant.

(iv) T4 in neonatal arterial blood collected 18-24 hours has positive correlation with PaO_2 (cord blood) but this relation is statistically non significant.

Table (1): Some demographic data in studied cases :

Variable \ Group	Patient group (n=20)	Control group (n=20)	t -Test	Significance P.
Sex male	8 / 20 (40%)	8/20 (40%)	chi-square=0	1
Female	12 / 20 (60%)	12/20 (60%)		
Mod of delivery				
CS	5/20 (25 %)	5/20 (25 %)	chi-square=0	1
NVD	15/20 (75%)	15/20 (75%)		
Gestational age	39.30 ± 1.68	39.10 ± 1.83	0.36	0.8
birth Weight (kg)	3.043 ± 0. 518	3.09 ± 0.347	-0.38	0.5
Apgar score (1min)	1.35 ± 1.10	8.85 ± 1.31	-18.14	< 0.001
Apgar score (5min)	3.9 ± 1.02	9.40 ± 1.31	-23.98	< 0.001

Fig (1): Sex distribution between asphyxiated and non asphyxiated groups

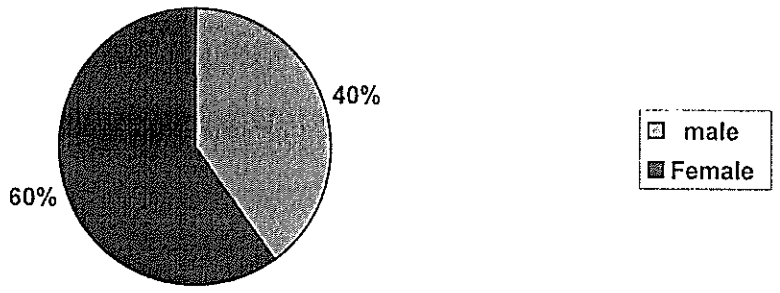

Fig (2): Mode of delivery in asphyxiated and non asphyxiated groups

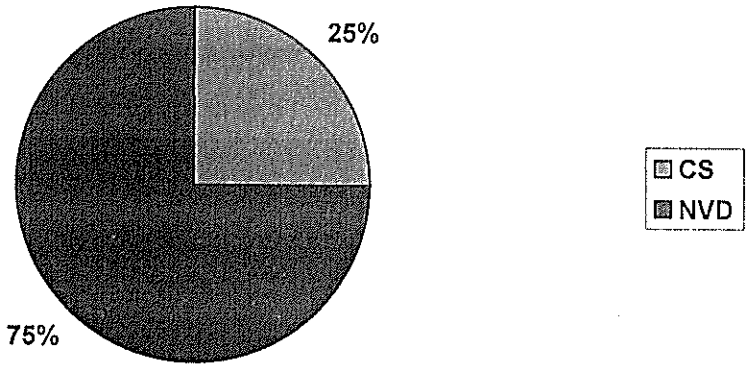

Fig (3): Apgar score in asphyxiated and non asphyxiated groups

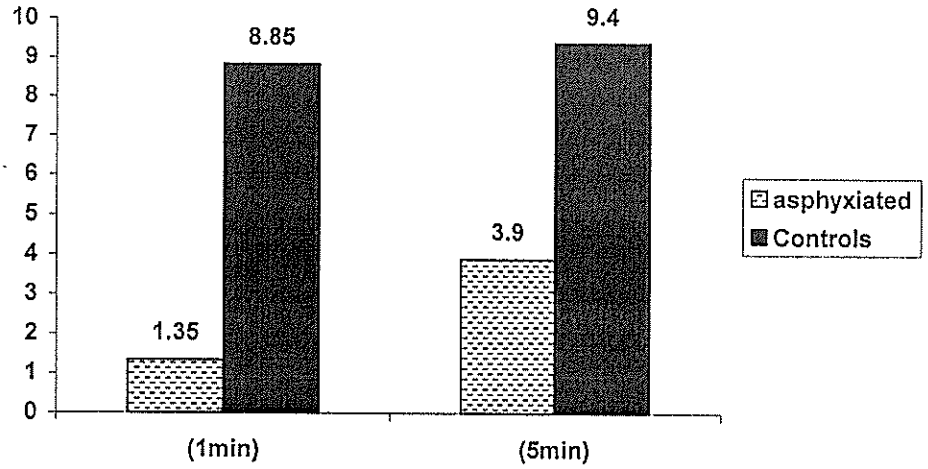

Table (2): Gasometric data from cord Blood (blood gases):

Variable	Patient group (n=20)	Control group (n= 20)	t-Test	Significance P
Blood gases				
PH	7.027 ± 0.11	7.35 ± 0.7	-10.91	< 0.001
$PaCO_2$	74.35 ± 13.94	41.15 ± 5.94	9.79	< 0.001
PaO_2	30.90 ± 10.98	45.50 ± 14.2	-3.64	< 0.001

Table (3): Gasometic data in neonatal arterial blood collected 18 – 24H after birth (blood gases):

Variable	Patient group (n=20)	Control group (n= 20)	t-Test	Significance P
Blood gases				
PH	7.4 ± 0.1	7.33 ± 0.1	-0.42	0.9
$PaCO_2$	35.3 ± 5.2	36.4 ± 6.3	-0.58	0.7
PaO_2	98.8 ± 22.8	81 ± 10.9	3.14	0.01

Fig (4): PH in patients and control in cord blood and neonatal arterial blood 18-24H after birth

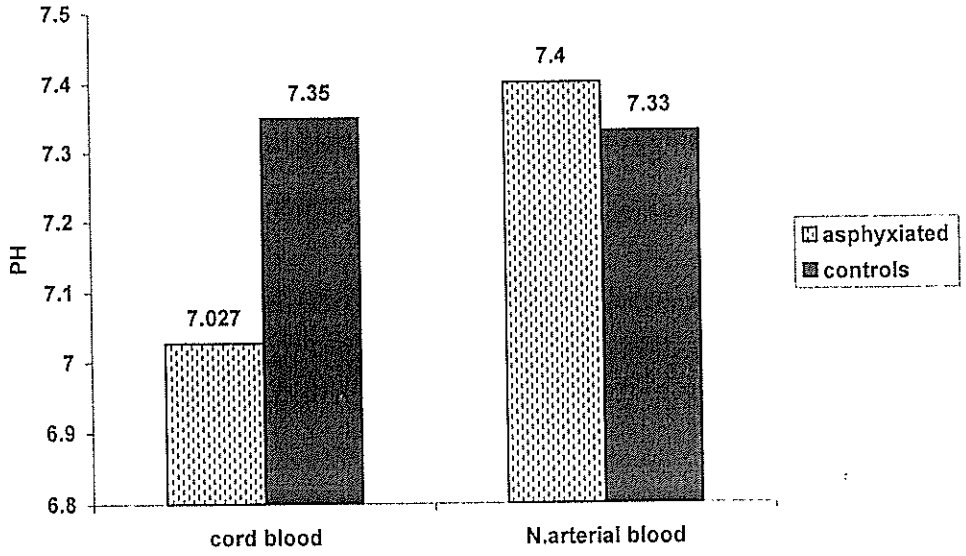

Fig (5): PaCo2 in patients and control in cord blood and neonatal arterial blood 18-24H after birth

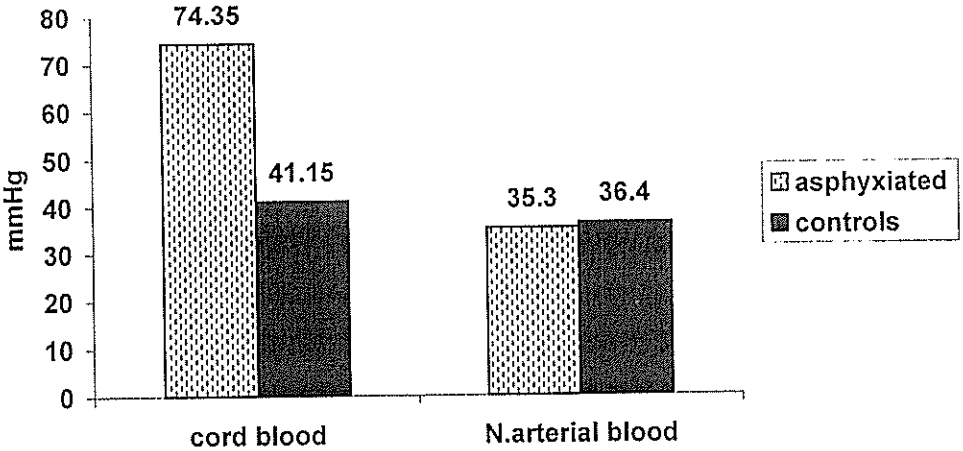

Fig (6): PaO2 in patients and control in cord blood arterial and neonatal blood 18-24H after birth

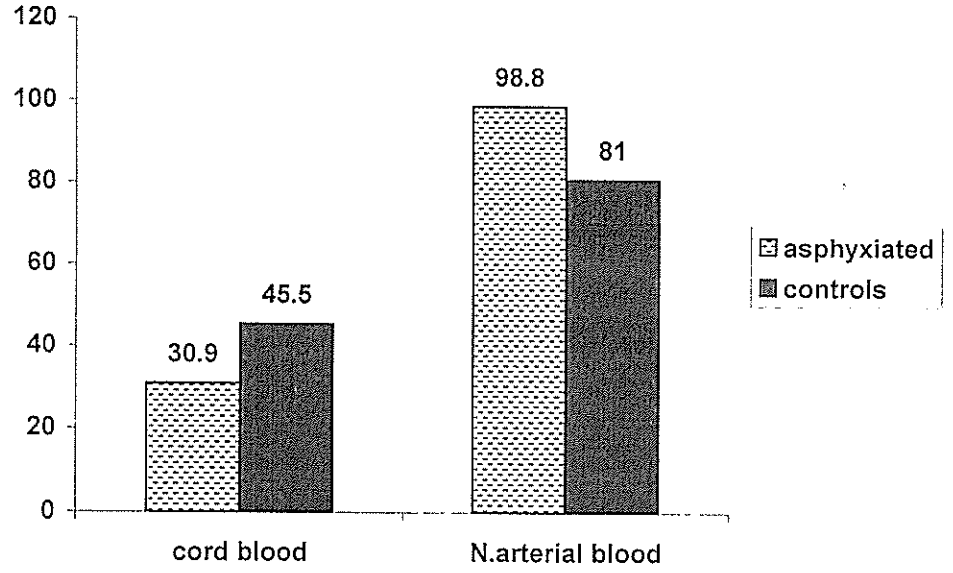

Table (4): serum levels of thyroid hormones and thyroid stimulating hormone in cord blood.

Group / Variable	Patient group (n=20)	Control group (n= 20)	t-test	Significance P
TSH (μU/ml)	14.67 ± 8.55	11.58 ± 6.51	1.28	0.4
T3 (ng/dl)	85.85 ± 28.5	82.25 ± 21.72	0.45	0.7
FT4 (ng/dl)	1.39 ± 3.03	1.43 ± 2.39	-0.39	0.6
T4 (μg/dl)	12.10 ± 3.03	11.24 ± 2.39	3.3	0.7

Table (5) Serum levels of thyroid hormones and TSH in neonatal arterial blood collected 18 –24H after birth

Group / Variable	Patient group (n=20)	Control group (n= 20)	t-Test	Significance P
TSH (μU/ml)	8.7 ± 4.2	15.7 ± 5.5	-4.49	< 0.001
T3 (ng/dl)	54.7 ± 14.1	185.6 ± 76.3	-7.55	< 0.001
FT4 (ng/dl)	1.9 ± 0.5	2.7 ± 0.7	-4.26	<0.001
T4 (μg/dl)	9.9 ± 2	17.1 ± 3.3	-8.47	<0.001

Fig (7) : TSH serum level in cord blood and neonatal arterial blood 18-24H after birth

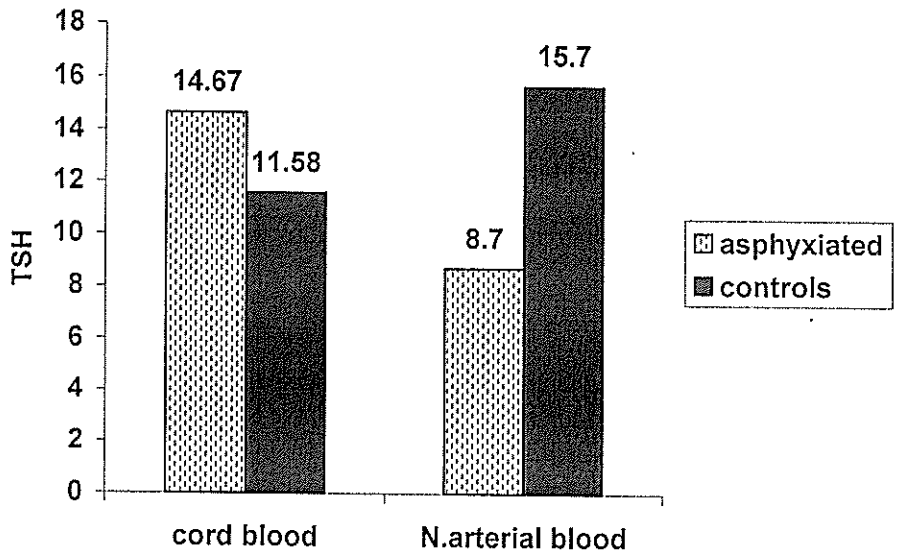

Fig (8): T3 serum level in cord blood and neonatal arterial blood 18-24H after birth

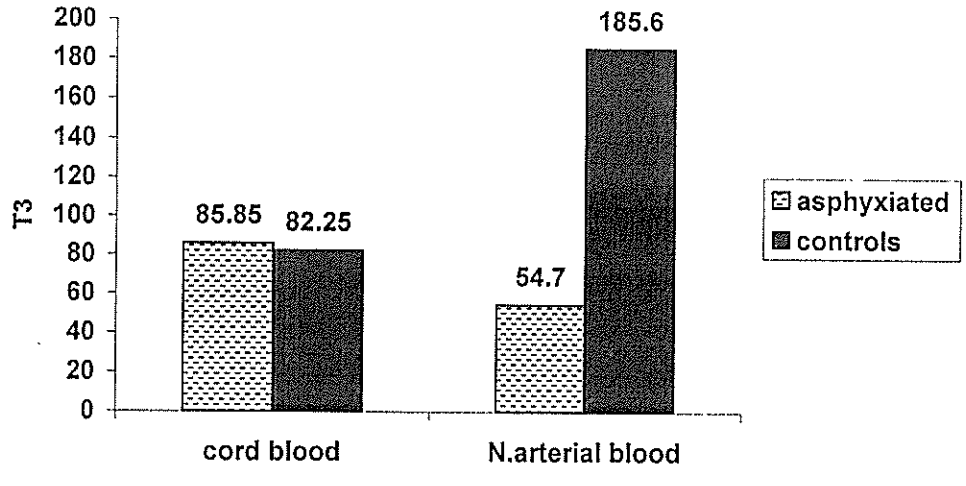

Fig (9): FT4 serum level in cord blood and neonatal arterial blood 18-24H after birth

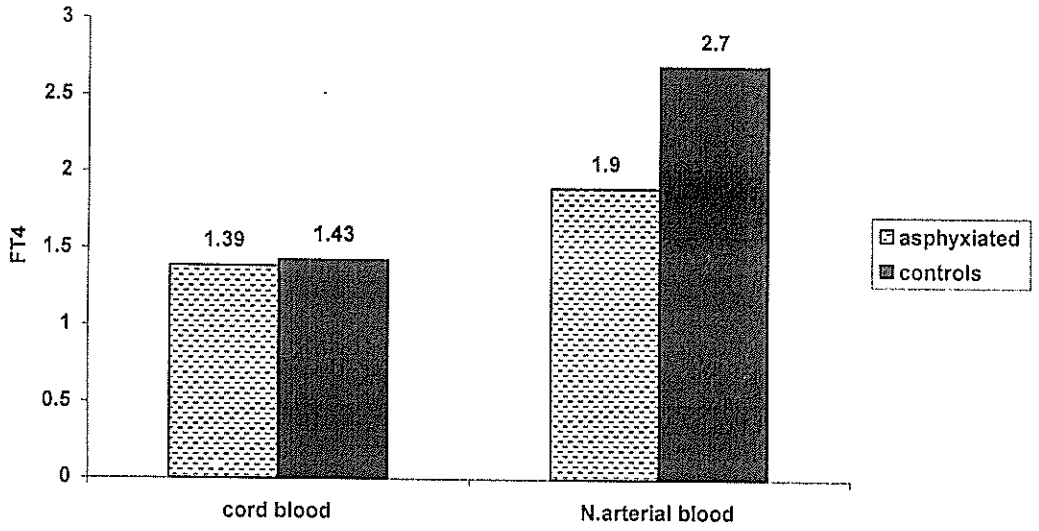

Fig (10): T4 serum level in cord blood and neonatal arterial blood 18-24H after birth

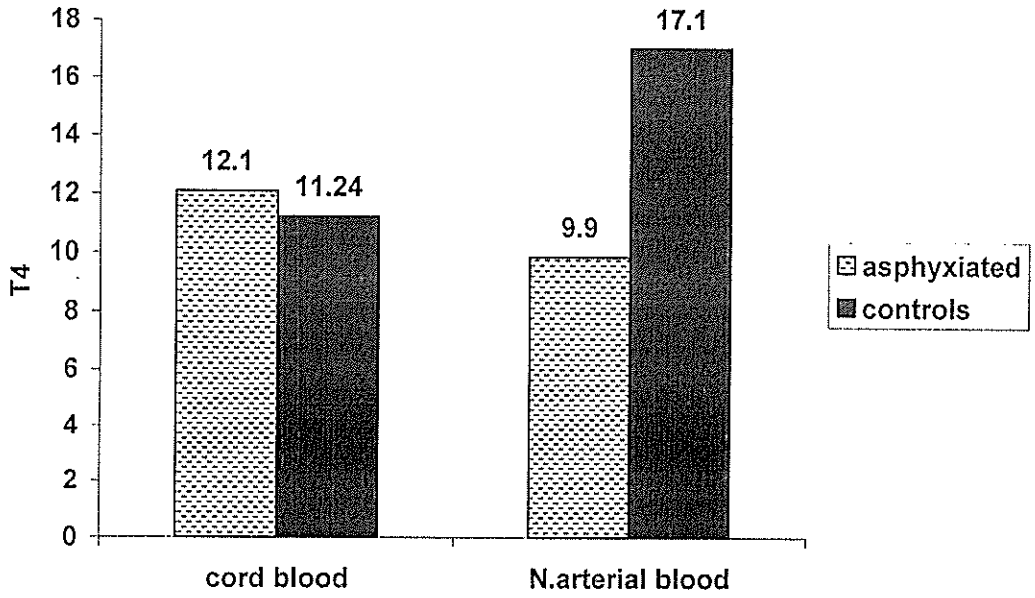

Table (6): Correlations between TSH in neonatal arterial blood collected 18 –24H after birth and other parameters

	Coefficient correlation	P. value
GA	-0.06	0.7
WT gms	-0.1	0.53
AS1	0.6	< 0.001
AS5	0.64	< 0.001
PH (cord blood)	0.64	< 0.001
$PaCO_2$ (cord blood)	-0.62	< 0.001
PaO_2 (cord blood)	0.39	0.01

Fig. (11): Correlation between TSH in neonatal arterial blood (18-24h)By Apgar score at 1min

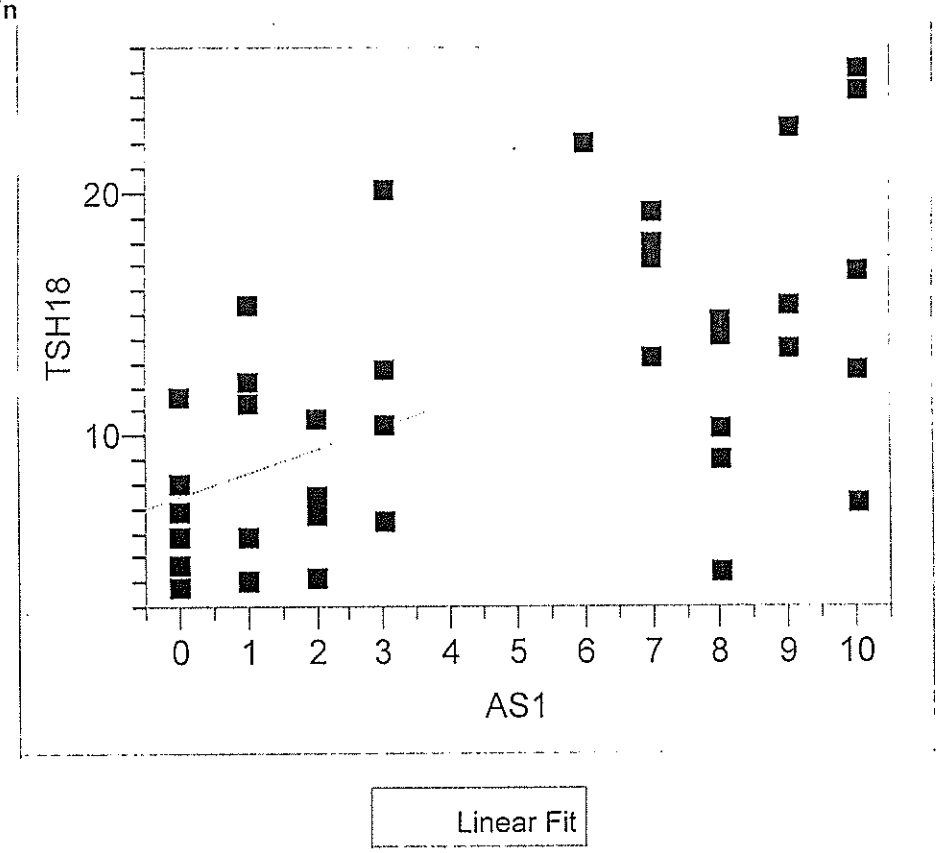

Fig. (12): Correlation between TSH in neonatal arterial blood (18-24h)By Apgar score at 5min

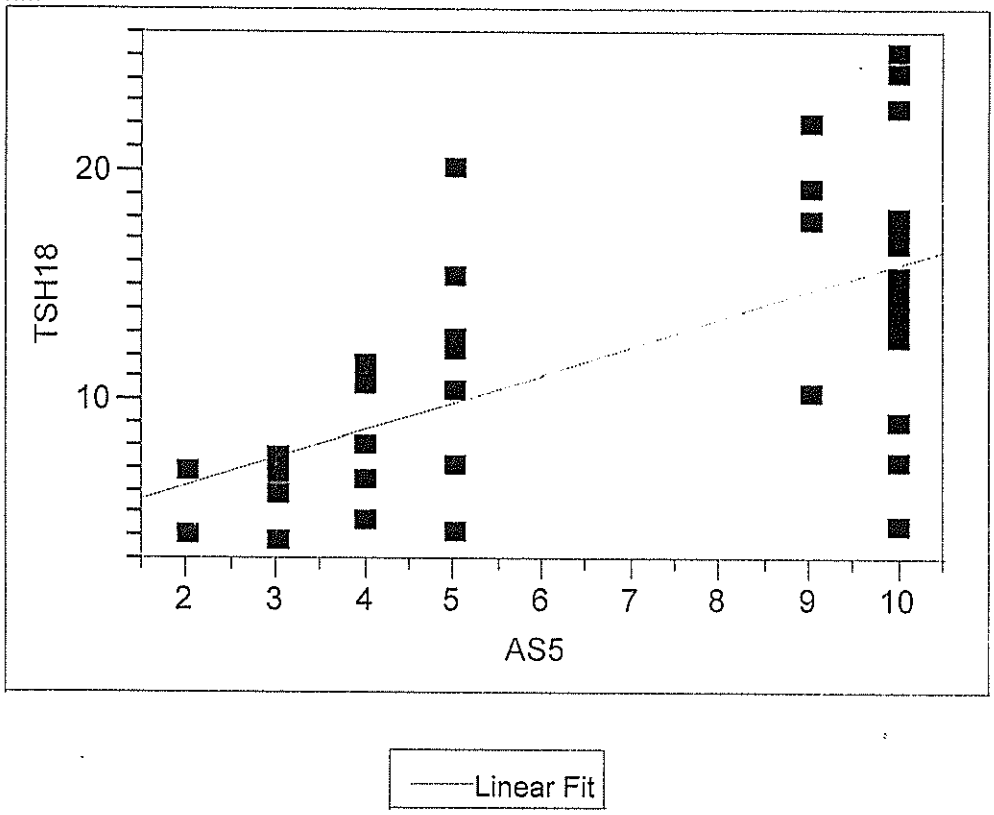

Fig. (13): Correlation between TSH in neonatal arterial blood (18-24h) PH cord blood

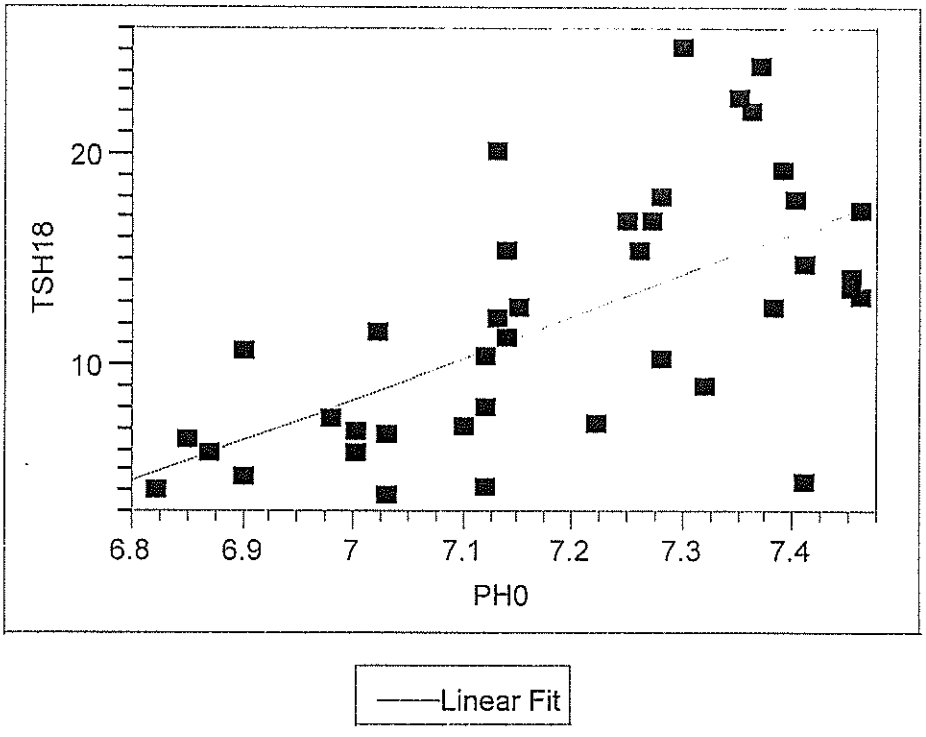

Table (7): Correlation between T3 in neonatal arterial blood collected 18 –24H and other parameters

	Coefficient correlation	P. value
GA	- 0.009	0.5
WT gms	0.08	0.6
AS1	0.78	< 0.001
AS5	0.84	< 0.001
PH (cord blood)	0.8	< 0.001
$PaCO_2$ (cord blood)	- 0.77	< 0.001
PaO_2 (cord blood)	0.45	0.004

Fig. (14): Correlation between T3 in neonatal arterial blood (18-24h)By Apgar score at 1min

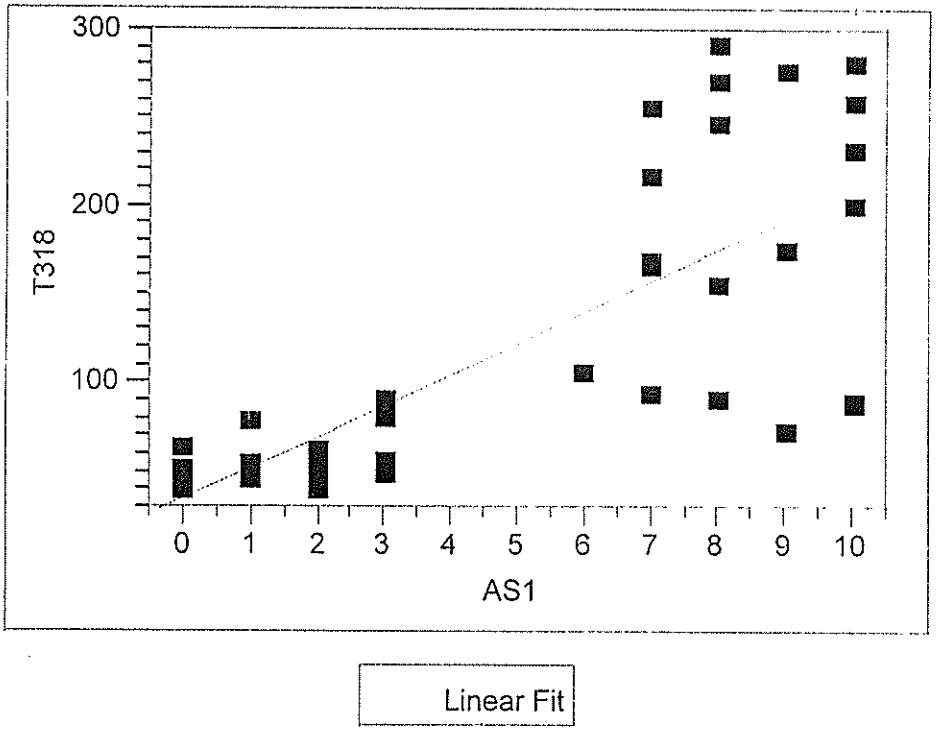

Fig. (15): Correlation between T3 in neonatal arterial blood (18-24h)By Apgar score at 5min

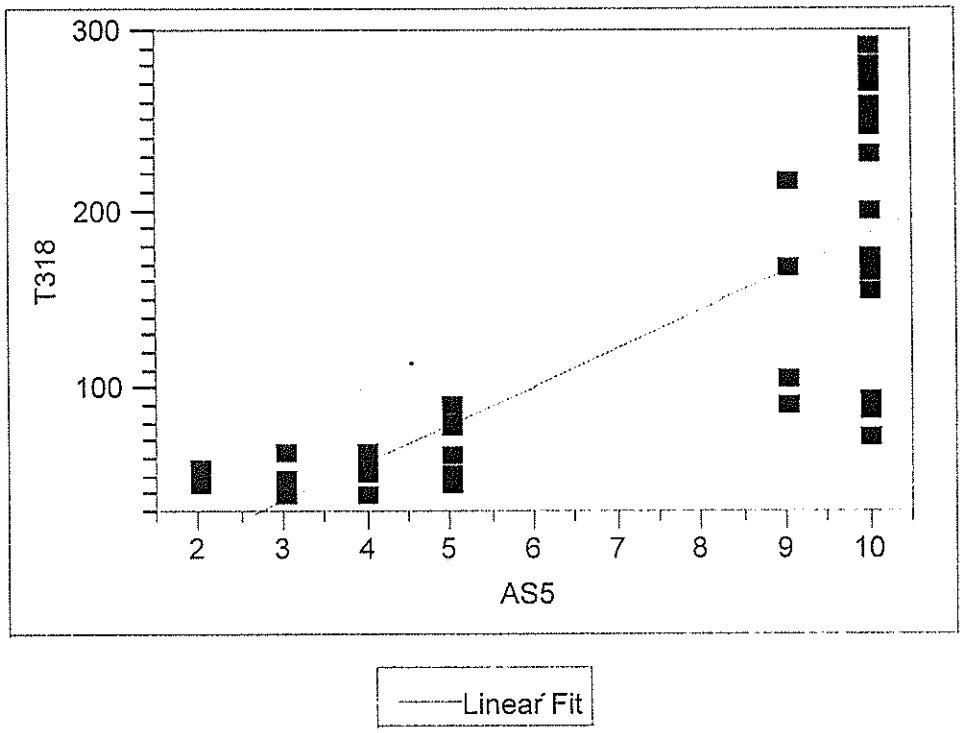

Fig. (16): Correlation between T3 in neonatal arterial blood (18-24h) PH cord blood

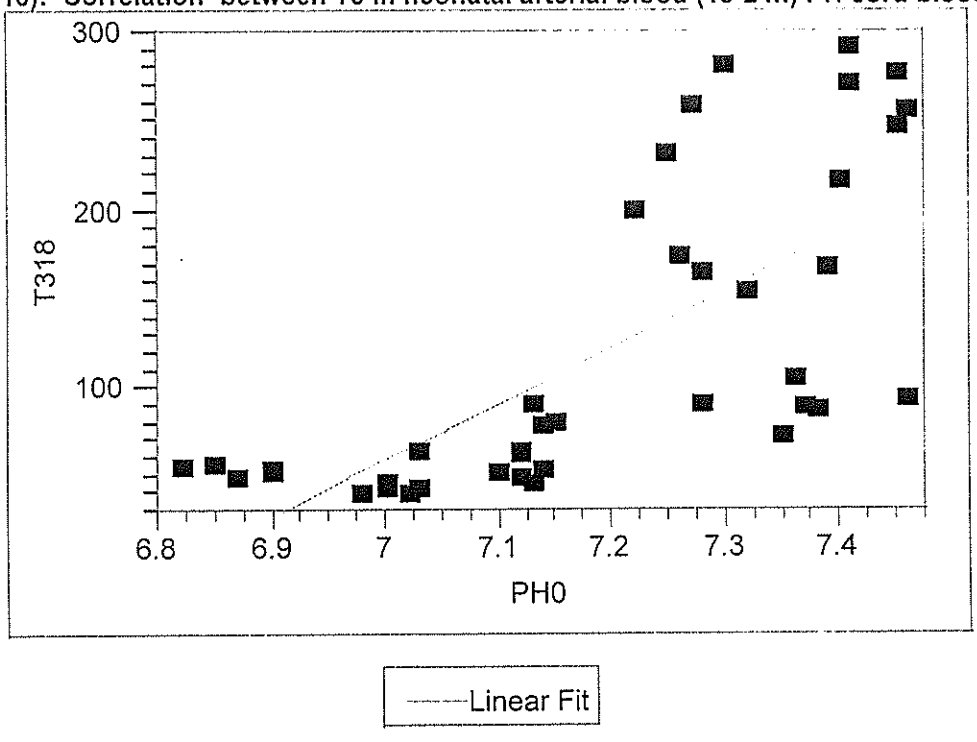

Table (8): Correlation between FT4 in neonatal arterial blood collected 18 –24H and other parameters

	Coefficient correlation	P. value
GA	0.01	0.94
WT gms	-0.17	0.3
AS1	0.49	0.001
AS5	0.56	<0.001
PH (cord blood)	0.57	< 0.001
$PaCO_2$ (cord blood)	-0.59	< 0.001
PaO_2 (cord blood)	0.44	0.005

Fig. (17): Correlation between FT4 in neonatal arterial blood (18-24h)By Apgar score at 1min

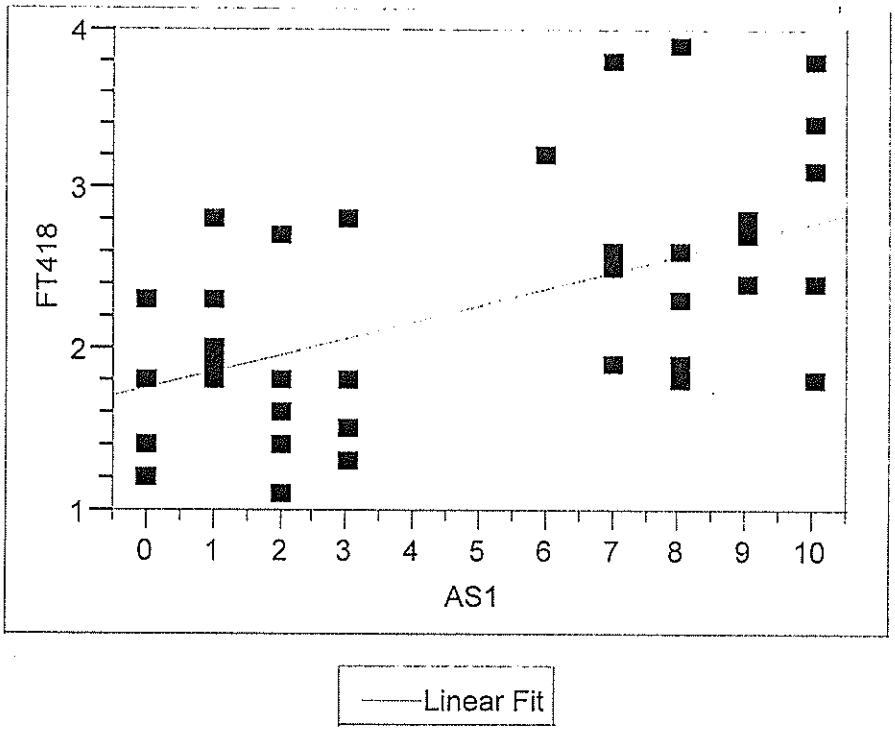

Fig. (18): Correlation between FT4 in neonatal arterial blood (18-24h)By Apgar score at 5min

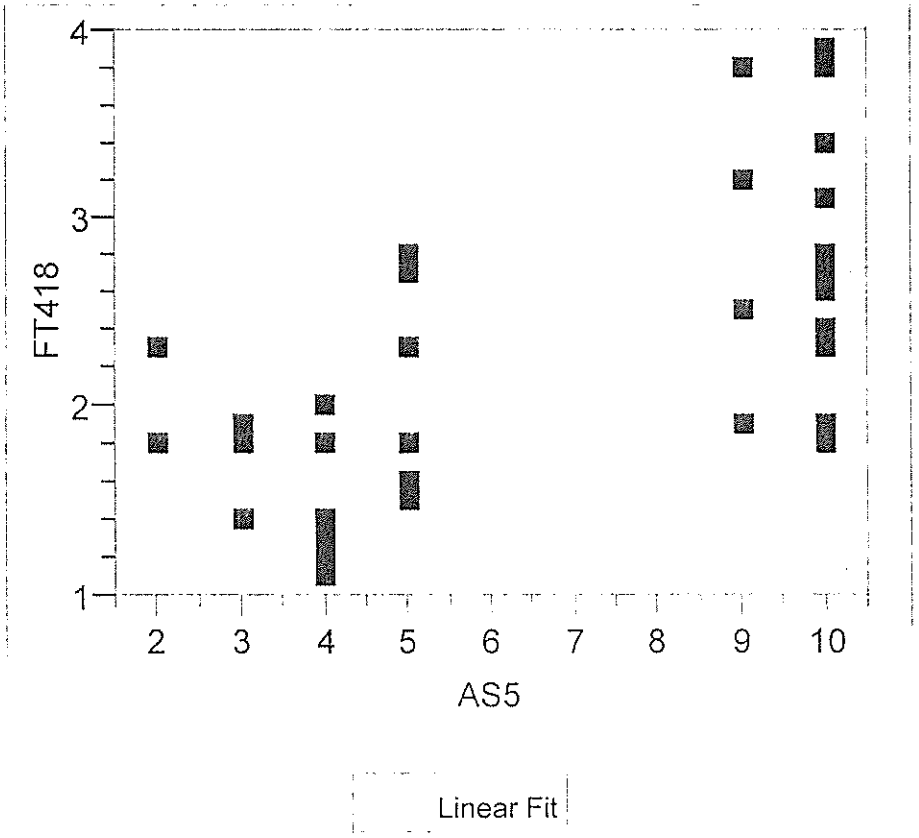

Fig. (19): Correlation between FT4 in neonatal arterial blood (18-24h) PH cord blood

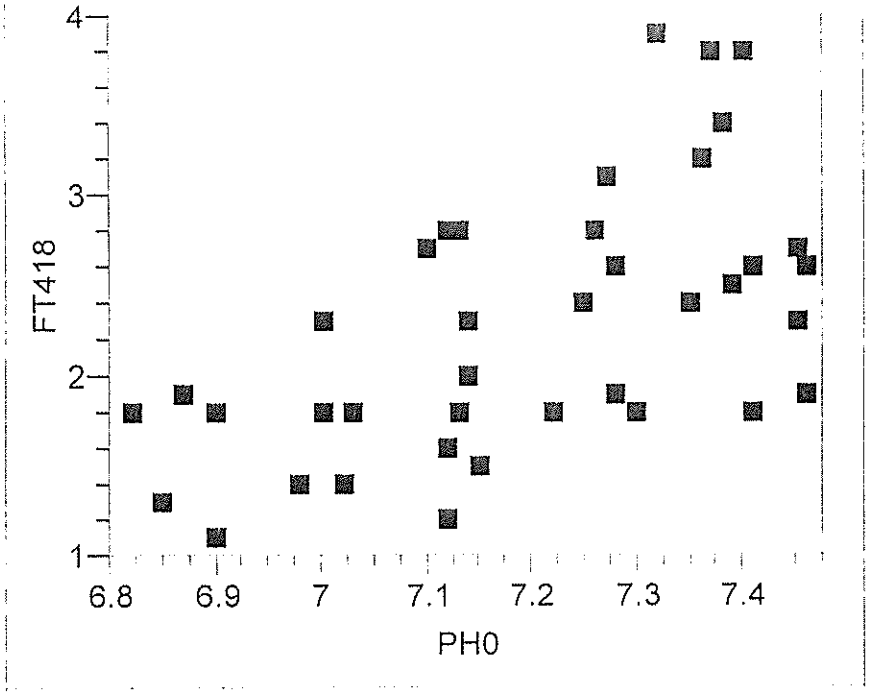

Table (9): Correlation between T4 in neonatal arterial blood collected 18 –24H after birth and other parameters

	Coefficient correlation	P. value
GA	-0.12	0.5
WT gms	-0.03	0.8
AS1	0.77	<0.001
AS5	0.84	< 0.001
PH (cord blood)	0.78	< 0.001
$PaCO_2$ (cord blood)	-0.77	< 0.001
PaO_2 (cord blood)	0.39	0.1

Fig. (20): Correlation between T4 in neonatal arterial blood (18-24h)By Apgar score at 1min

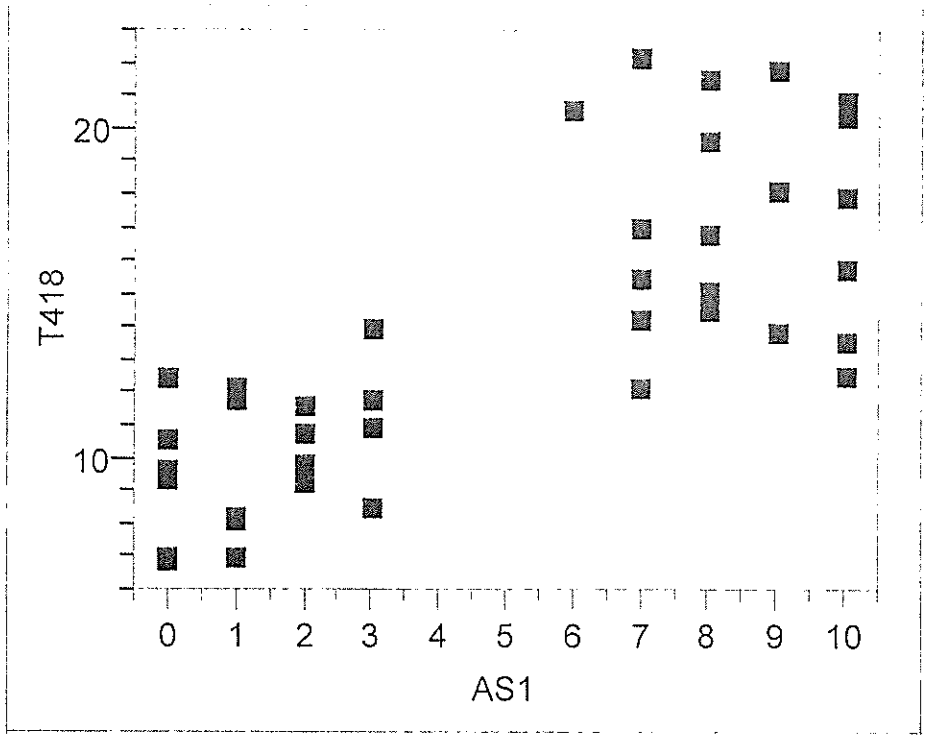

Fig. (21): Correlation between T4 in neonatal arterial blood (18-24h)By Apgar score at 5min

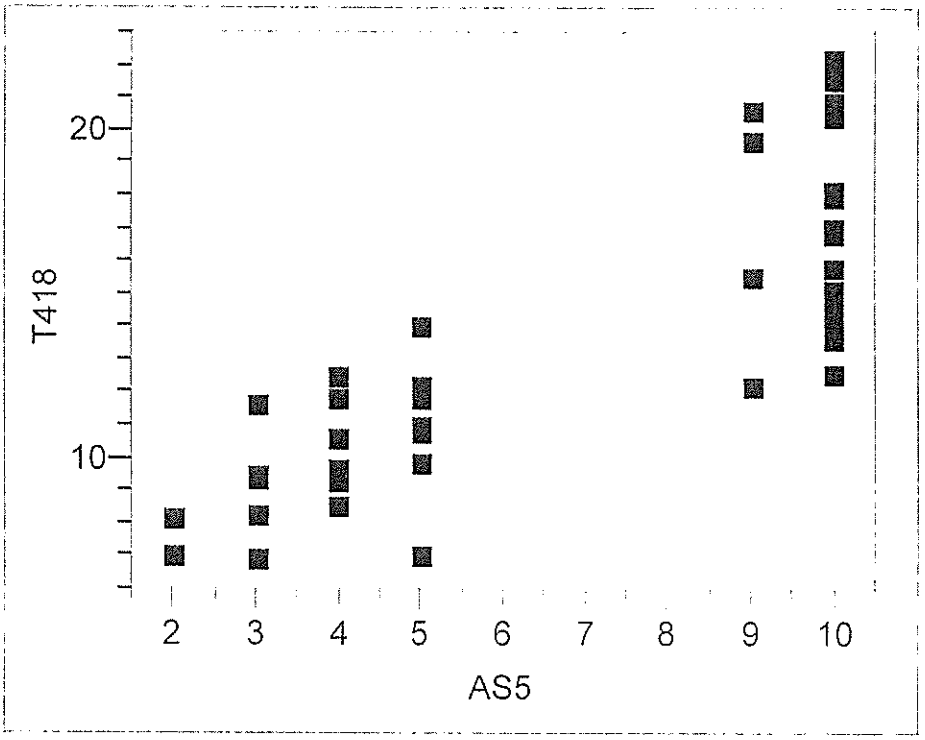

Fig. (22): Correlation between T4 in neonatal arterial blood (18-24h) PH cord blood