

Results

Table I :

Clinical data of preterm, preterm with RDS and SGA newborns compared to the fullterm group.

		GA	Apgar Score	weight	Length	H.C.	C.C.	M.A.C
(I)								
Full term	(Mean)	39.3	7.7	3.23	48.9	34.2	31.18	11.7
No. 20	($\pm$ SD)	0.5	0.5	0.2	2.4	0.7	1	0.6
(II)	(Mean)	31.7	1.6	1.6	41.8	30.9	27.3	6.4
Preterm	($\pm$ SD)	1.6	0.6	0.2	5.9	1	0.8	0.8
No.30	P	<0.008	<0.03	<0.03	<0.01	=0.5	=0.1	<0.05
		significant	significant	significant	significant	NS	NS	significant
(III)	(Mean)	30.7	6.4	1.6	41.6	30.9	26.9	6.5
Preterm	($\pm$ SD)	1.6	0.5	0.1	1.7	1	0.7	0.4
with RDS	P	<0.02	<0.02	<0.02	<0.06	=0.5	<0.02	<0.05
No.30		significant	significant	significant	significant	NS	significant	significant
(IV)	(Mean)	39.5	6.9	2.3	47.0	36.3	28.4	8.7
SGA	($\pm$ SD)	0.9	0.8	0.1	0.6	0.4	0.4	0.4
No.30	P	=0.4	=0.2	=0.2	=0.3	=0.2	=0.3	=0.2
		NS	NS	NS	NS	NS	NS	NS

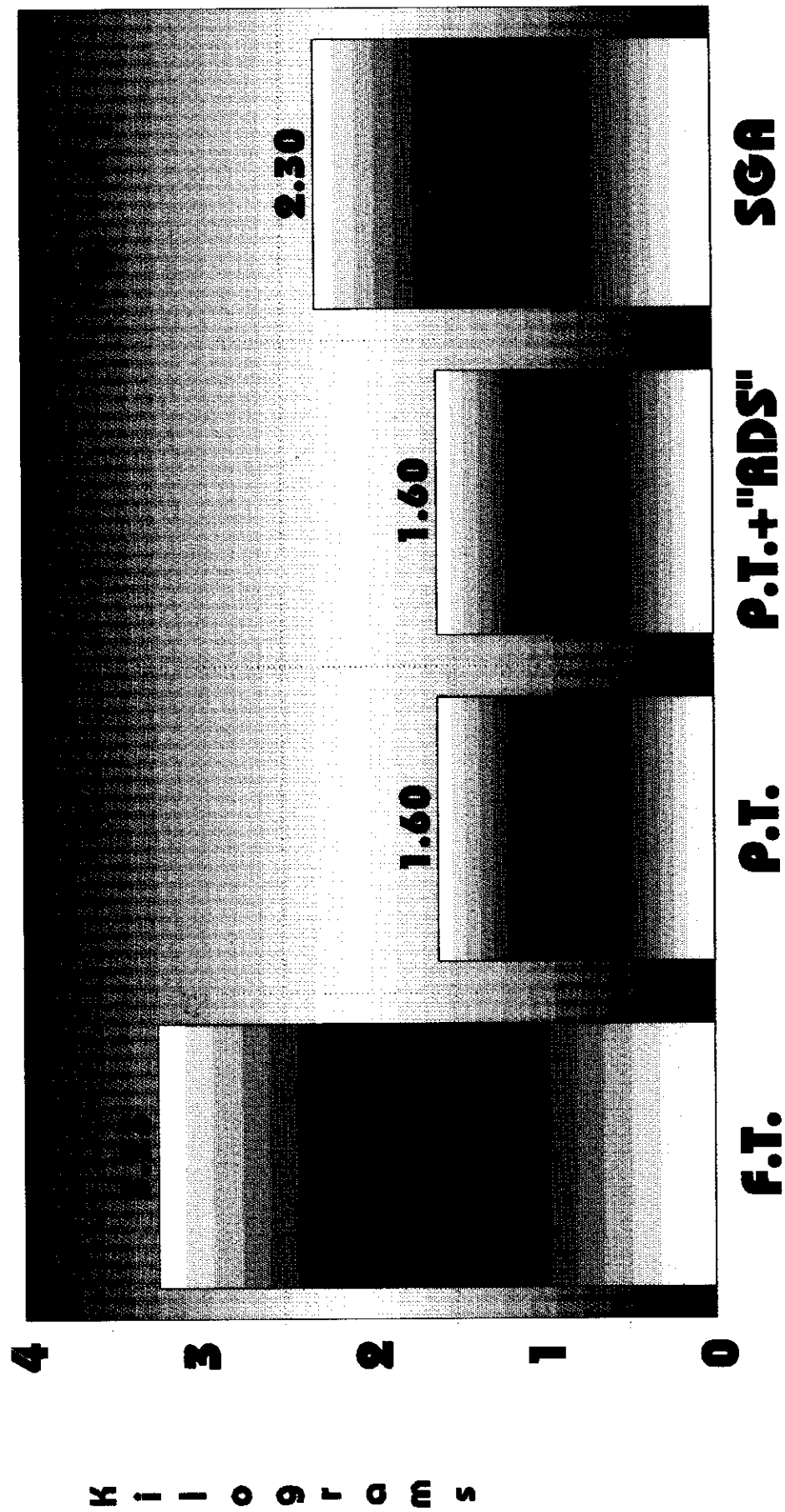
H.C. head circumference

C.C. chest circumference

M.A.C Midarm circumference

NS Non significant

Clinical Data Of The Preterm ,Preterm With RDS & SGA Compared To Fullterm Newborns



Clinical Data Of The Preterm ,Preterm With RDS & SGA Compared To Fullterm Newborns

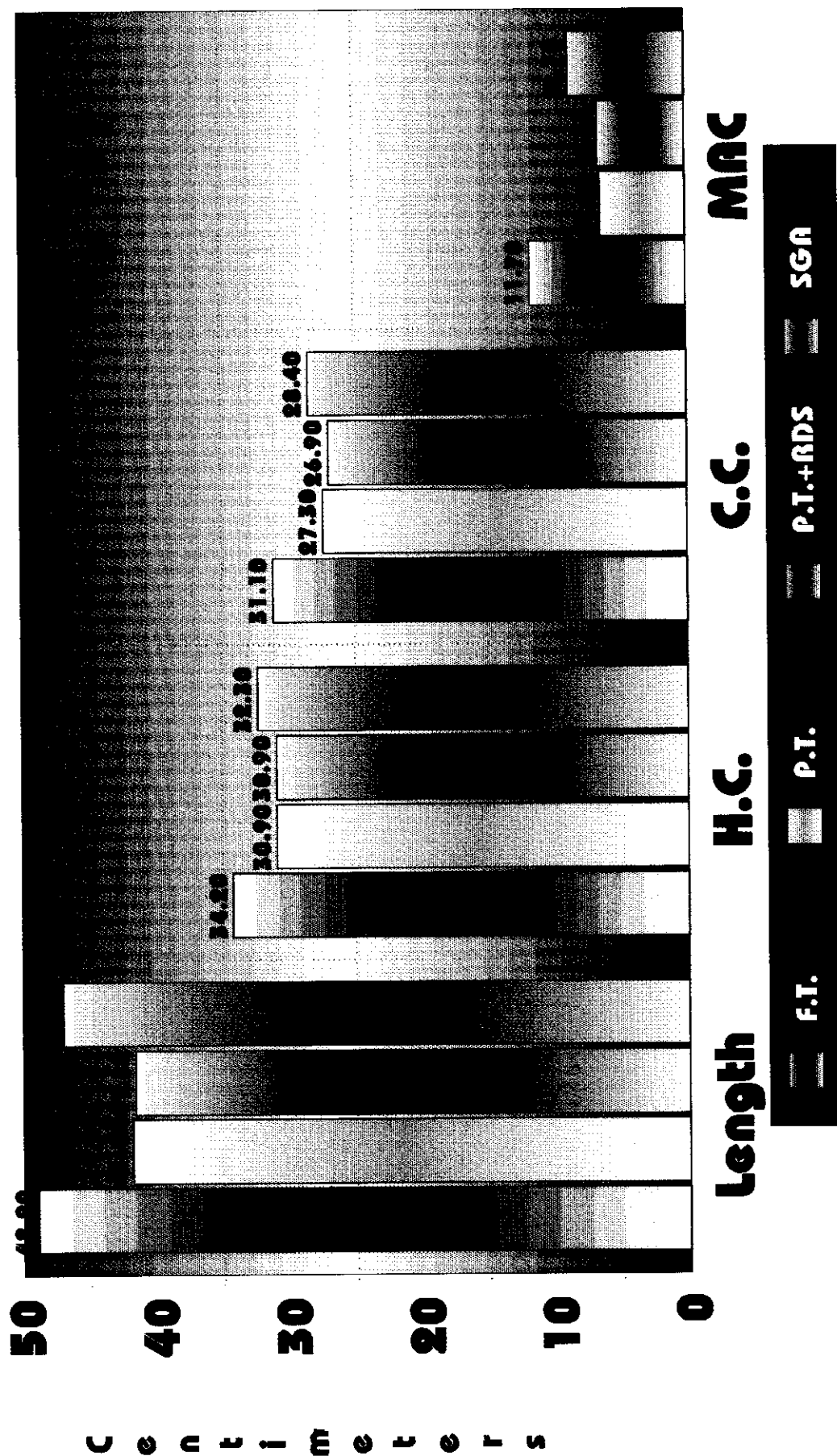


Table II

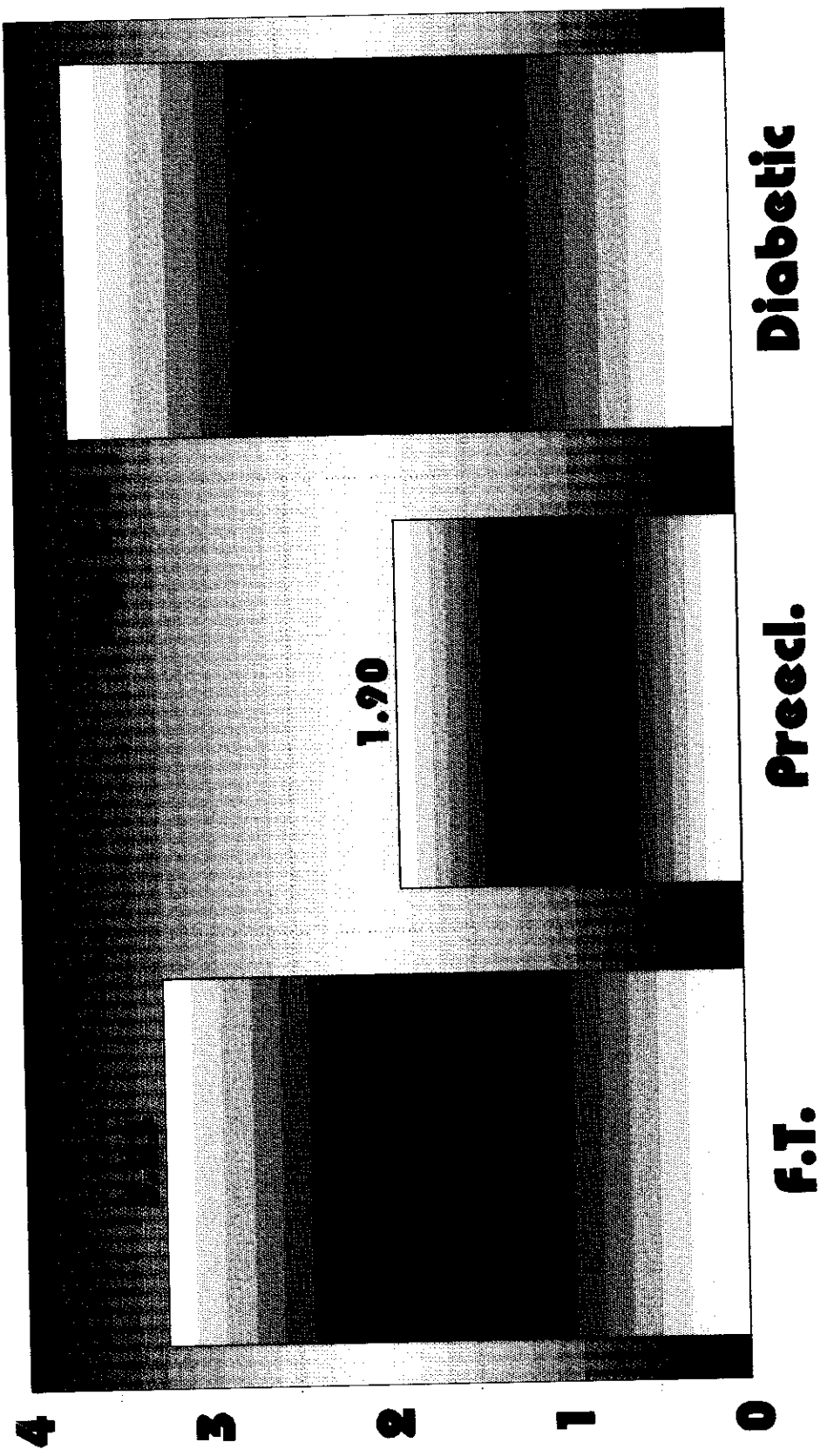
Clinical data of the newborns of preeclamptic and diabetic mothers compare to fullterm newborns.

		GA	Apgar Score	weight	Length	H.C.	C.C.	M.A.C
(I)								
Fullterm	(Mean)	39.3	7.7	3.23	48.9	34.2	31.18	11.7
	($\pm$ SD)	0.5	0.5	0.2	2.4	0.7	11	0.6
(V)	(Mean)	38.1	7.13	1.9	45.07	34.2	27.6	7.8
New born	($\pm$ SD)	5.1	0.7	0.8	6.6	11	3.4	0.6
OF								
Preeclamptic	P	0.2	0.6	0.01	0.3	0.4	0.02	< 0.01
mothers		NS	NS	Sig	NS	NS	Sig	Sig
N0.30								
(VI)	(Mean)	39.13	6.8	3.7	50.6	34.9	33.3	12.5
New born	($\pm$ SD)	2.3	0.9	0.2	1	0.9	1.3	0.6
OF								
Diabetic mothers.	p	= 0.9	= 0.2	= 0.6	= 0.3	= 0.5	= 0.2	= 0.6
		NS	NS	NS	NS	NS	NS	NS
N0.30								

NS = Non significant

Sig. = Significant

**Clinical Data Of Newborns Of Preeclamptic
& Diabetic Mothers Compared To Fullterm
Newborns**



K i l o g r a m s

Clinical Data Of Newborns Of Preeclamptic & Diabetic Mothers Compared To Fullterm Newborns

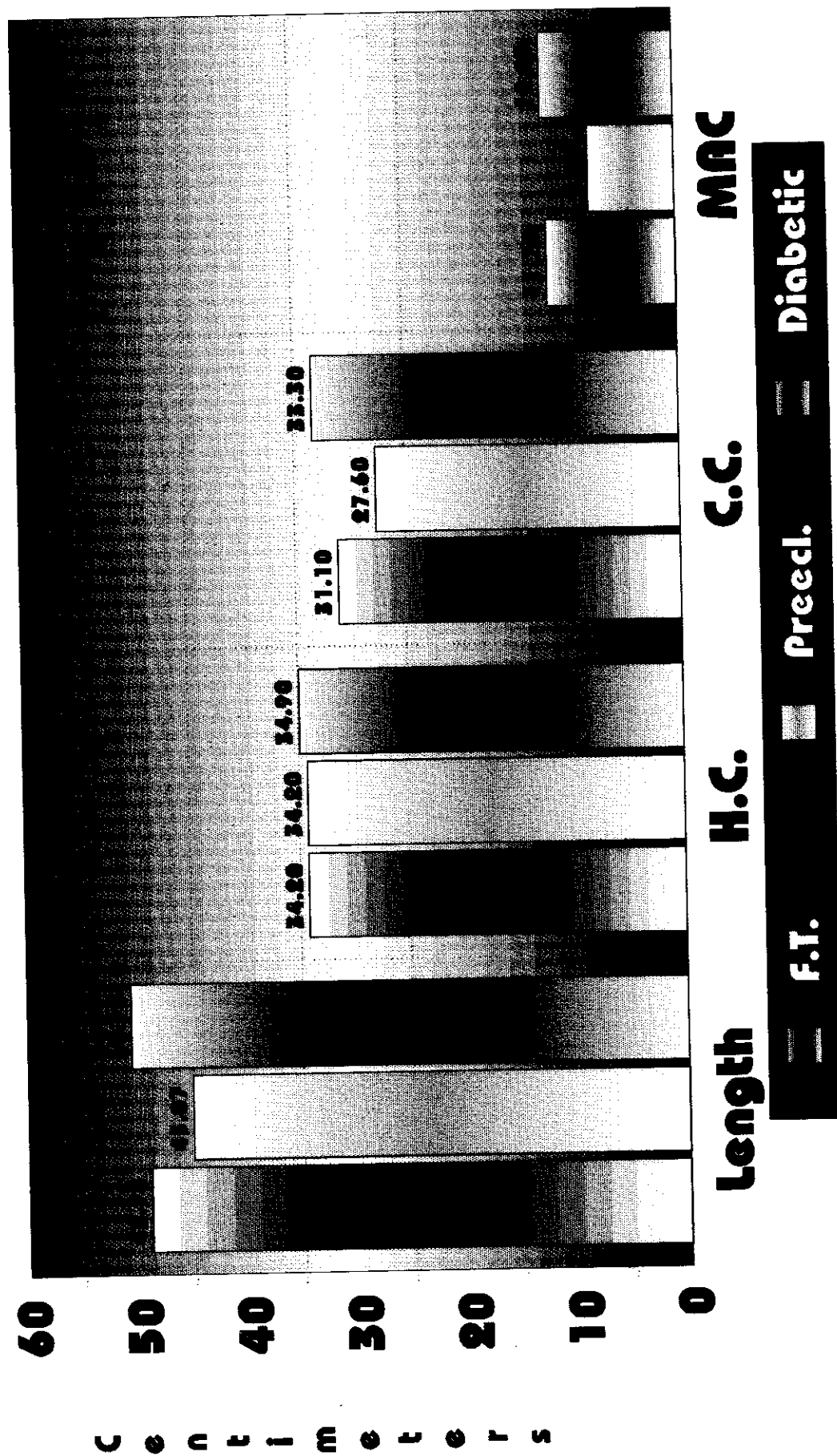


Table III :

Mean vitamin A level in maternal and cord blood in the preterm, preterm with RDS and SGA groups compared to the control group.

		Cord vitamin A ($\mu\text{gm} / \text{dL}$)	Maternal vitamin A ($\mu\text{gm} / \text{dL}$)
(I)			
full term	(Mean)	22.7	43.2
	($\pm\text{SD}$)	2.6	4
(II)	(Mean)	12.13	24.4
Preterm	($\pm\text{SD}$)	3.2	4
	P	< 0.001	< 0.001
		Significant	Significant
(III)	(Mean)	10.7	22.1
Preterm	($\pm\text{SD}$)	1.2	2.6
with RDS	P	< 0.001	< 0.002
		Significant	Significant
(IV)	(Mean)	17.7	34.5
SGA	($\pm\text{SD}$)	1.7	3.3
	P	< 0.04	< 0.01
		Significant	Significant

Mean Vitamin "A" Levels In Maternal & Cord Blood In The Preterm ,Preterm With RDS & SGA Compared To Fullterm Newborns

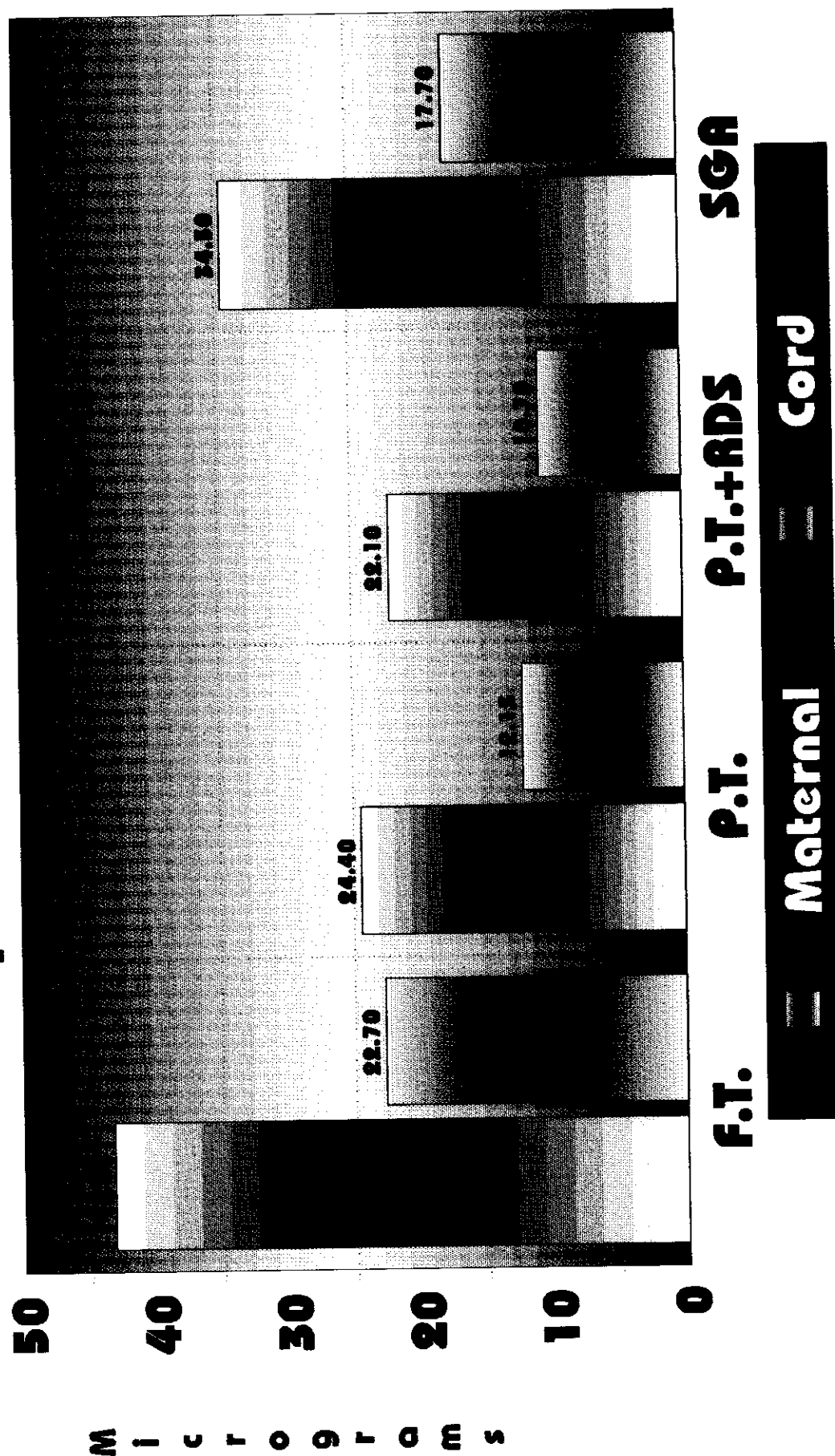


Table IV :

Mean vitamin A in maternal and cord blood in preeclamptic and diabetic groups compared to control group.

		Cord vitamin A ($\mu\text{gm} / \text{dL}$)	Maternal vitamin A ($\mu\text{gm} / \text{dL}$)
(I) full term	(Mean)	22.7	43.2
	($\pm\text{SD}$)	2.6	4
(V) Newborns of Preeclamptic Mothers	(Mean)	14.5	28.8
	($\pm\text{SD}$)	1.8	4.4
	P	< 0.003	< 0.005
		Significant	Significant
(VI) Newborns of diabetic Mothers	(Mean)	19.7	35.9
	($\pm\text{SD}$)	2.3	1.9
	P	< 0.01	< 0.03
		Significant	Significant

Mean Vitamin "A" Levels in Maternal & Cord Blood in The Diabetic, Diabetic With Nephropathy & Non-Complicated Diabetics Compared To Fullterm Newborns

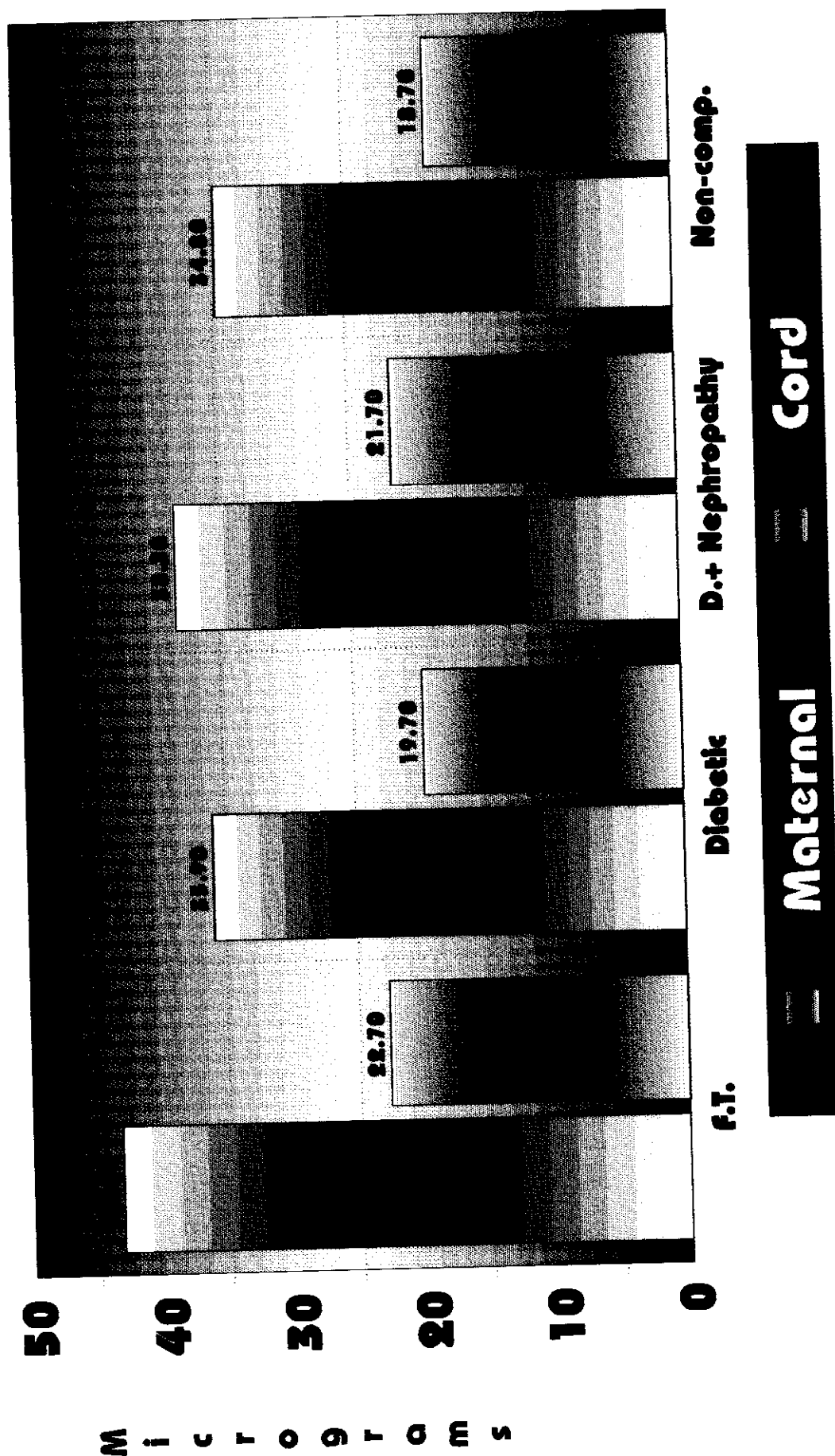


Table VI :

Mean cord and maternal vitamin A level in premature with RDS, SGA, preeclamptic and diabetic groups compared to premature group.

		Cord vitamin A ($\mu\text{gm} / \text{dL}$)	Maternal vitamin A ($\mu\text{gm} / \text{dL}$)
Preterm	(Mean)	12.13	24.4
	($\pm\text{SD}$)	3.2	4
	p		
Preterm with RDS	(Mean)	10.7	22.1
	($\pm\text{SD}$)	1.4	2.7
	p	< 0.03 Significant	< 0.02 Significant
SGA	(Mean)	17.7	34.5
	($\pm\text{SD}$)	1.7	3.3
	p	< 0.01 Significant	< 0.05 Significant
Preeclamptic	(Mean)	14.5	28.8
	($\pm\text{SD}$)	1.9	4.4
	p	< 0.05 Significant	< 0.002 Significant
Diabetic	(Mean)	19.7	35.9
	($\pm\text{SD}$)	2.3	1.9
	p	< 0.02 Significant	< 0.001 Significant

Mean Cord And Maternal Vitamin "A" Level In Preterm With RDS,SGA,Preclompctic And Diabetic Groups Compared To Premature Group

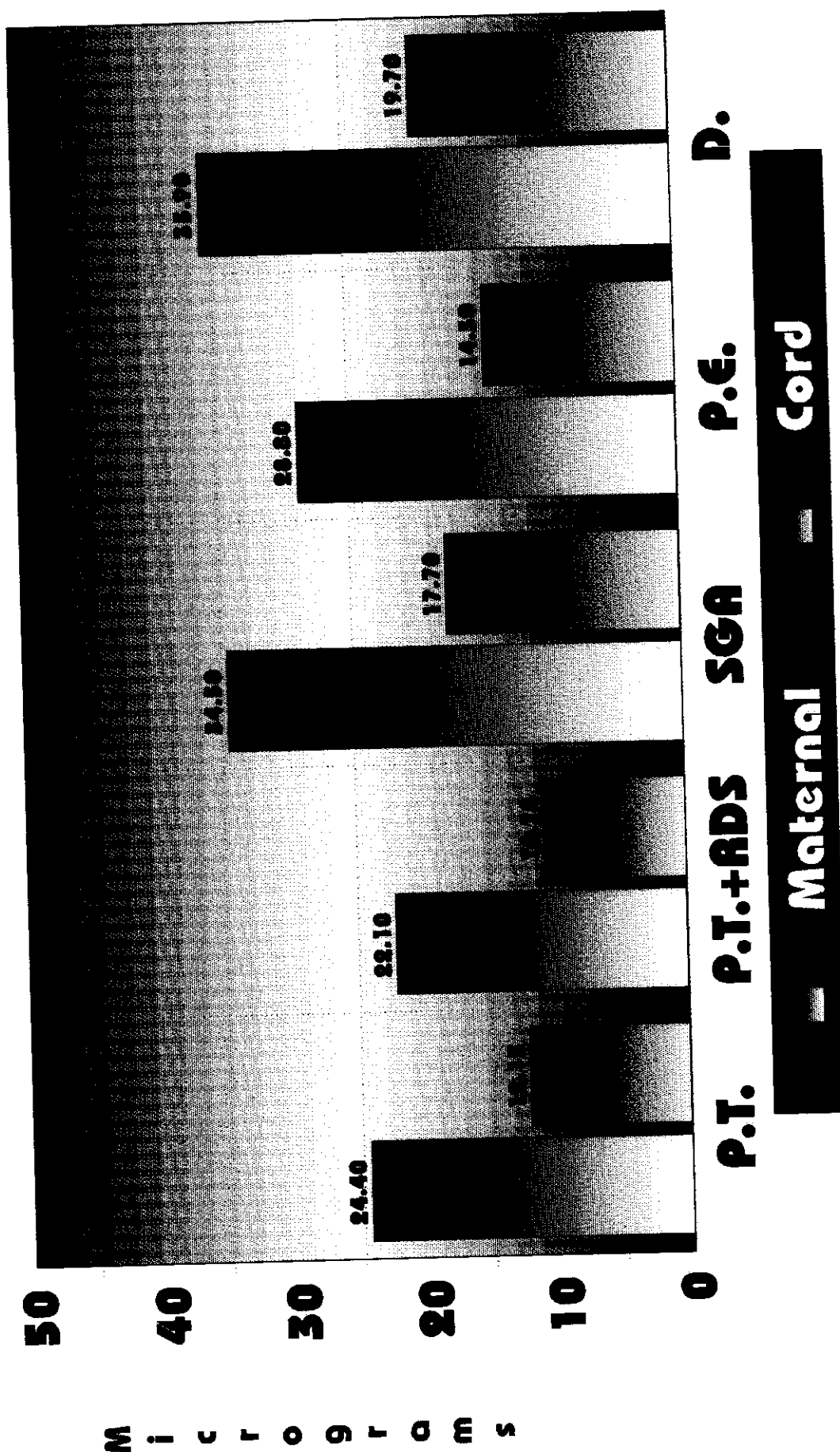


Table VII :

Mean cord and maternal vitamin A level in preeclamptic group compared to diabetic group .

		Cord vitamin A ($\mu\text{gm} / \text{dL}$)	Maternal vitamin A ($\mu\text{gm} / \text{dL}$)
Preeclamptic group	(Mean)	14.5	28.8
	($\pm\text{SD}$)	1.8	4
Diabetic group	(Mean)	19.7	35.9
	($\pm\text{SD}$)	2.3	1.9
	p	< 0.02	< 0.001
		Significant	Significant

Mean Cord And Maternal Vitamin "A" Levels In Preeclamptic Group Compared To Diabetic Group

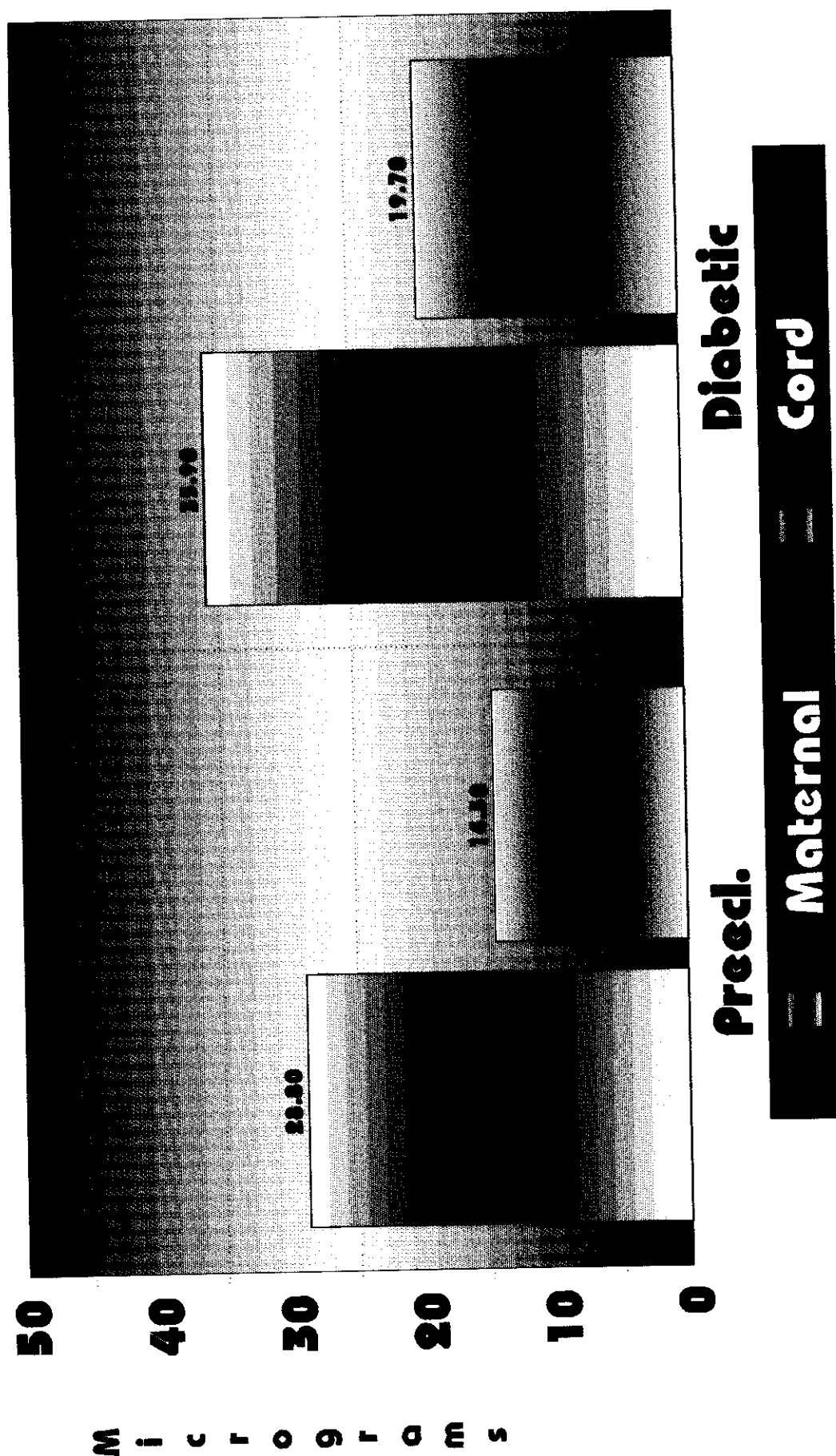
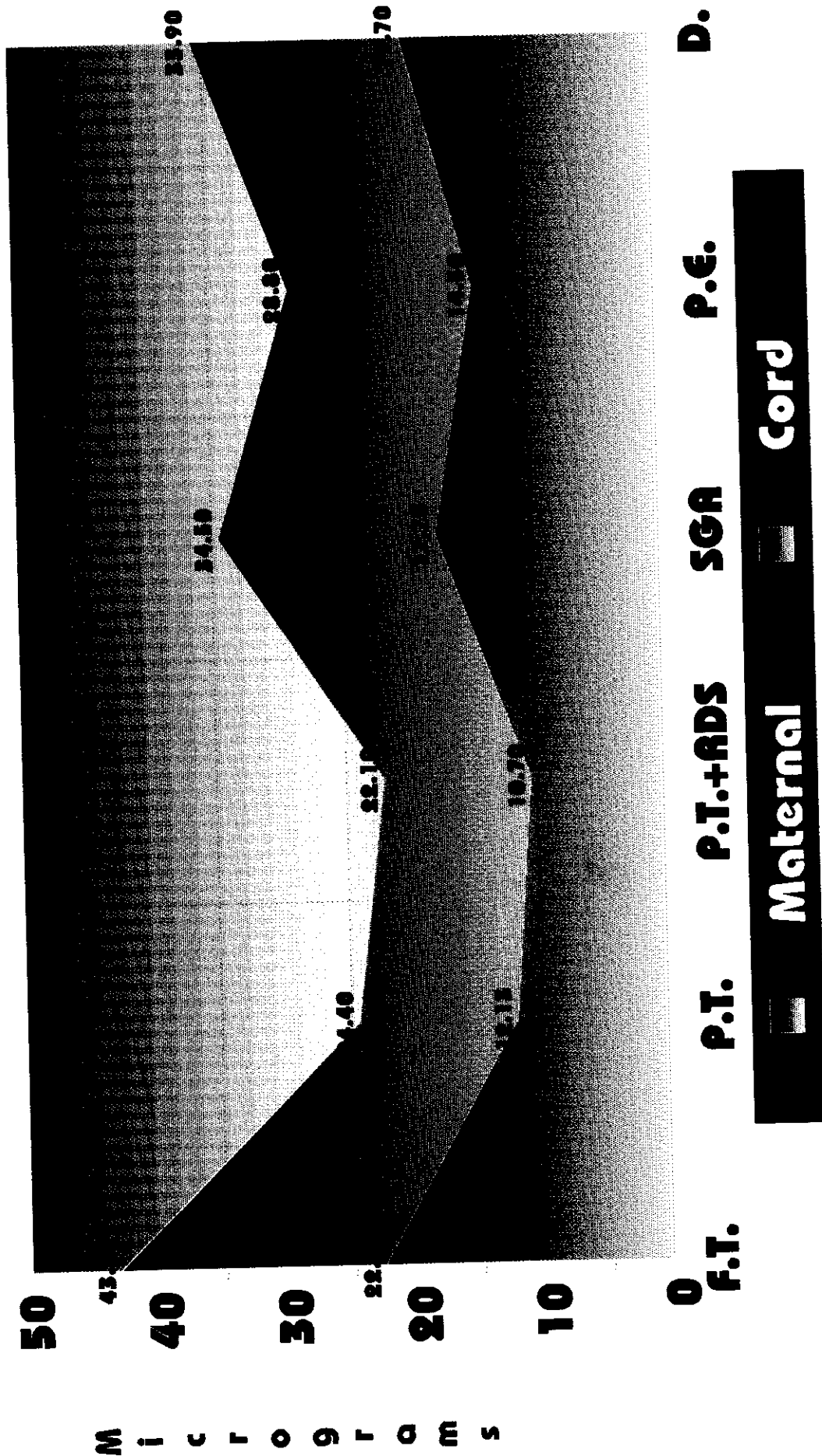


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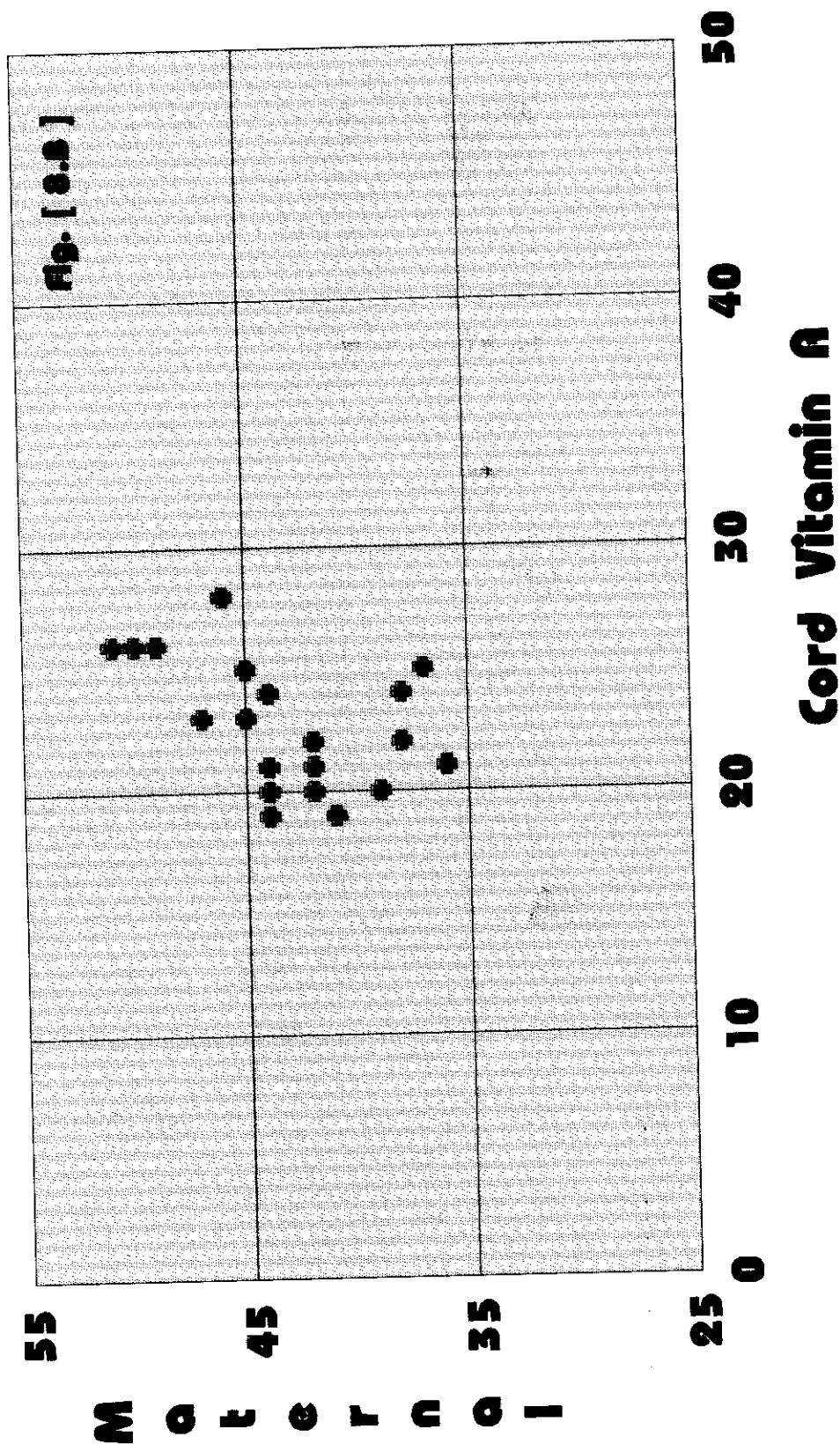
Correlation of Maternal vitamin A to Cord vitamin A in the
Studied groups.

	full term	preterm	preterm with RDS	SGA	preeclamptic	diabetic
Maternal vitamin A	43.2 ± 4.2	24.4 ± 4	22.1 ± 2.7	34.5 ± 3.3	28.8 ± 4.4	35.9 ± 1.9
Cord blood vitamin A	22.7 ± 2.6	12.13 ± 3.2	10.7 ± 1.6	17.7 ± 1.7	14.5 ± 1.9	19.7 ± 2.4
P	<0.001 positive correlation	<0.001 positive correlation	<0.003 positive correlation	<0.008 positive correlation	<0.002 positive correlation	<0.007 positive correlation

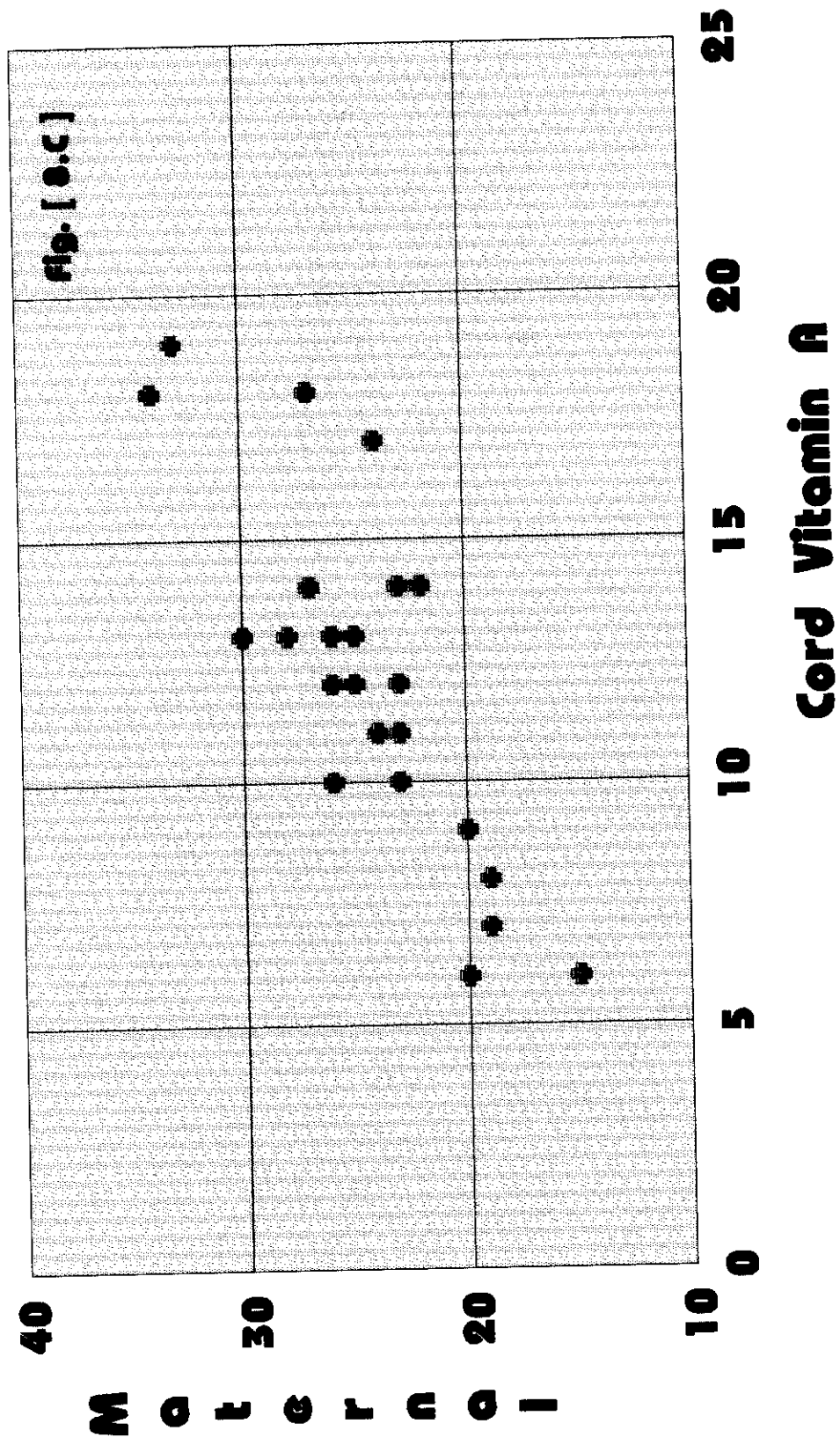
The positive Correlation Between Mean Vitamin "A" Levels In Maternal & Cord Blood In The Studied Groups



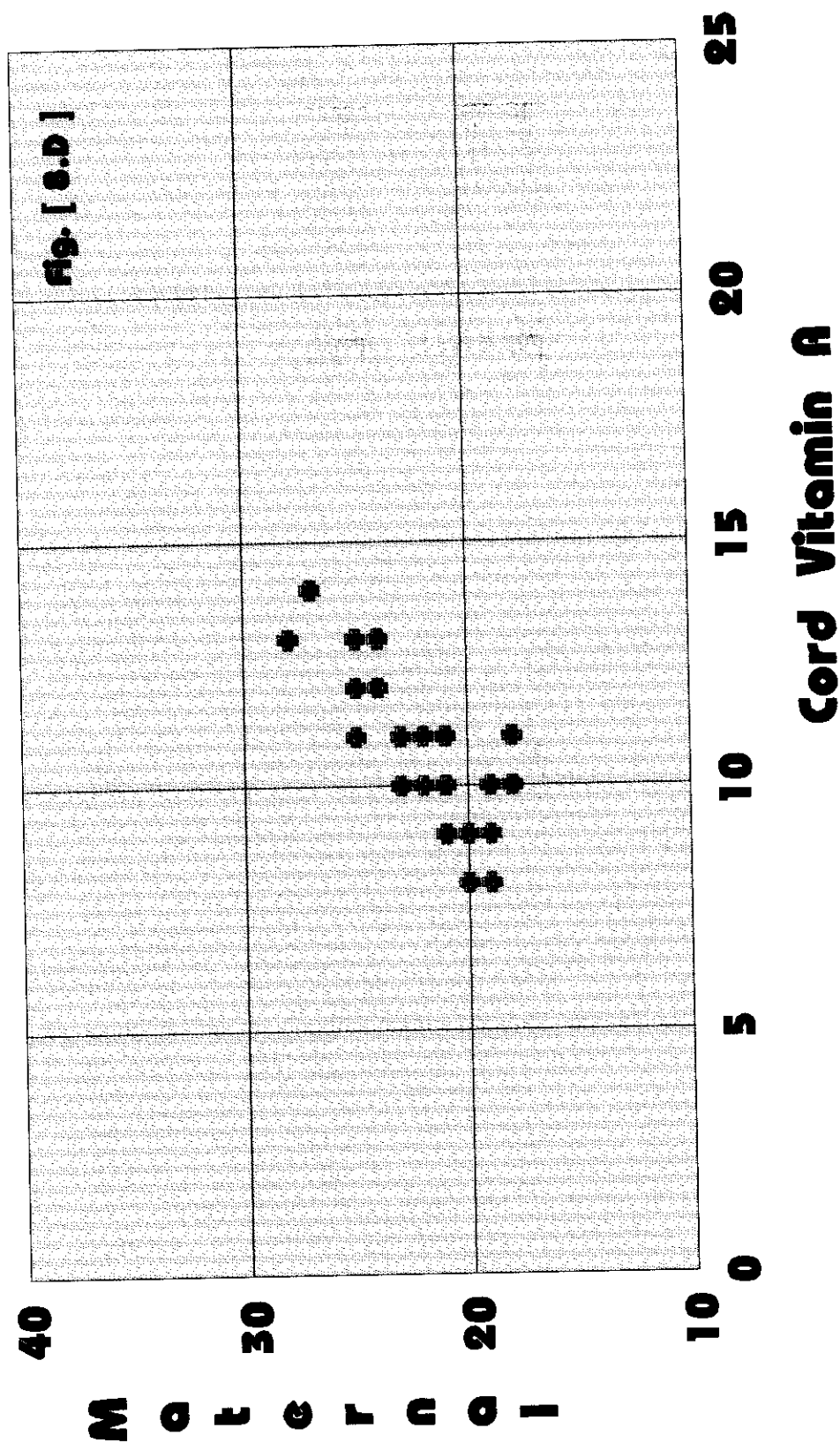
The Positive Correlation Between Maternal Vitamin A And Cord Vitamin A In Fullterm Group



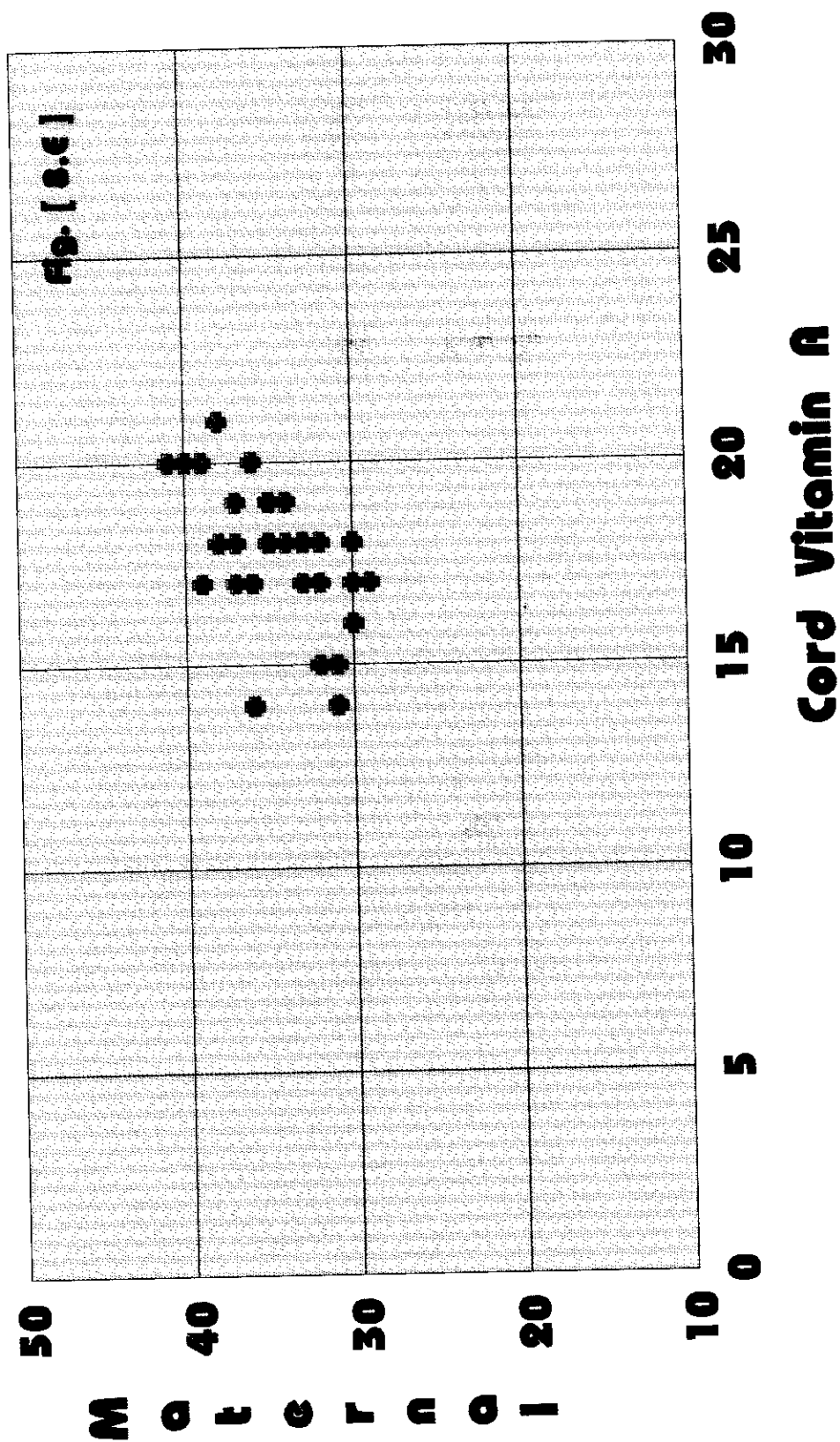
The Positive Correlation Between Maternal Vitamin A And Cord Vitamin A In Preterm Group



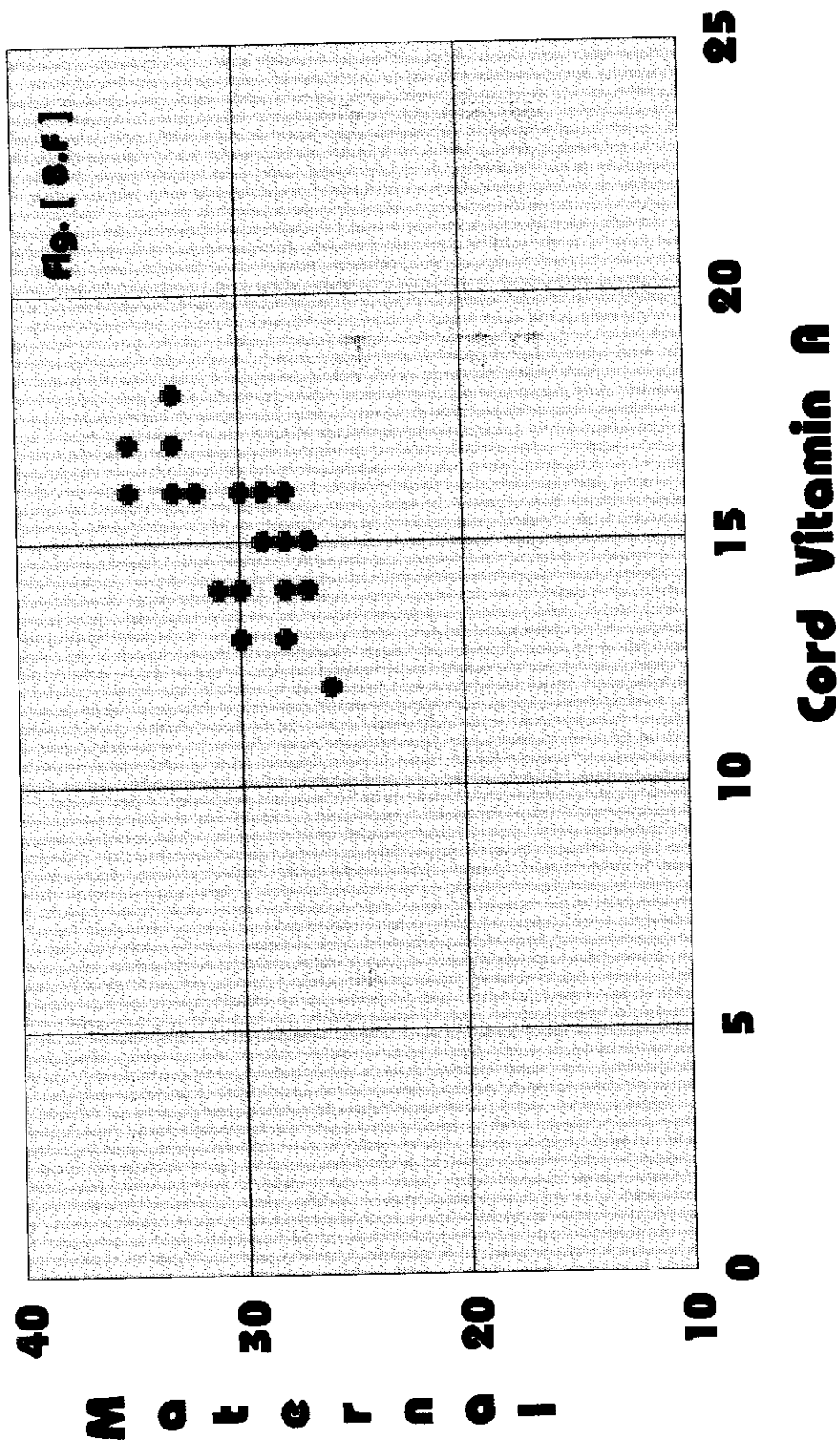
The Positive Correlation Between Maternal Vitamin A And Cord Vitamin A In Preterm With RDS Group



The Positive Correlation Between Maternal Vitamin A And Cord Vitamin A In SGA Group



The Positive Correlation Between Maternal Vitamin A And Cord Vitamin A In Preclomptic Group



The Positive Correlation Between Maternal Vitamin A And Cord Vitamin A In Diabetic Group

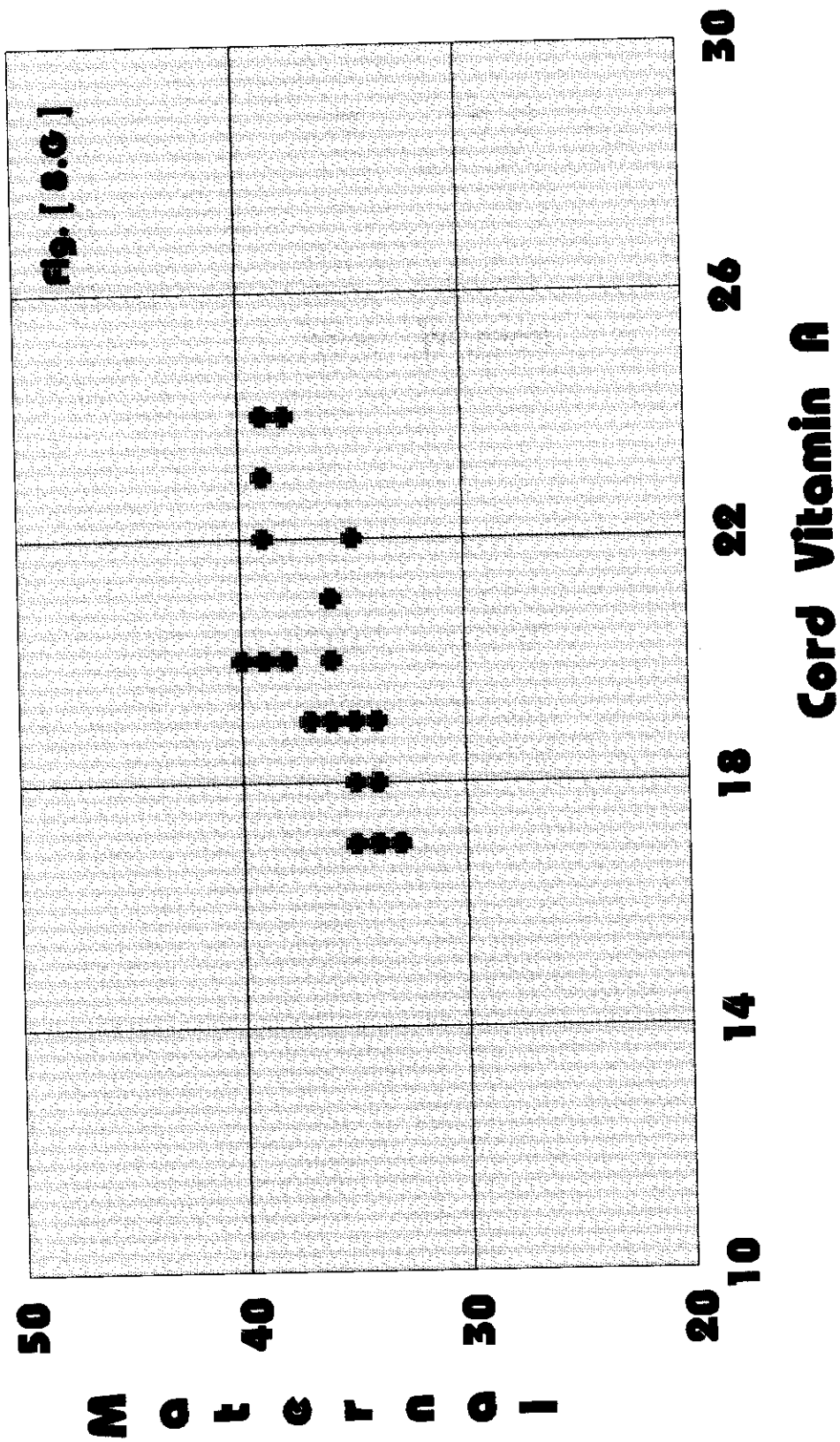
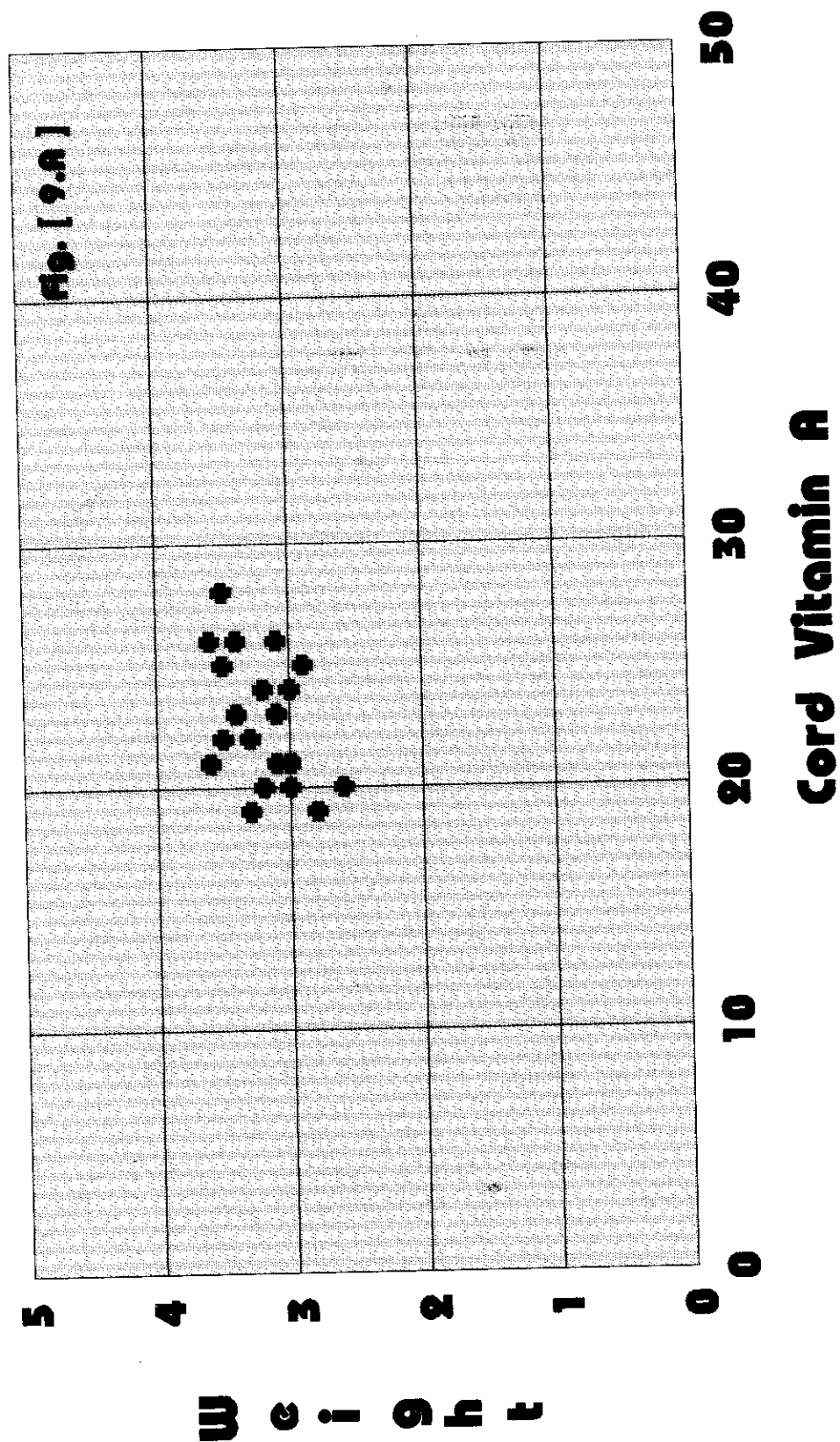


Table IX :

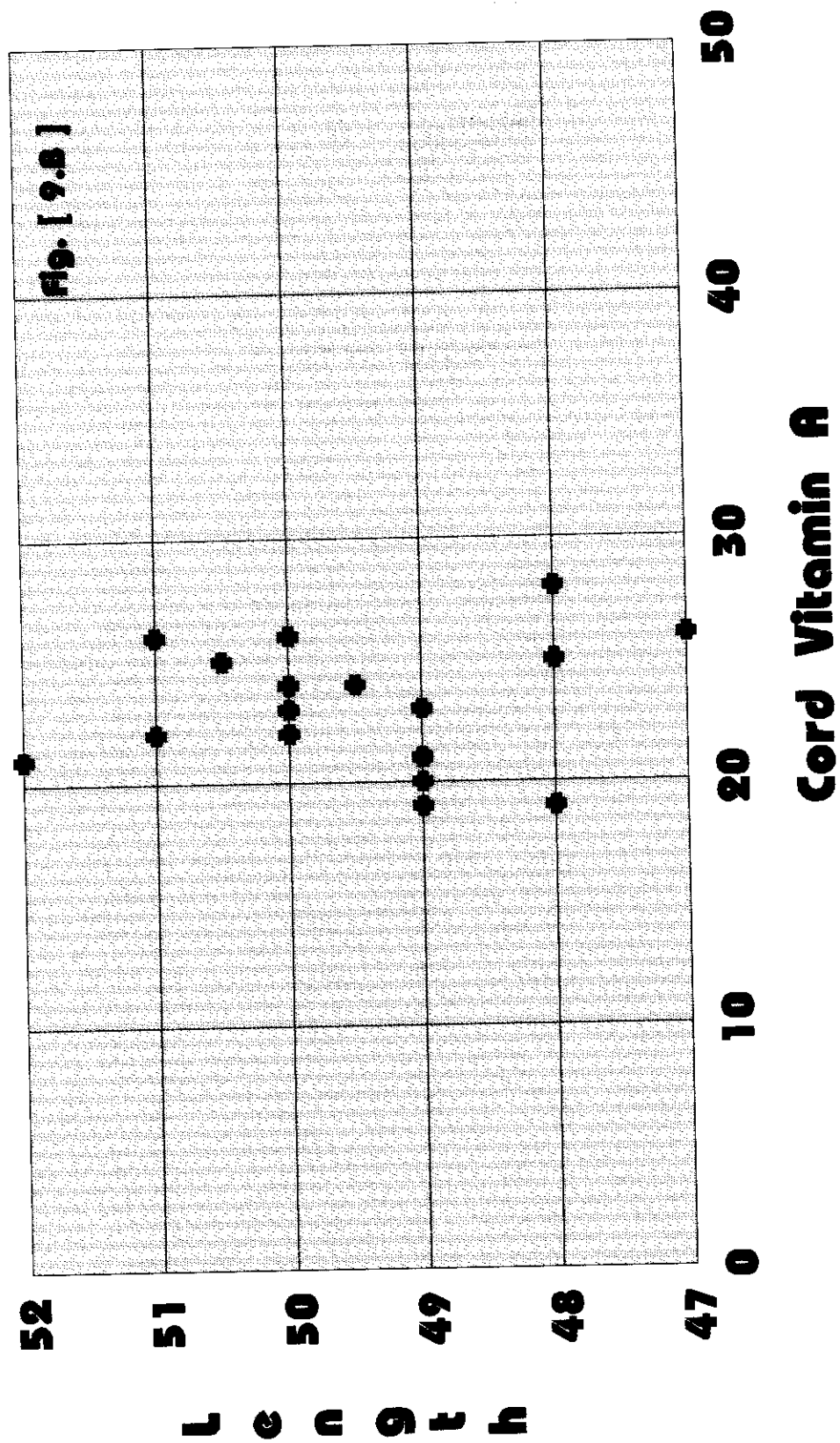
Correlation of cord vitamin A to weight, length, head circumference and gestational age in fullterm newborns.

	r	P value	Partial F test
Cord vitamin A to weight	0.08	<0.05	3.28 positive correlation
Cord vitamin A to length	0.04	>0.05	1.57 no correlation
Cord vitamin A to H.C.	0.02	>0.05	0.03 no correlation
Cord vitamin A to G.A.	0.78	<0.05	3.4 positive correlation

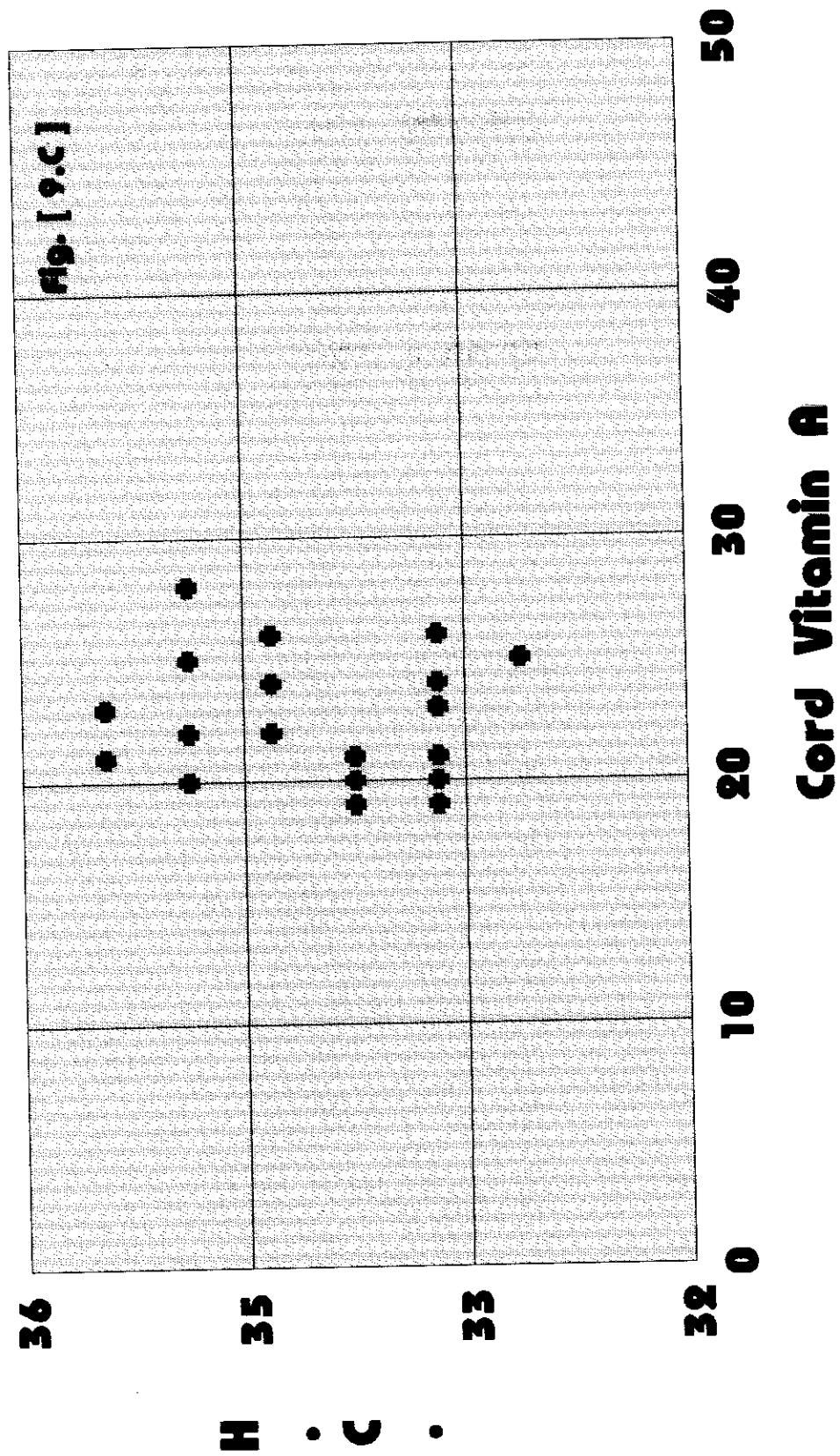
The Positive Correlation Between Weight And Cord Vitamin A In Fullterm Group



No Correlation Between Length And Cord Vitamin A In Fullterm Group



No Correlation Between Head Circumference And Cord Vitamin A In Fullterm Group



The Positive Correlation Between Gestational Age And Cord Vitamin A In Fullterm Group

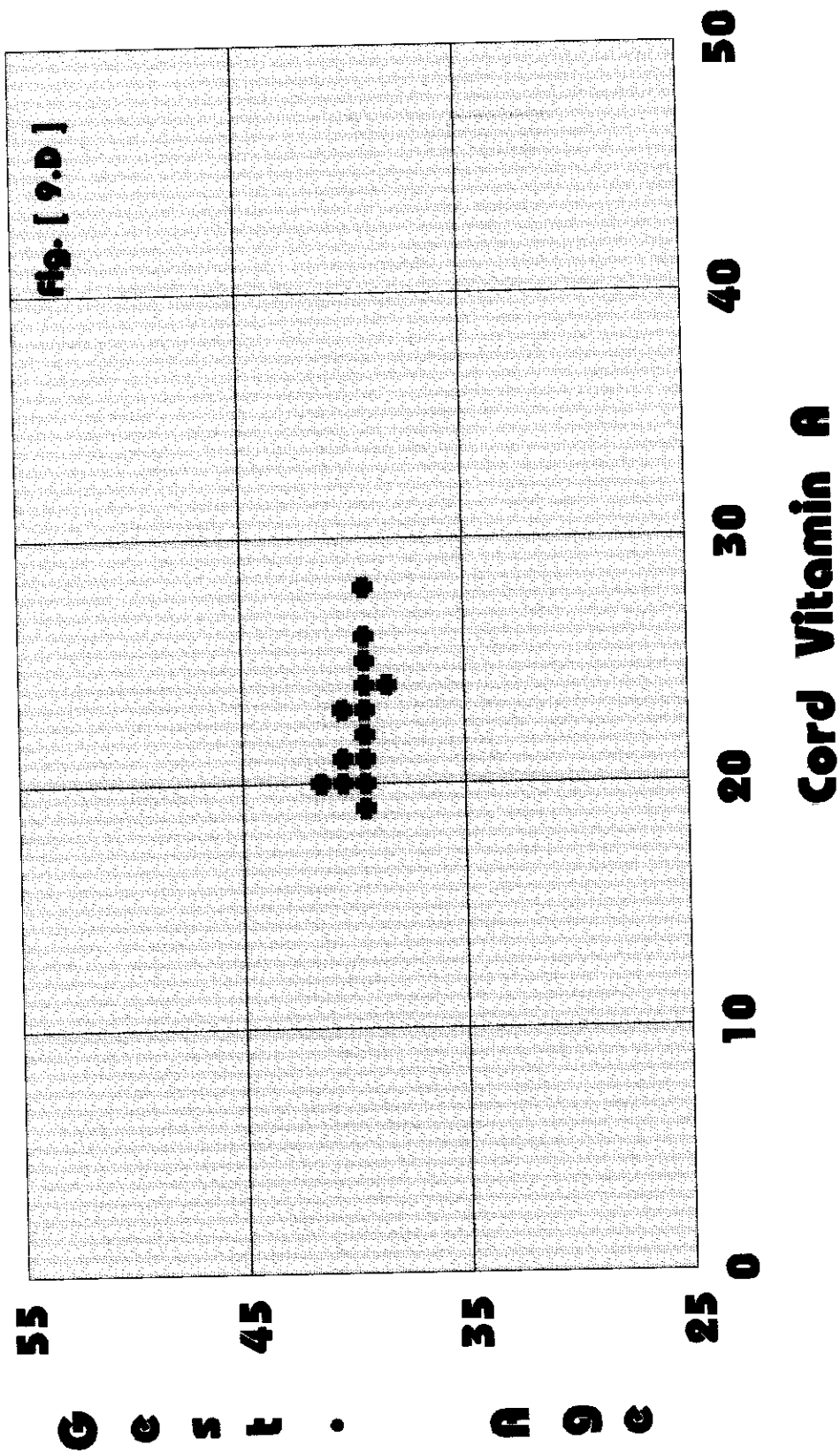
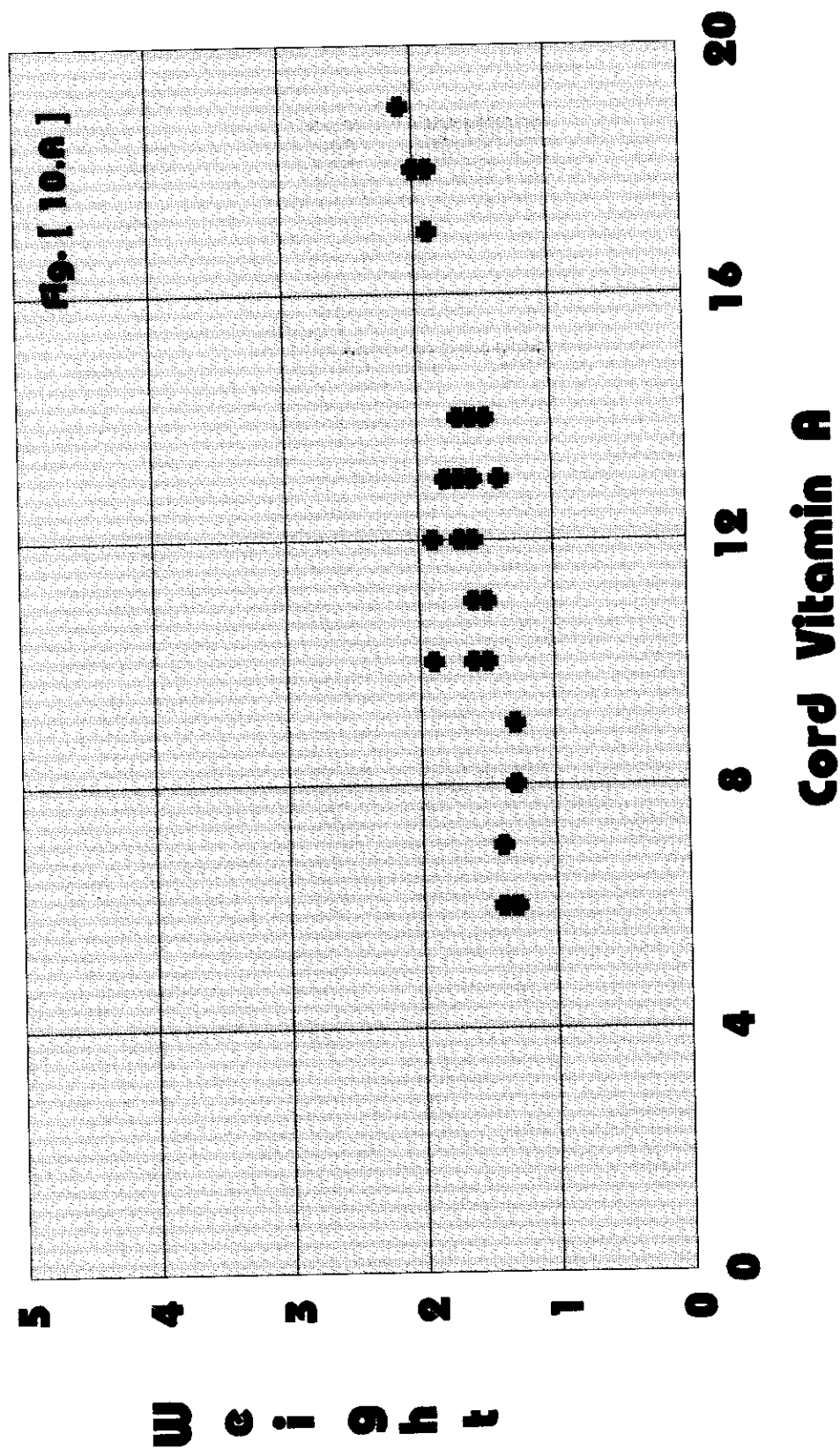


Table X :

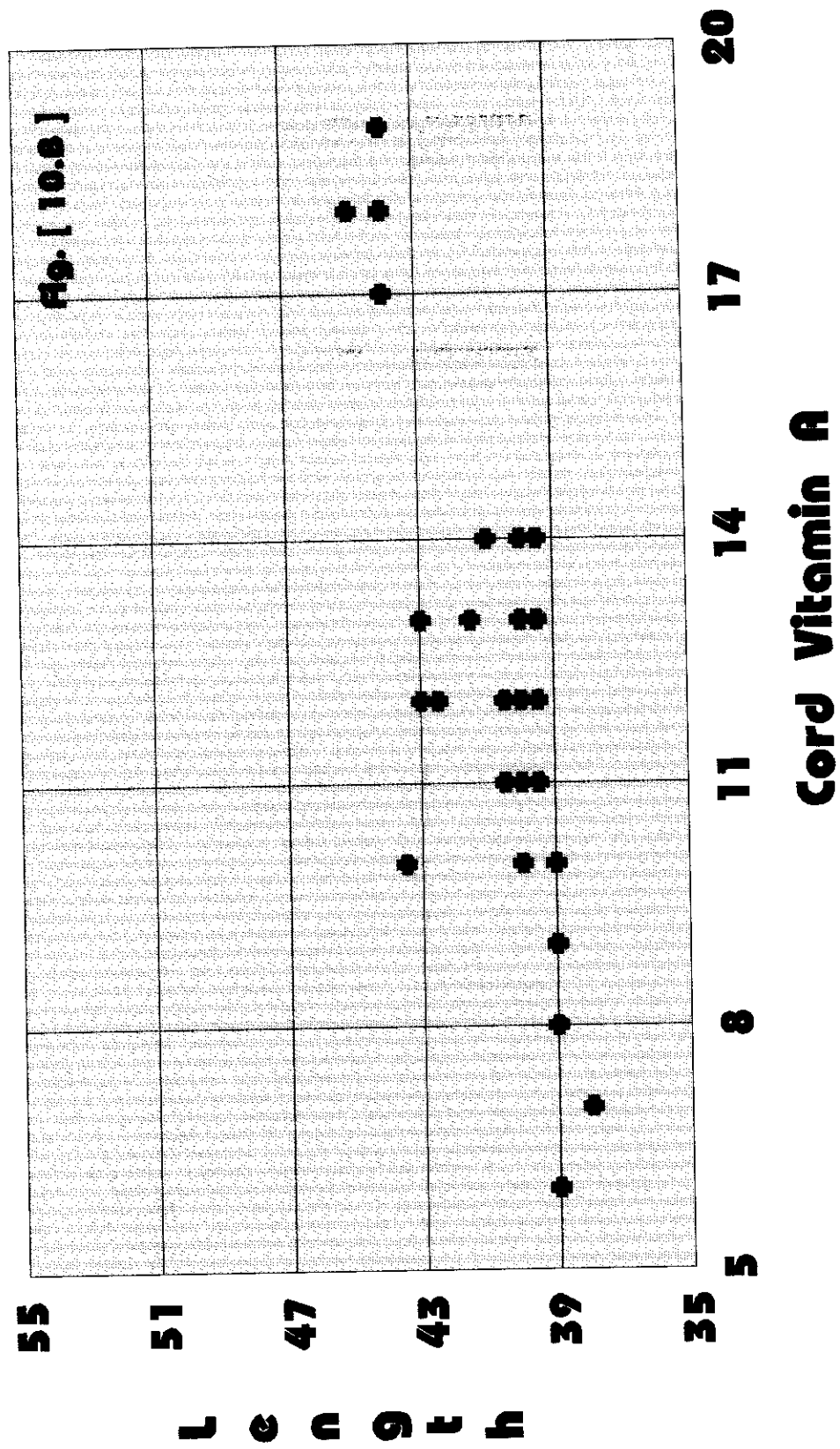
Correlation of cord vitamin A to weight, length, head circumference and gestational age in preterm newborns.

	r	P value	Partial F test
Cord vitamin A to weight	0.28	< 0.05	46.68 positive correlation
Cord vitamin A to length	0.37	< 0.05	23.7 positive correlation
Cord vitamin A to H.C.	0.85	< 0.05	30.61 positive correlation
Cord vitamin A to G.A.	0.23	< 0.05	42.79 positive correlation

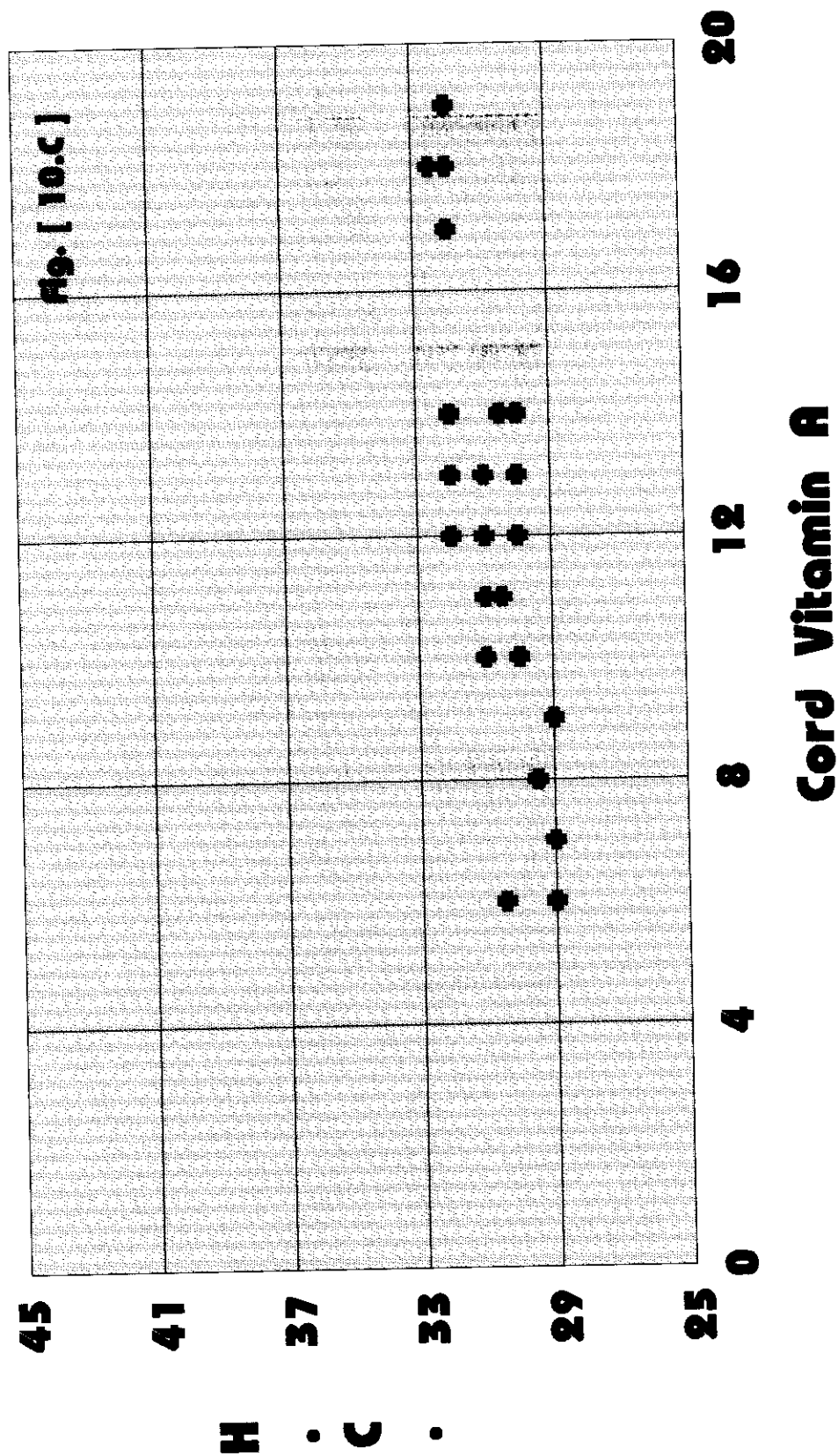
The Positive Correlation Between Weight And Cord Vitamin A In Preterm Group



The Positive Correlation Between Length And Cord Vitamin A In Preterm Group



The Positive Correlation Between Head Circumference And Cord Vitamin A In Preterm Group



The Positive Correlation Between Gestational Age And Cord Vitamin A In Preterm Group

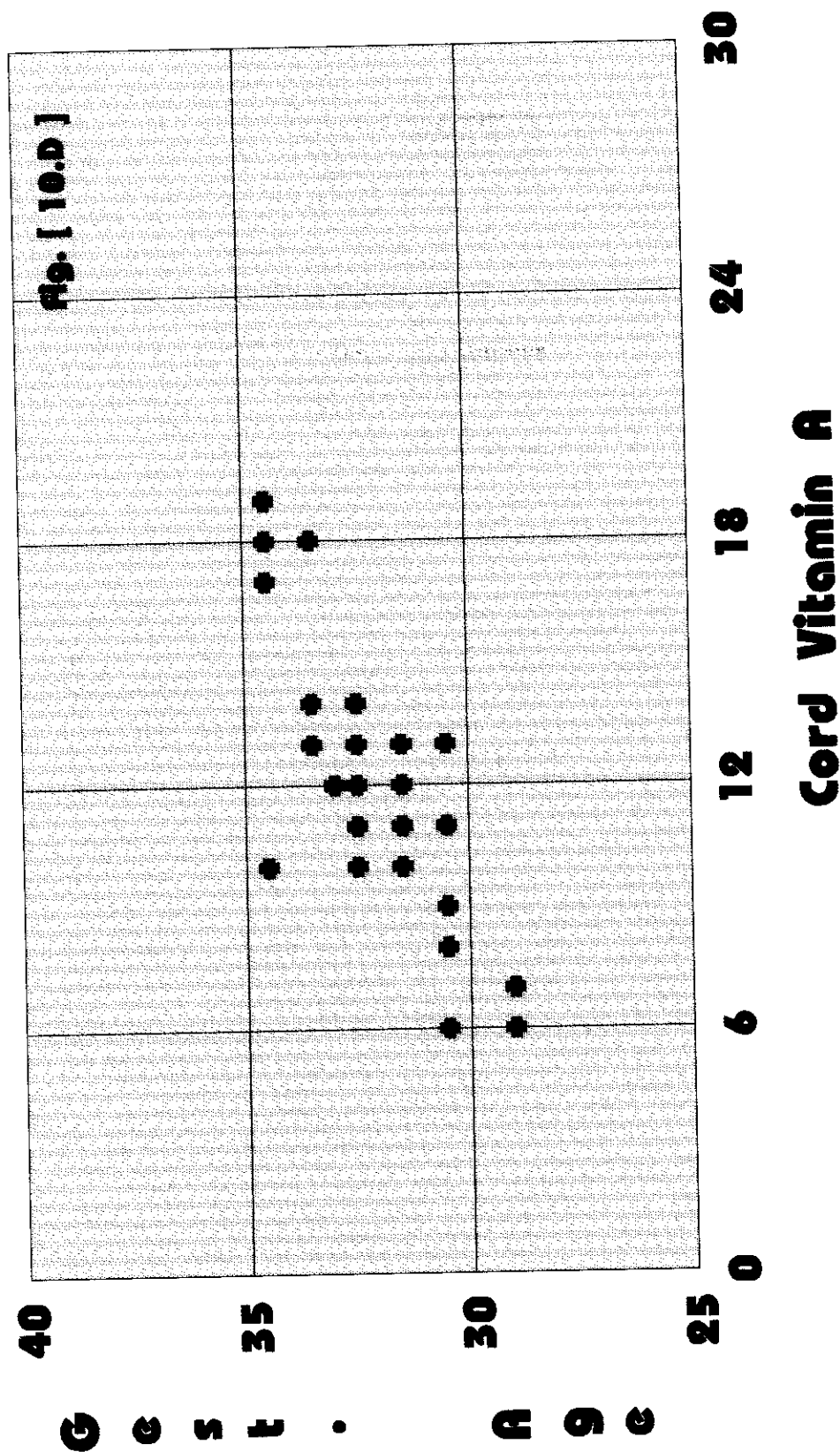
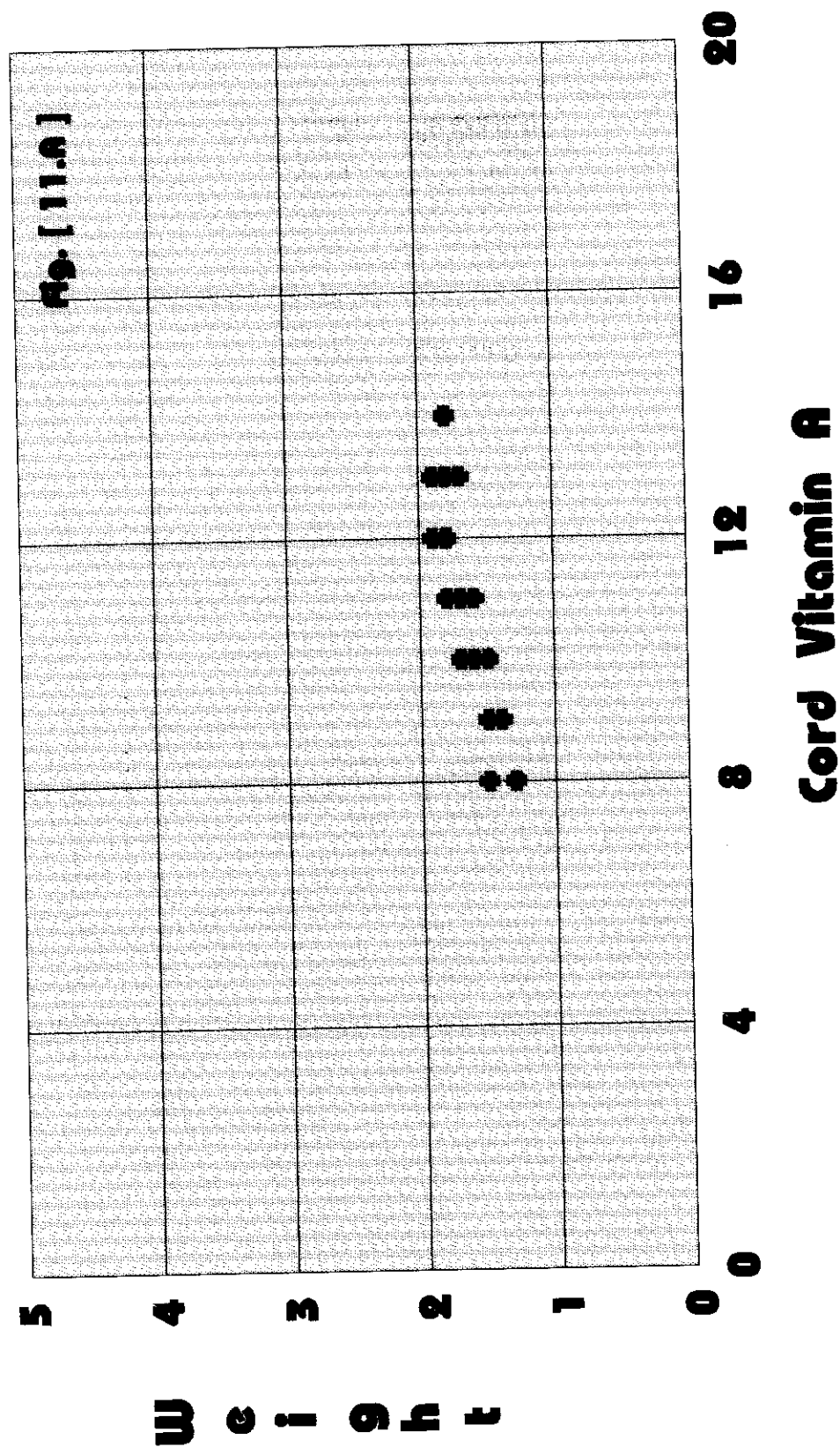


Table XI :

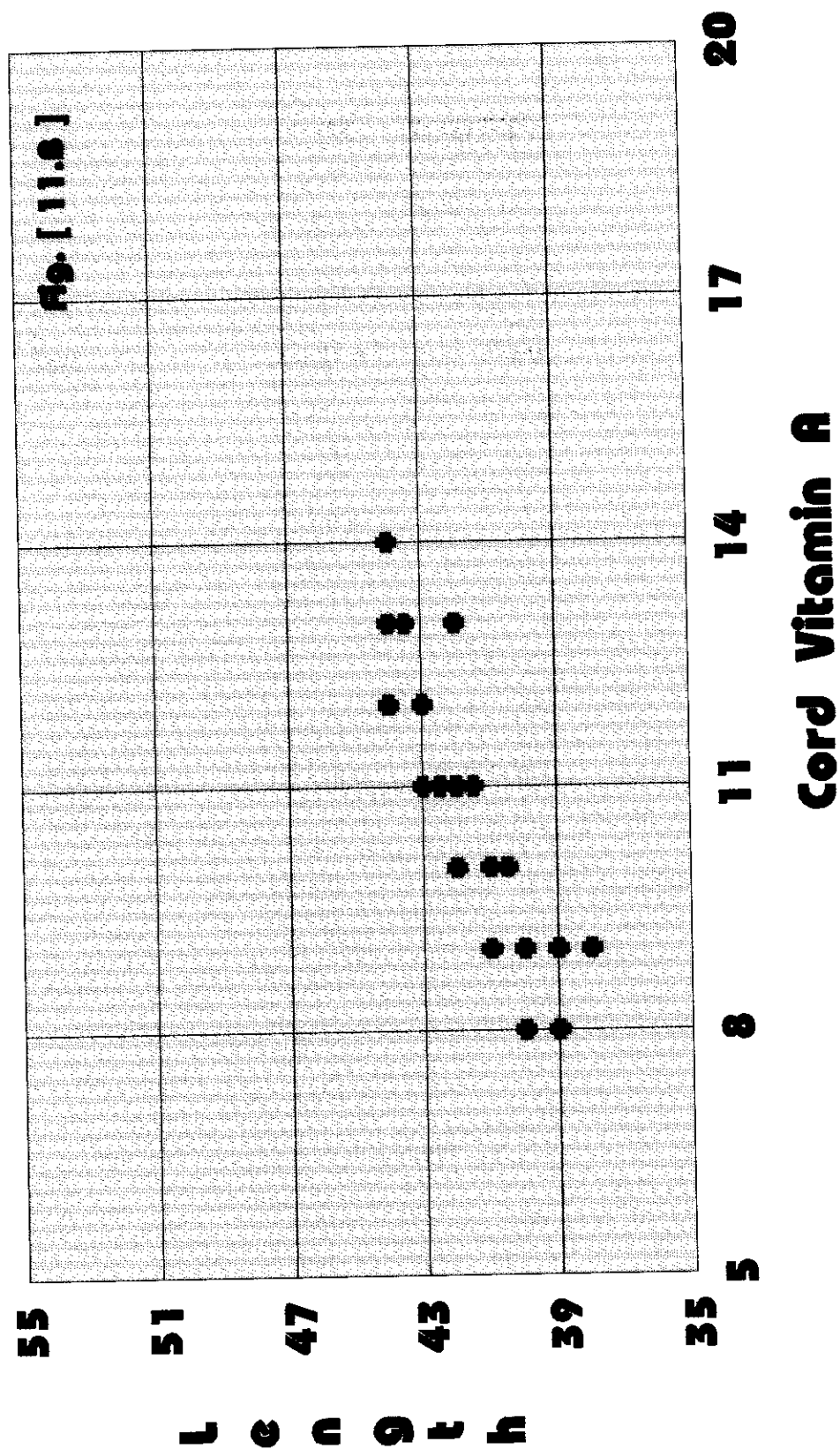
Correlation of cord vitamin A to weight, length, head circumference and gestational age in preterm with RDS newborns.

	r	P value	Partial F test
Cord vitamin A to weight	0.83	< 0.001	74.54 positive correlation
Cord vitamin A to length	0.76	< 0.01	64.13 positive correlation
Cord vitamin A to H.C	0.74	< 0.05	38.27 positive correlation
Cord vitamin A to G.A	0.71	< 0.05	42.92 positive correlation

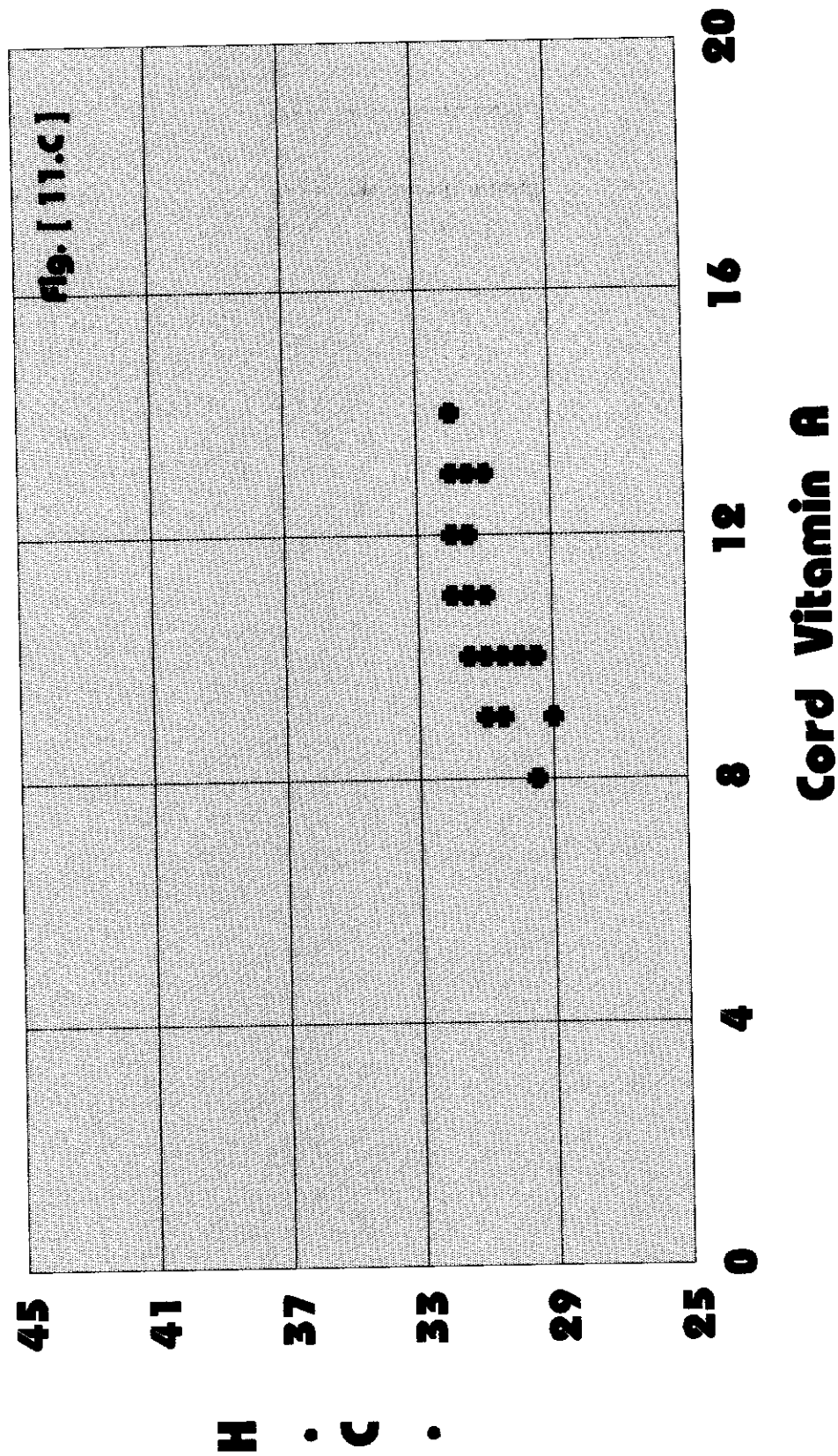
The Positive Correlation Between Weight And Cord Vitamin A In Preterm With RDS Group



The Positive Correlation Between Length And Cord Vitamin A In Preterm With ADS Group



The Positive Correlation Between Head Circumference And Cord Vitamin A In Preterm With RDS Group



The Positive Correlation Between Gestational Age And Cord Vitamin A In Preterm With RDS Group

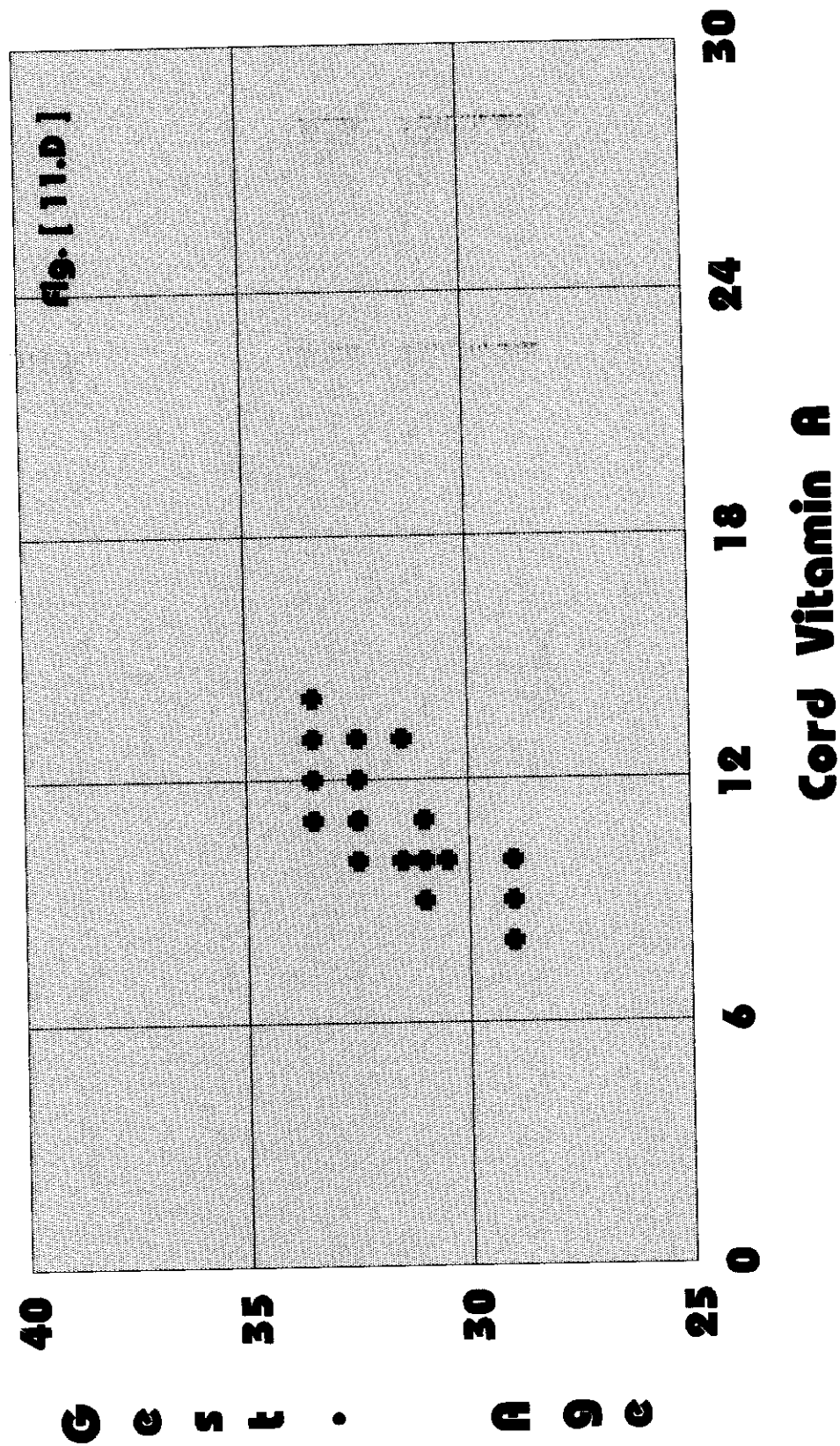
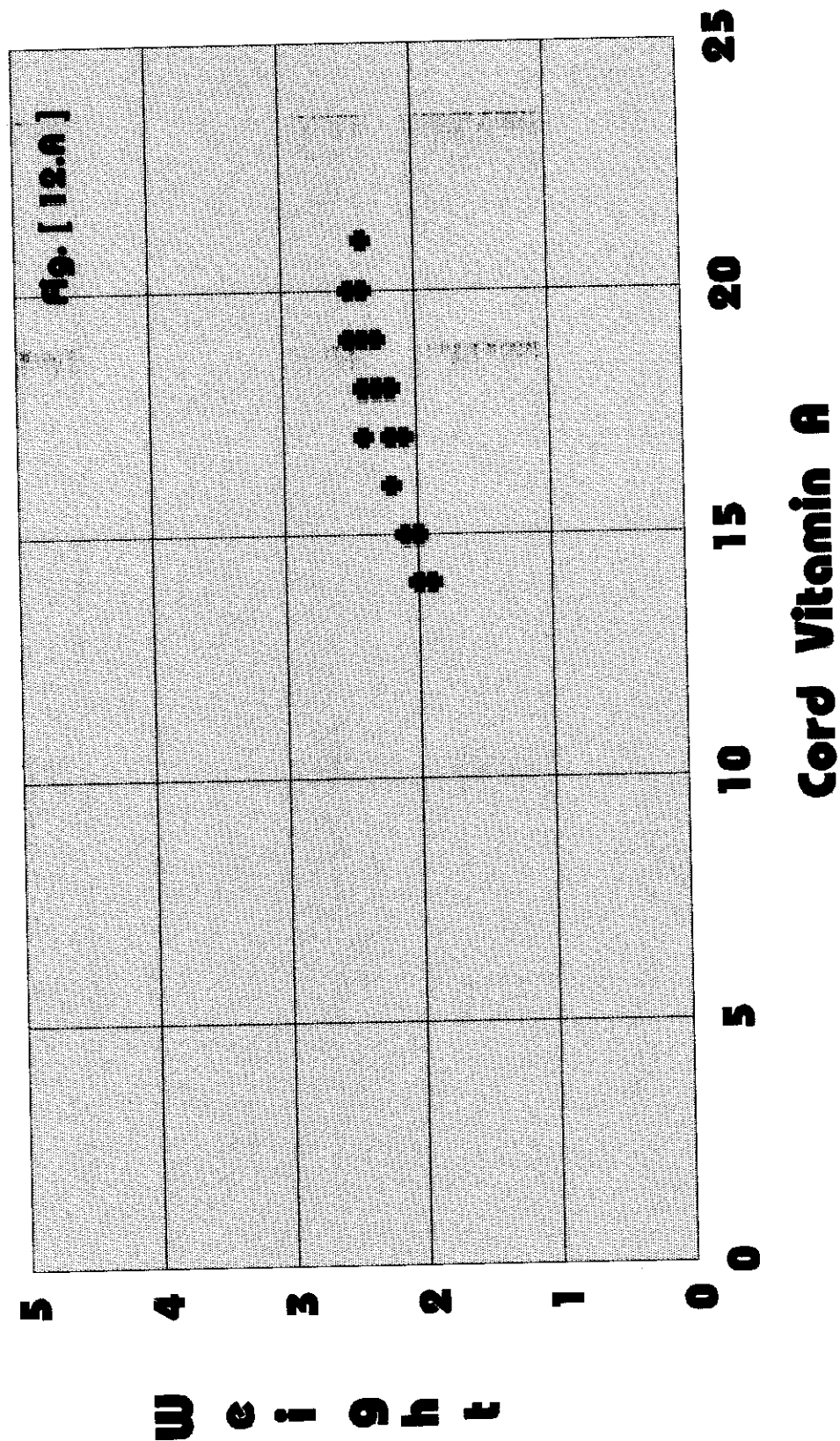


Table XII :

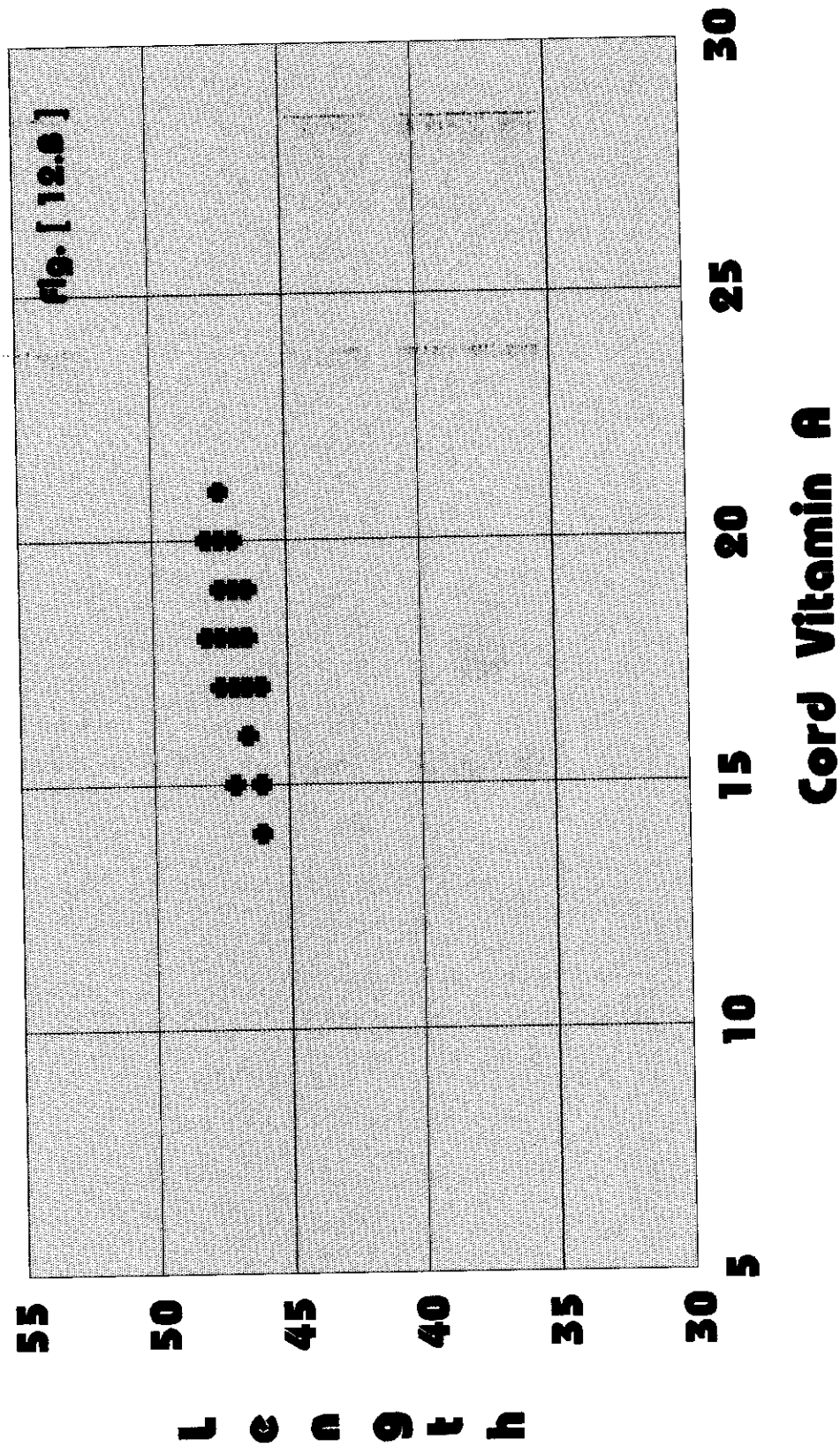
Correlation of cord vitamin A to weight, length, head circumference and gestational age in SGA newborns .

	r	P value	Partial F test
Cord vitamin A to weight	0.64	<0.001	68.86 positive correlation
Cord vitamin A to length	0.51	<0.05	19.70 positive correlation
Cord vitamin A to H.C	0.32	<0.05	9.85 positive correlation
Cord vitamin A to G.A	0.29	<0.05	8.42 positive correlation

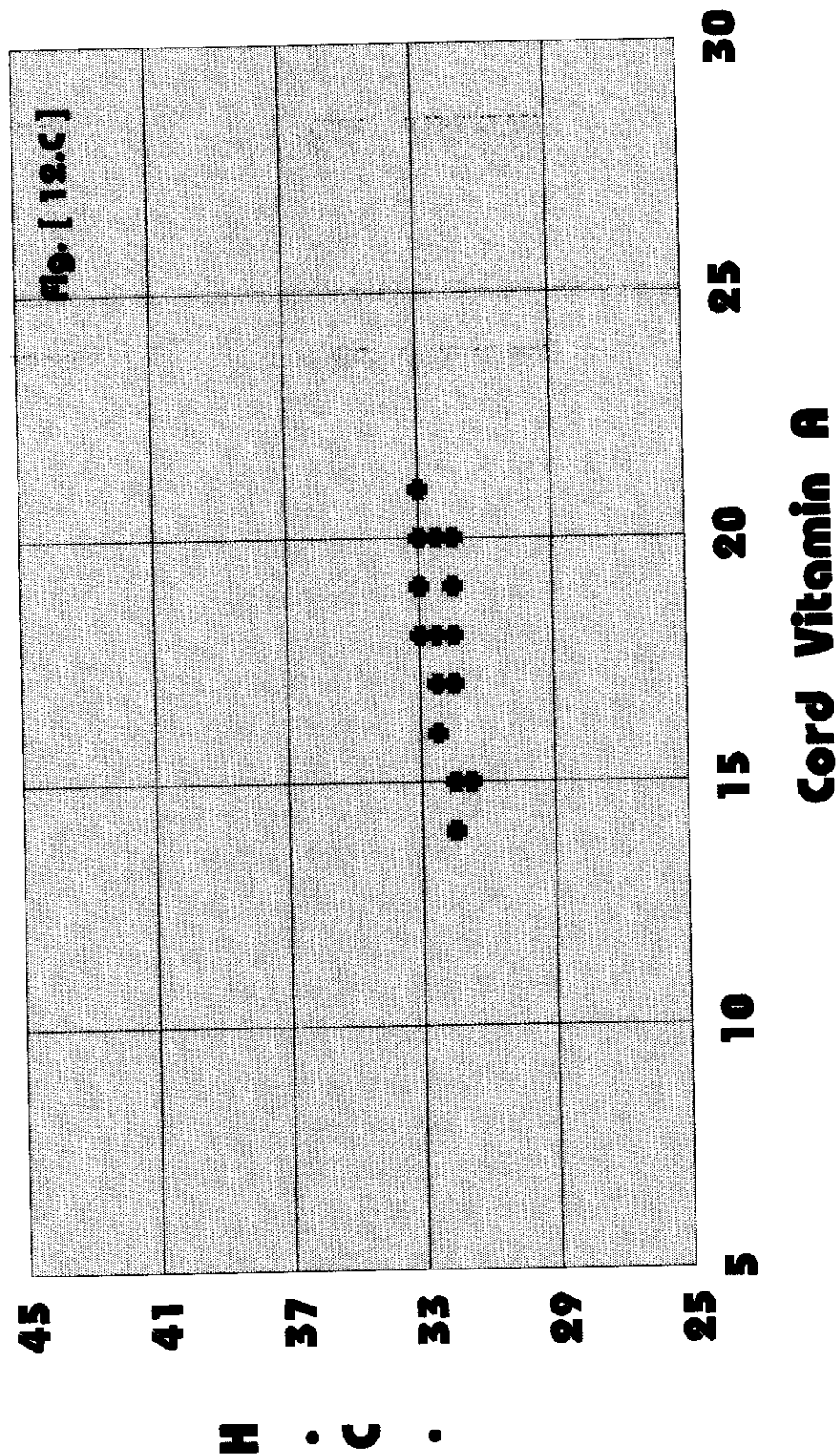
The Positive Correlation Between Weight And Cord Vitamin A In SGA Group



The Positive Correlation Between Length And Cord Vitamin A In SGA Group



The Positive Correlation Between Head Circumference And Cord Vitamin A In SGA Group



The Positive Correlation Between Gestational Age And Cord Vitamin A In SGA Group

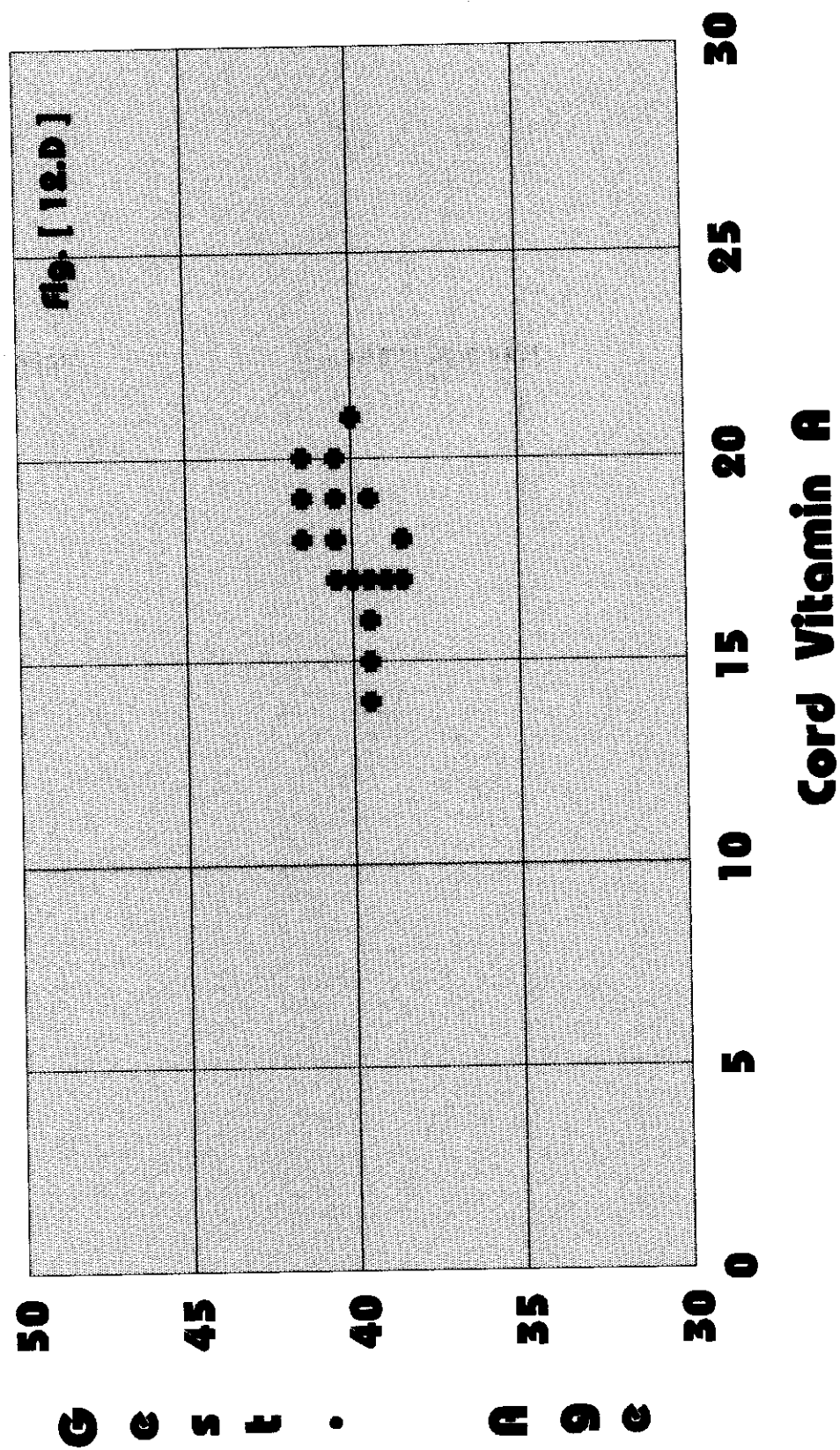
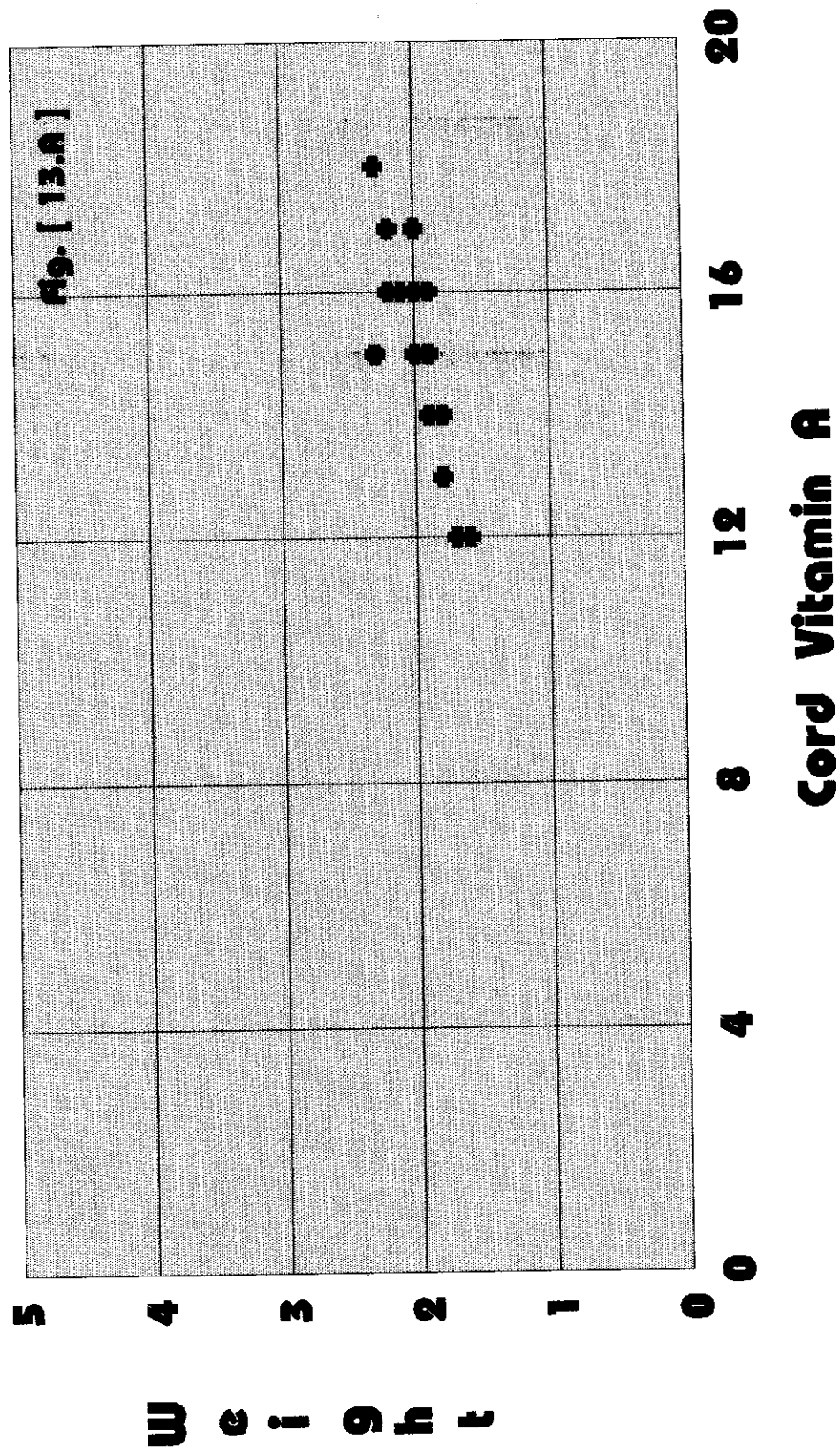


Table XIII :

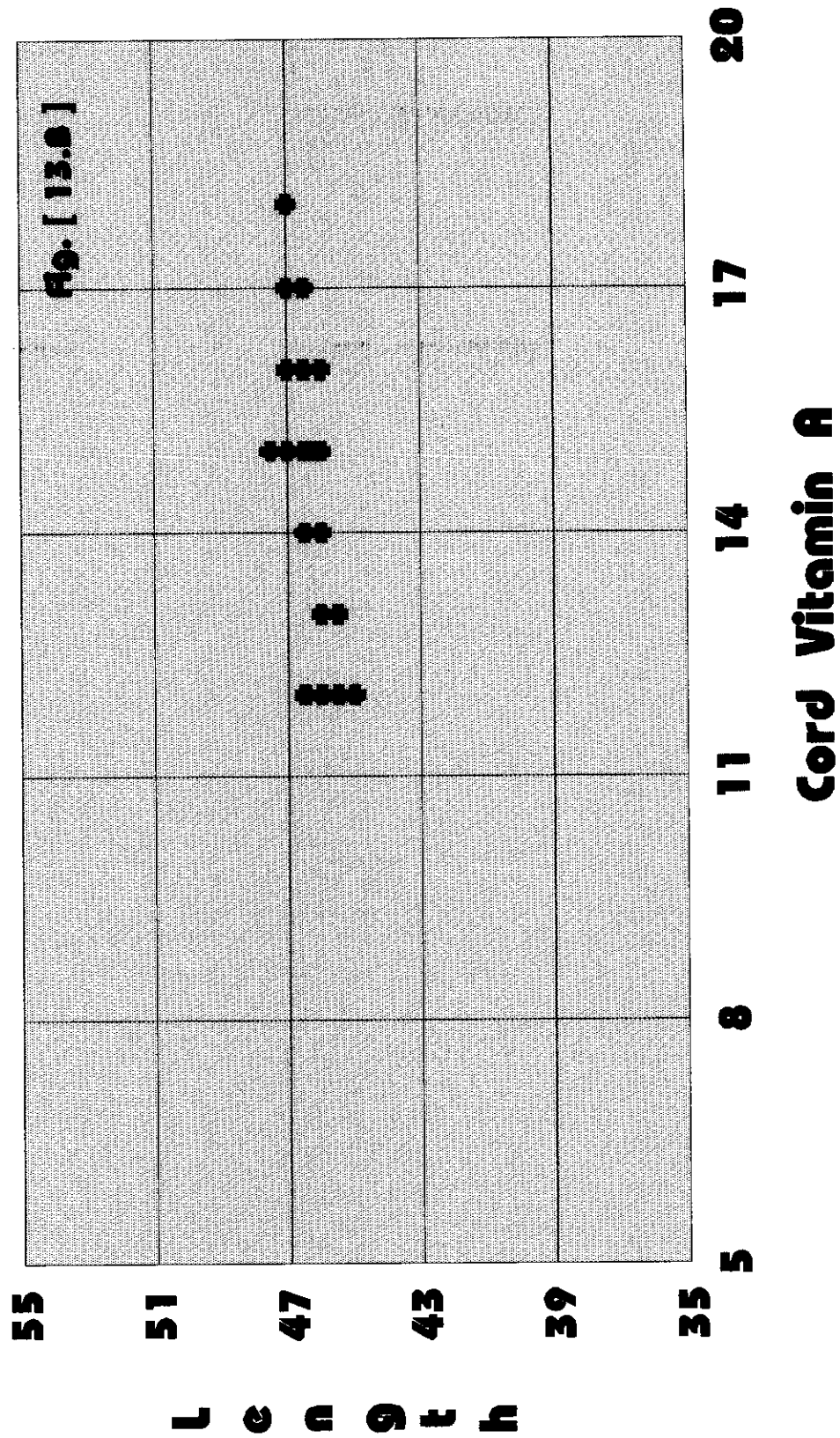
Correlation of cord vitamin A to weight, length, head circumference and gestational age in newborns of pre eclamptic mothers .

	r	P value	partial F test
cord vitamin A to weight	0.50	< 0.01	31.97 positive correlation
cord vitamin A to length	0.44	< 0.05	9.32 positive correlation
cord vitamin A to H.C	0.40	< 0.05	6.64 positive correlation
cord vitamin A to G.A	0.42	<0.05	9.10 positive correlation

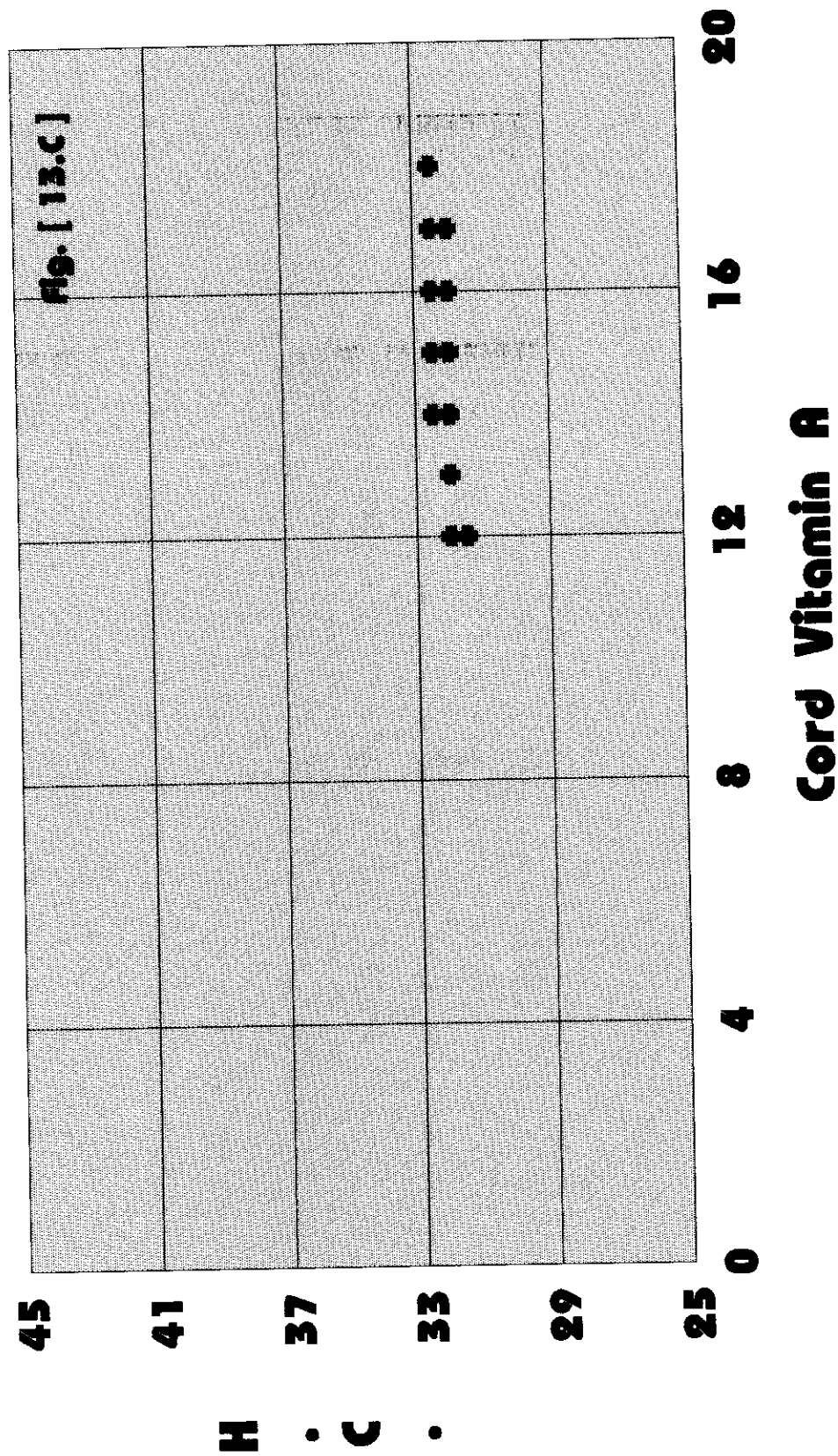
The Positive Correlation Between Weight And Cord Vitamin A In Preclamptic Group



The Positive Correlation Between Length And Cord Vitamin A In Pre-eclamptic Group



The Positive Correlation Between Head Circumference And Cord Vitamin A In Pre-eclamptic Group



The Positive Correlation Between Gestational Age And Cord Vitamin A In Pre-eclamptic Group

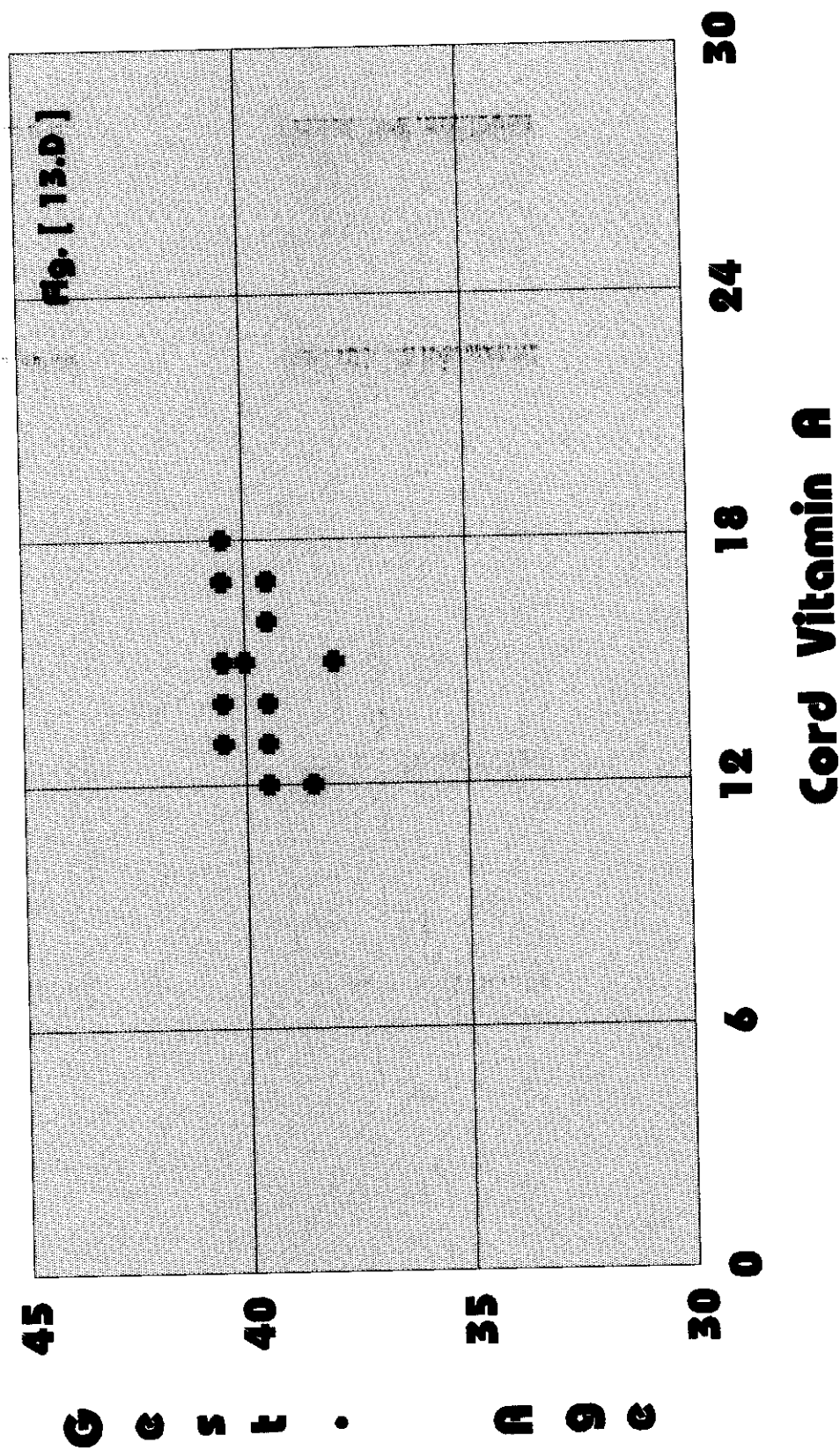
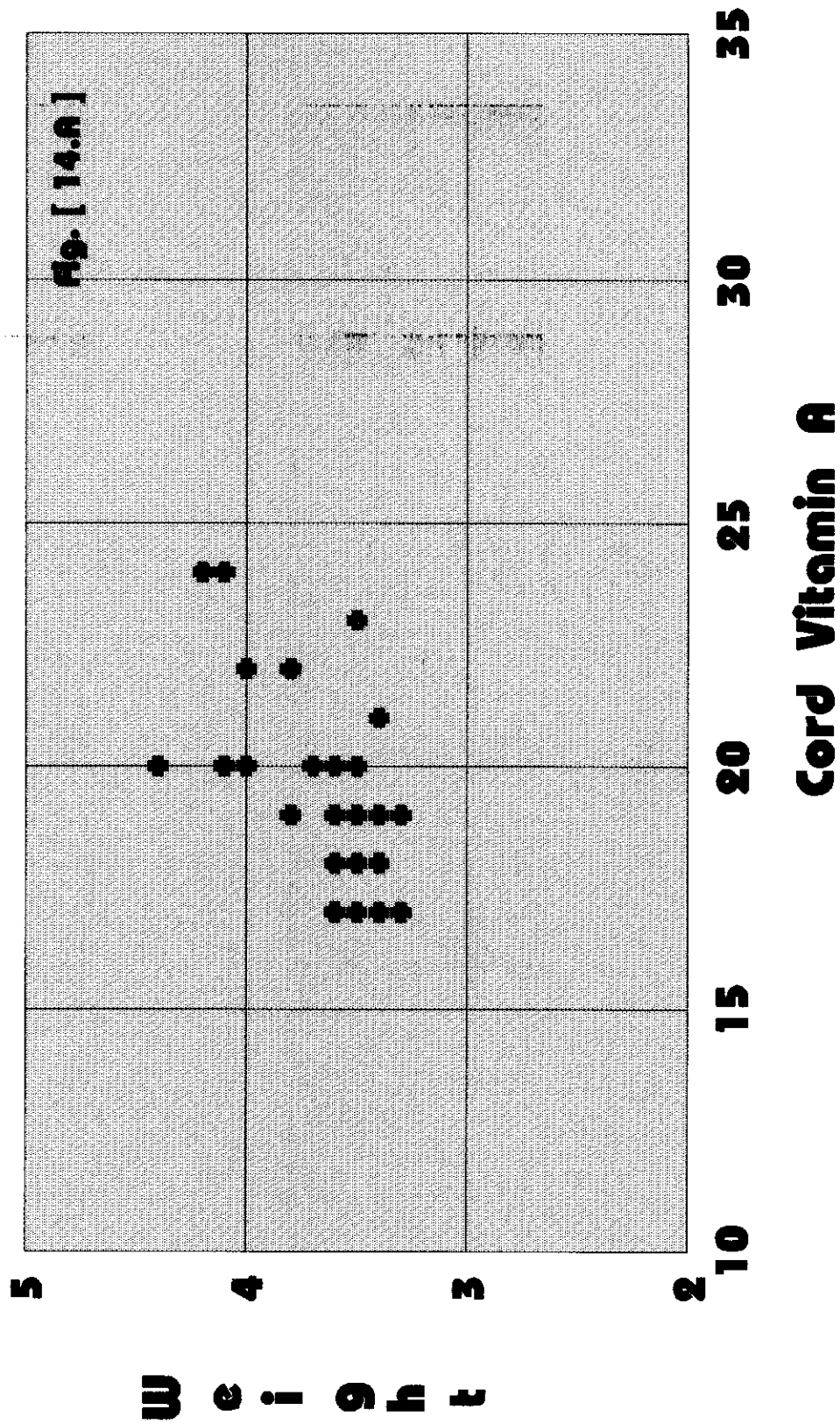


Table XIV :

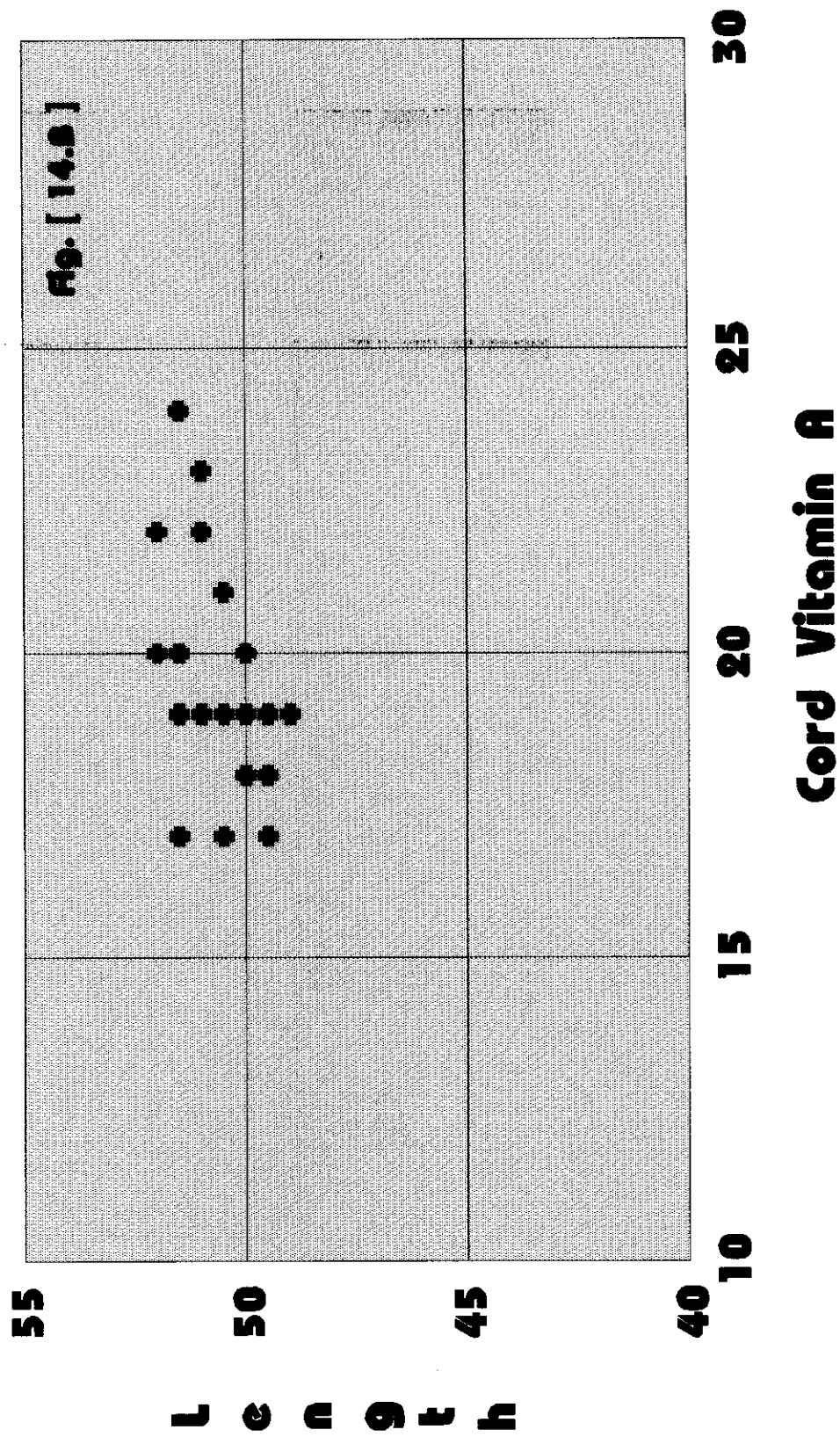
Correlation of cord vitamin A to weight, length, head circumference and gestational age in newborns of diabetic mothers .

	r	P value	partial F test
Cord vitamin A to weight	0.45	< 0.05	5.49 positive correlation
Cord vitamin A to length	0.22	< 0.05	6.97 positive correlation
Cord vitamin A to H.C	0.15	= 0.5	1.46 no correlation
Cord vitamin A to G.A	0.16	> 0.05	0.68 no correlation

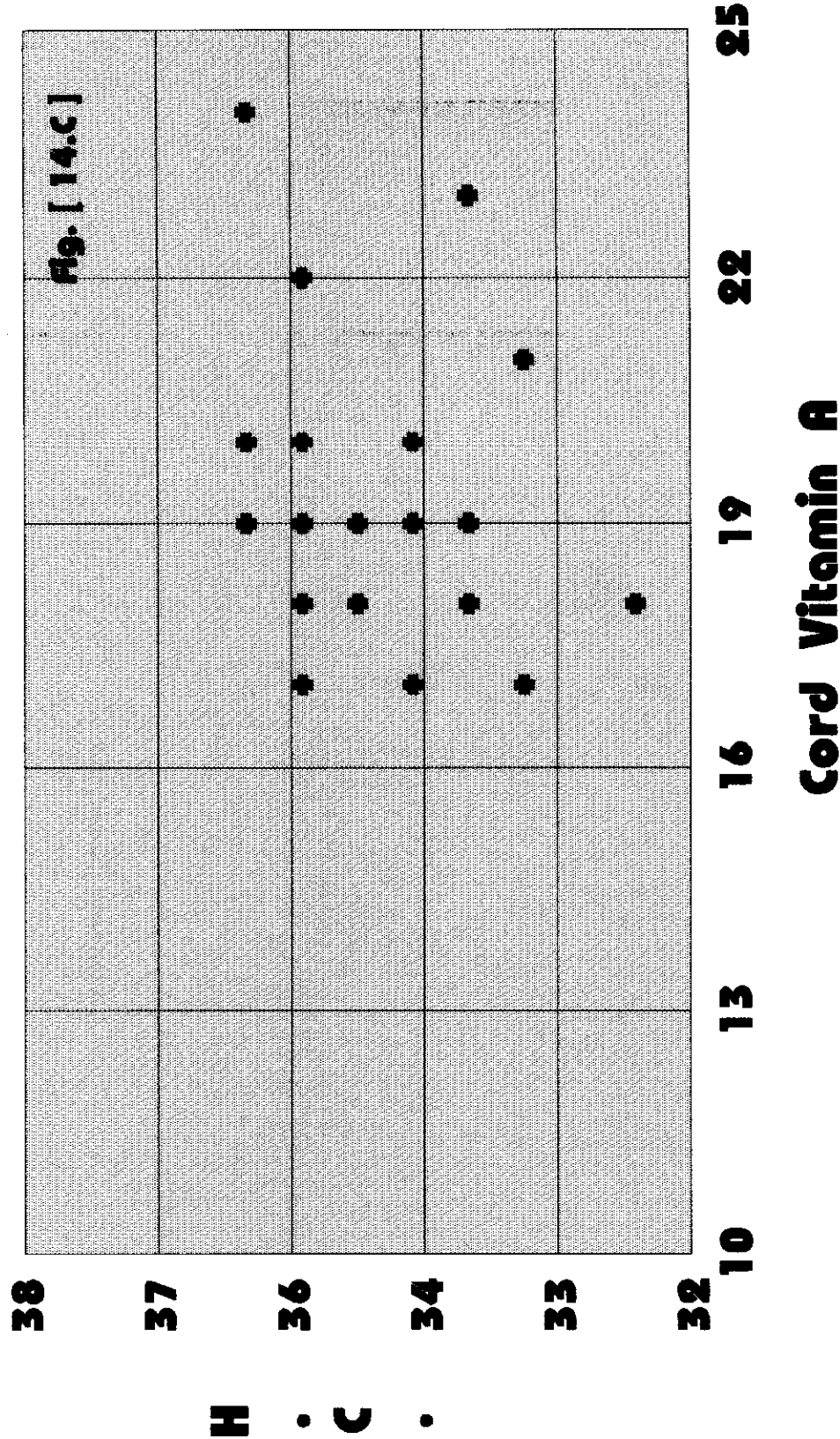
The Positive Correlation Between Weight And Cord Vitamin A In Diabetic Group



The Positive Correlation Between Length And Cord Vitamin A In Diabetic Group



No Correlation Between Head Circumference And Cord Vitamin A In Diabetic Group



No Correlation Between Gestational Age And Cord Vitamin A In Diabetic Group

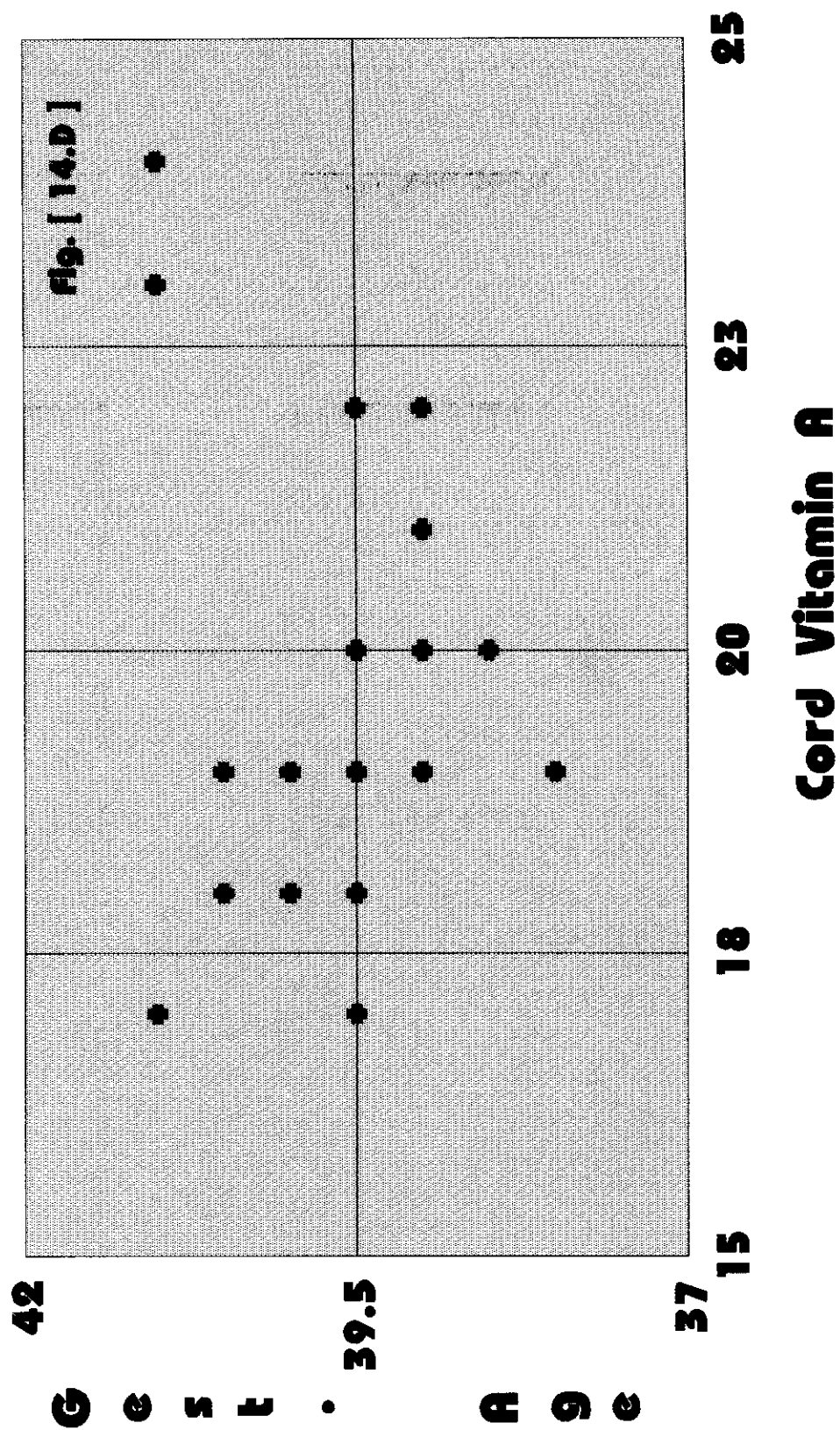


Table XV:

Factors suggested to have an effect on cord vitamin A in the studied groups

	Standard error	P value	Partial F test
Maternal vitamin A	0.033	$P < 0.001$	134.195 strong positive correlation
Weight	0.267	$P < 0.03$	47.402 positive correlation
Gestational age	0.058	$P < 0.05$	2.872 positive correlation

Analysis Of The Results

ANALYSIS OF THE RESULTS

[1] The mean weight of premature newborn (1.6 ± 0.2 kg) and prematures with RDS (1.6 ± 0.1 kg) is significantly lower than fullterm (3.23 ± 0.2 kg) ($P < 0.03, 0.02$) respectively.

By contrast the mean weight of small for gestational age newborns (2.3 ± 0.1 kg) is not significantly different ($P = 0.2$). (*table I, fig. 1:A*).

[2] The mean length of premature newborns (41.8 ± 5.9 cm) and prematures with RDS (41.6 ± 1.7 cm) show significant decrease compared to the fullterm (48.9 ± 2.4 cm), ($P < 0.01, 0.06$) respectively (*table I, fig. 1:B*).

[3] The mean head circumference values for premature (30.9 ± 1 cm), prematures with RDS (30.9 ± 1 cm) and SGA (32.3 ± 0.4 cm) show a non significant decrease, compared to fullterm (34.2 ± 0.7 cm) ($P = 0.5$ & 0.5 & 0.2). (*table I, fig. 1:B*).

[4] Mean midarm circumference values is significantly lower in premature newborns (6.4 ± 0.8 cm) and prematures with RDS (6.5 ± 0.4 cm), than fullterm newborns (11.7 ± 0.6 cm), ($P < 0.05$) (*table I, fig. 1:B*).

[5] The weight (1.9 ± 0.8 kg) (*table II, fig. 2:A*) and mid-arm circumference of newborns of preeclamptic mothers (7.8 ± 0.6 cm) are significantly lower than fullterm group (3.23 ± 0.2 kg) & (11.7 ± 0.6 cm), ($P < 0.01$). Yet, the length is not affected ($P = 0.3$). (*table II, fig. 2:B*).

[6] Newborns of diabetic mothers have mean values for weight (*table II, fig. 2:A*) length and head circumference which are higher than the corresponding values in fullterm group, yet non significant. (*table II, fig. 2:B*).

[7] Mean cord (12.13 ± 3.2 microgm) and maternal blood (24.4 ± 4 microgm) vitamin A in premature newborns show significant decrease than the fullterm (22.7 ± 2.6), (43.2 ± 4 microgm) respectively, ($P < 0.001$).

Prematures with RDS show further lowering of both cord blood (10.7 ± 1.5 microgm) and maternal (22.1 ± 2.6 microgm) vitamin A levels than fullterm values, ($P < 0.001$ & 0.002) respectively. (*table III, fig. 3*).

Preterm newborns with RDS have significantly lower cord and maternal vitamin A levels than the preterm group, ($P < 0.03$ & 0.02) respectively. (*table VI, fig. 6*).

[8] Small for gestational age group have significantly lower mean cord (17.7 ± 1.7 microgm) and maternal blood (34.5 ± 3.3 microgm) vitamin A levels than fullterm group, ($P < 0.04$ & 0.01) respectively (*table III, fig. 3*).

[9] In preeclamptic group, mean cord (14.5 ± 1.8 microgm) and maternal blood (28.8 ± 4.4 microgm) vitamin A levels are significantly lower than the fullterm, ($P < 0.003$, 0.005), respectively, (*table IV, fig. 4*).

[10] Newborns of diabetic mothers have mean cord blood (19.7 ± 2.3 microgm) and maternal (35.9 ± 1.9 microgm) vitamin A levels that are

significantly lower than the fullterm, ($P < 0.01, 0.03$) respectively, (*table IV, fig. 4*).

[11] Newborns of mothers with non complicated diabetes have cord vitamin A level (18.7 ± 1.3 microgm) and maternal (34.8 ± 0.89 microgm) that are significantly lower than fullterm ($P < 0.001$), (*table V, fig. 5*).

[12] In the group of long-standing, complicated diabetics cord vitamin A shows a non significant decrease than fullterm group ($P = 0.6$), however maternal vitamin A (38.3 ± 1.16 microgm) is significantly lower than fullterm group. ($P < 0.001$). (*table V, fig. 5*).

[13] SGA newborns have both mean cord and maternal vitamin A levels that are significantly higher than the preterm group, ($P < 0.01, 0.05$) respectively, Newborns of preeclamptic mothers also have significantly higher cord and maternal vitamin A than preterm group. ($P < 0.05, 0.002$) respectively, (*table VI*).

[14] In diabetic group both cord and maternal vitamin A levels are significantly higher than preterm group. ($P < 0.02, 0.001$) respectively, (*table VI, fig. 6*), they are also significantly higher than preeclamptic group, ($P < 0.02, 0.001$) respectively (*table VII, fig. 7*).

Correlation of cord vitamin A to maternal vitamin A weight, length, head circumference and gestational age.

[1] In fullterm newborns cord vitamin A shows positive correlation with maternal vitamin A ($P < 0.001$) (*table VIII, Fig.8: A,B*) also weight and gestational age show this correlation ($P < 0.05$), (*table IX, Fig.9: A,D*) However length and head circumference does not show this correlation ($P < 0.05$) (*table IX, Fig.9: B,C*)

[2] In premature newborns cord vitamin A which shows positive correlation with maternal vitamin A ($P < 0.001$) (*table VIII, Fig.8: A,C*). Weight, length, head circumference, and gestational age also show positive correlation with vitamin A ($P < 0.05$) (*table X, Fig.10: A,B,C,D*)

[3] In premature newborns with RDS cord vitamin A shows positive correlation with maternal vitamin A ($P < 0.003$), (*table VIII, Fig.8:A,D*) also with weight ($P < 0.001$), length ($P < 0.01$), head circumference and gestational age ($P < 0.05$) (*table XI, Fig.11:A,B,C,D*)

[4] In SGA newborns mean cord vitamin A shows positive correlation with maternal vitamin A ($P < 0.008$) (*table VIII, Fig.8:A,E*) and also with weight ($P < 0.001$), length, head circumference and gestational age ($P < 0.05$) (*table XII, Fig.12:A,B,C,D*)

[5] In newborns of preeclamptic mothers mean cord vitamin A shows positive correlation with maternal vitamin A ($P < 0.007$) (*table VIII, Fig.8:A,F*) and also with weight ($P < 0.01$), length, head circumference and gestational age ($P < 0.05$) (*table XIII, Fig.13:A,B,C,D*)

[6] In newborns of diabetic mothers mean cord vitamin A shows positive correlation with maternal vitamin A ($P < 0.007$) (*table VIII, Fig.8:A,G*), and also with weight and length ($P < 0.05$) (*table XIV, Fig.14:A,B*) however head circumference and gestational age do not show this correlation ($P = 0.5$) & ($P > 0.05$) respectively (*table XIV, Fig. 14:C,D*)

[7] In conclusion, by multiple regression analysis of all factors suggested to be correlated with cord vitamin A; we found that, maternal vitamin A has the strongest positive correlation followed by weight and lastly gestational age (*table XV*).