Results

This study was conducted at Benha University Hospital during the period from March to october, 1990.

One hundred mothers and their newborn infants were grouped into three main groups. The first group consisted of 61 normal pregnant women and their offspring in whom oxytocin and intravenous fluids were given. The second group consisted of 22 normal pregnant women and their offspring in whom intravenous fluids only were administered. The third group consisted of 17 normal pregnant women and their offspring in whom neither oxytocin nor intravenous fluids were given.

Table (1) and **figure** (3) Showed the effect of oxytocin and intravenous fluid intake on levels of serum bilirubin in newborns on the 1st, 4th, 7th days post-natally. In the 1st day 100 newborns were studied, and significant difference was observed between group (3) and group (1) the highest mean serum bilirubin was observed in group (3) 1.61 ± 0.73.

In the 4th day seventy six cases were studied, the mean serum bilirubin was 6.69 ± 2.94 for the group (1), 8.44 ± 2.36 for group (2) and 11.43 ± 3.26 for group (3) and significant

difference was observed between group (3) and group (1) and also, between group (3) and group (2) but not between group (2) and (1).

Thirty seven infants were studied in the 7th day the mean indirect serum bilirubin in group (1) was 4.35 ± 2.96, in group (2) was 6.02 ± 1.49 and in group (3) was 7.91 ± 3.22. There is significant difference between group (3) and group (1) while the differences between group (3) and (2) and group (2) and (1) were not significant. It is to be noted that the peak value of serum bilirubin was in the 4th day postnatally and in group (3) (which was given oxytocin).

Table (2 A) and **figure** (4), showed the effect of oxytocin on levels of serum bilirubin in newborns regardless of the I.V.F. intake. In the 1st day no significant differece was observed in the mean serum indirect bilirubin between groups which were given ⩽ 10u. and > 10u. of oxytocin.

Significant difference was observed between these two groups in the 4th and 7th days post-natally. The peak value of serum bilirubin was in the 4th day post-natally and in the group which was given more than 10u. of oxytocin (13.5 ± 2.32).

Table (2 B) showed the effect of oxytocin dose on levels of serum bilirubin in newborns of mothers receiving 1001 C.C.- 2000 C.C. I.V.F in the 1st, 4th, and 7th day post-natally.

In the 1st day no significant difference was observed between the two groups receiving ⩽ 10u. and > 10u. of oxytocin. Singnificant difference was observed between these 2 groups in the 4th and 7th days.

Table (2 C) showed the effect of oxytocin dose on levels of serum bilirubin in newborns of mothers receiving 2001-3000 C.C. I.V.F. in the 1st, 4th and 7th days post-natally. No significant difference was observed between the 2 groups (⩽ 10u. and > 10u.) on the 1st, 7th days while significant difference was observed on day 4.

Table (3 A) and **figure** (5) showed the effect of I.V.F. intake on serum bilirubin of newborns regardless of oxytocin intake in the, 1st, 4th and 7th days post-natally. In the 1st day no significant difference was observed between the three groups (a, b and c). In the 4th day the mean serum bilirubin in group (a) was 8.7 ± 246, in group (b) was 10.49 ± 3.44 and in group (c) was 12.89 ± 2.59. Significant difference was observed between groups (c) and (a) as well as between groups (c) and (b) while the difference between group (b) and (a) was not significant. In the 7th day significant difference was observed between group (c) and (a) and group (b) and (a) but not between (c) and (b).

Tables (3 B, C, and D) show the effect of I.V.F. intake on serum bilirubin after neutralizing the effect of oxytocin by assessing each group separately according to the amount of

oxytocin administered to the mothers. **Table** (3 B), showed the effect of I.V.F. intake on serum bilirubin of newborns in infants of mothers who did not receive oxytocin in 1st, 4th and 7th days post-natally. No significant difference was observed between the three groups (a), (b) or (c) in the 1st, 4th and 7th days.

Table (3 C) showed the effect of amount of I.V.F. intake on serum bilirubin of newborns in infants of mothers who received up to 10 units of oxytocin in the 1st, 4th and 7th days post-natally. No significant difference was observed between the three groups a, b, c, in the 1st, 4th and 7th days post-natally.

Table (3 D) showed the effect of amount of I.V.F. intake on serum bilirubin of newborns in infants of mothers who received more than 10 units of oxytocin in the 1st, 4th and 7th days post-natally. No significant difference between group (b) and (c) in the 1st, 4th and 7th days.

N.B. Group (a) is not presented in this table due to the fact that all cases that received more than 10 units of oxytocin had an obligatory amount of I.V.F. beyond 1000 C.C.

Table (4 A) and **figure** (6) showed the effect of type of feeding (breast or artificial) on serum bilirubin values in newborns regardless of oxytocin intake in the 1st, 4th and 7th days post-natally. No significant difference was observed between the two groups in the 1st, 4th and 7th days.

Tables (4 B, C and D) showed the effect of type of feeding on serum bilirubin values in mother receiving no oxytocin, ≤ 10 units and > 10 units respectively. There is no significant difference between the two groups (breast and artificial) in the 1st, 4th or 7th days post-natally.

Tables (5 A) and **figure** (7), showed the effect of infant sex on serum bilirubin levels in newborns regardless of oxytocin intake in the 1st, 4th and 7th days post-natally. No significant difference was observed.

Table (5 B, C, and D) showed the effect of infant sex on serum bilirubin levels in newborns in mothers receiving no oxytocin, less than or equal to 10 units and more than 10 units of oxytocin respectively in 1st, 4th and 7th days post-natally. No significant difference between males and females was observed in all of the above cases in 1st, 4th and 7th days post-natally.

Table (6) showed the effect of birht weight on serum bilirubin values of newborns at the 1st, 4th and 7th days post-natally. No significant difference was observed between the three groups I,II,III in the 1st, 4th or 7th days post-natally.

N.B. Birth weight less than 2500 gm was not included in our research.

Table (7 A) and **figure** (8) showed the effect of gravidity on serum bilirubin levels in newborns in the 1st, 4th and 7th days post-natally. No significant difference was observed in the 1st

day. In the 4th day the mean serum bilirubin in infants of primigravidae was 12.27 ± 2.94, in infants of multiparae was 8.53 ± 3.3 and in infants of grandmultiparae was 8.27 ± 2.98. Significant difference was observed between primigravidae and both multiparae and grandmultiparae while no significant difference was observed between multiparae and grandmultiparae.

In the 7th day there was significant difference between primigravidae and multipara but no significant difference between primigravidae and grandmultiparae nor between multiparae and grandmultiparae.

N.B. All primigravidae (32) were given oxytocin during labour.

Table (7 B) showed the effect of oxytocin dose (⩽ 10u. and >10u.) on level of serum bilirubin in newborns of primigravidae mothers in the 1st, 4th and 7th days. No significant difference was observed in the 1st day post-natally.

In the 4th and 7th days significant difference was observed and higher mean serum bilirubin was found in the group which received more than 10 units of oxytocin.

Table (8) showed the effect of duration of labour (⩽ 10 hours and > 10 hours) on the level of serum bilirubin values in newborns in the 1st, 4th and 7th days post-natally. No significnat difference was observed between the two groups in the three chosen post-natal ages.

Table (9) and figure (9) showed the relation between Apgar score at 1st minute (< 6 and ⩾ 6) on serum bilirubin levels in the 1st, 4th and 7th days post-natally. In the 1st day no significant difference was observed between the two groups, in the 4th and 7th days significant difference was observed between these two groups. The mean serum bilirubin in the 4th day in group < 6 Apgar at 1st minute was 11.56 ± 3.82 and ⩾ 6 Apgar at 1st minute was 9. 35 ± 3.42. The mean serum bilirubin in the 7th day in < 6 Apgar at 1st minute was 9.1 ± 2.16 and ⩾ 6 Apgar at 1st minute was 6.10 ± 3.13.

Table (10 A,B,C,D) and figure (10) showed the effect of contraceptive pill usage on serum bilirubin of newborns regardless of oxytocin intake, in mothers who did not receive oxytocin, in mothers who had received up to 10 units of oxytocin and in mothers who had received more than 10 units of oxytocin respectively in the 1st, 4th and 7th days post-natally. No significant difference was observed between users and non users in all cases.

Table (11) showed the effect of maternal age on serum bilirubin level in newborns in the 1st, 4th and 7th days post-natally. No significant difference was observed in different age groups.

Table (12) and figure (11) showed the effect of maternal hyponatremia on serum bilirubin levels in newborns in 1st, 4th and 7th days post-natally. In the three days no significant difference was observed between the two groups (< 130 and ≥ 130 mEq/l).

Table (13) showed the effect of infant serum sodium on his bilirubin level in the 1st day of life. No significant difference was observed between the two groups (< 130 mEq/l. and ≥ 130 mEq/l.)

Table (14) and figure (12) showed the effect of oxytocin and intravenous fluid administration on level of serum sodium in newborns in the 1st, 4th and 7th days post-natally.

In the 1st day the mean serum sodium in group (1) was 137.41±3.71, in group (2) was 133.45 ± 2.6 and in group (3) was 131.3 ± 3.98. Significant difference was observed between group (3) and group (1) also, between group (3) and group (2) and between group (2) and group (1). In the 4th day the mean serum sodium in group (1) was 136.81 ± 3.23, in group (2) was 135.27±2.05 and in group (3) was 134.41±3.05. Significant difference was observed only between group (3) and group (1) but not between group (3) and (2) nor group (2) and (1).

In the 7th day no significant difference was observed between the three groups (1), (2) and (3).

Table (15 A) and **figure** (13) showed the effect of oxytocin dose on serum sodium of the newborns regardless of intravenous fluid intake in the 1st, 4th and 7th day post-natally. In the 1st and 4th day there was significant difference between the two groups (⩽ 10 units and > 10 units of oxytocin) and mean serum sodium was lower in cases which were given more than 10 units of oxytocin.

Table (15 B) showed the effect of oxytocin dose on serum sodium of newborns at fluid values from 1001-2000 C.C. in the 1st, 4th and 7th days post-natally. No significant difference was observed between the two groups (⩽ 10 units and >10 units).

Table (15 C) showed the effect of oxytocin dose on serum sodium of newborns at fluid values from 2001-3000 C.C. in the 1st, 4th and 7th days post-natally. No significant difference was observed in the 1st and 7th days but significant difference was observed in the 4th day the mean serum sodium in the group which was given ⩽ 10 units was 138 ± 1.2 and > 10 units was 123.32 ± 2.

Table (16 A) and **figure** (14) showed the effect of intravenous fluid administration on serum sodium of the newborns regardless of oxytocin adminstration in the 1st, 4th abd 7th days post-natally.

Table (16 D) showed the effect of intravenous fluid administration on serum sodium of newborns in mothers receiving more than 10 units of oxytocin during labour in the 1st, 4th and 7th days post-natally. No significant difference was observed between the two groups (b), (c).

N.B. group (a) was not present here because mothers which were given more than 10 units oxytocin always received more than 1000 C.C. of intravenous fluids.

Therefore, our general observation was that concomitant administration of I.V.F. with oxytocin is the cause of hyponatremia and not I.V.F. only.

Table (17) and figure (15) showed the effect of the mother's serum sodium value during labour on serum sodium in their newborns in the 1st, 4th and 7th days post-natally. In the 1st day the mean serum sodium in newborns was 128 ± 1.79 in mothers whose serum sodium was less than 130 mEq/l. In mothers whose serum sodium was equal to or more than 130 mEq/l. the mean serum sodium in newborns was 133.17 ± 4.29. Significant difference was observed between the two groups. In the 4th day in mothers with serum sodium less than 130 mEq/l. the mean serum sodium in newborns was 132 ± 2.1 and in mothers with serum sodium equal to or more than 130 mEq/l. the mean serum sodium in newborns was

135.34 ± 3.01. Significant difference was observed between the two groups. In the 7th day no significant difference was observed between the two groups.

Table (18) showed the effect of mother's haemoglobin on their infant's haemoglobin in the 1st day post-natally. No significant difference was observed between the two groups (< 12 gm% and ≥ 12 gm%).

Table (19) showed the arrangement of factors affecting infant serum bilirubin according to the regression analysis in the 1st, 4th and 7th days post-natally. The arrangement of factors in the 1st day according to regression analysis was: gravidity of the mother, maternal age, infant weight, maternal serum sodium, I.V.F., duration of labour, oxytocin, infant serum sodium and Apgar score respectively (In the first day the effect of these factors was not established and was not significant for any of the studied factors).

In the 4th and 7th days the arrangement of factors according to regression analysis was: oxytocin, I.V.F. and these two factors had a perfect positive correlation with serum bilirubin levels then gravidity of the mother and Apgar score and these two factors had perfect negative correlation with serum bilirubin levels. The previous four factors have a significant effect on serum bilirubin. Duration of labour, maternal age, infant weight, maternal and infant serum sodium followed the previous four

factors respectively but did not have significant effect on serum bilirubin levels. Regressive analysis was not possible for three studied factors namely, the type of feeding, infant sex and maternal usage of contraceptive pills as these factors could not be assessed quantitavely.

Table (1)

Effect of oxytocin and I.V.F. intake on levels of serum bilirubin of newborns in the 1st, 4th and 7th days post-natally.

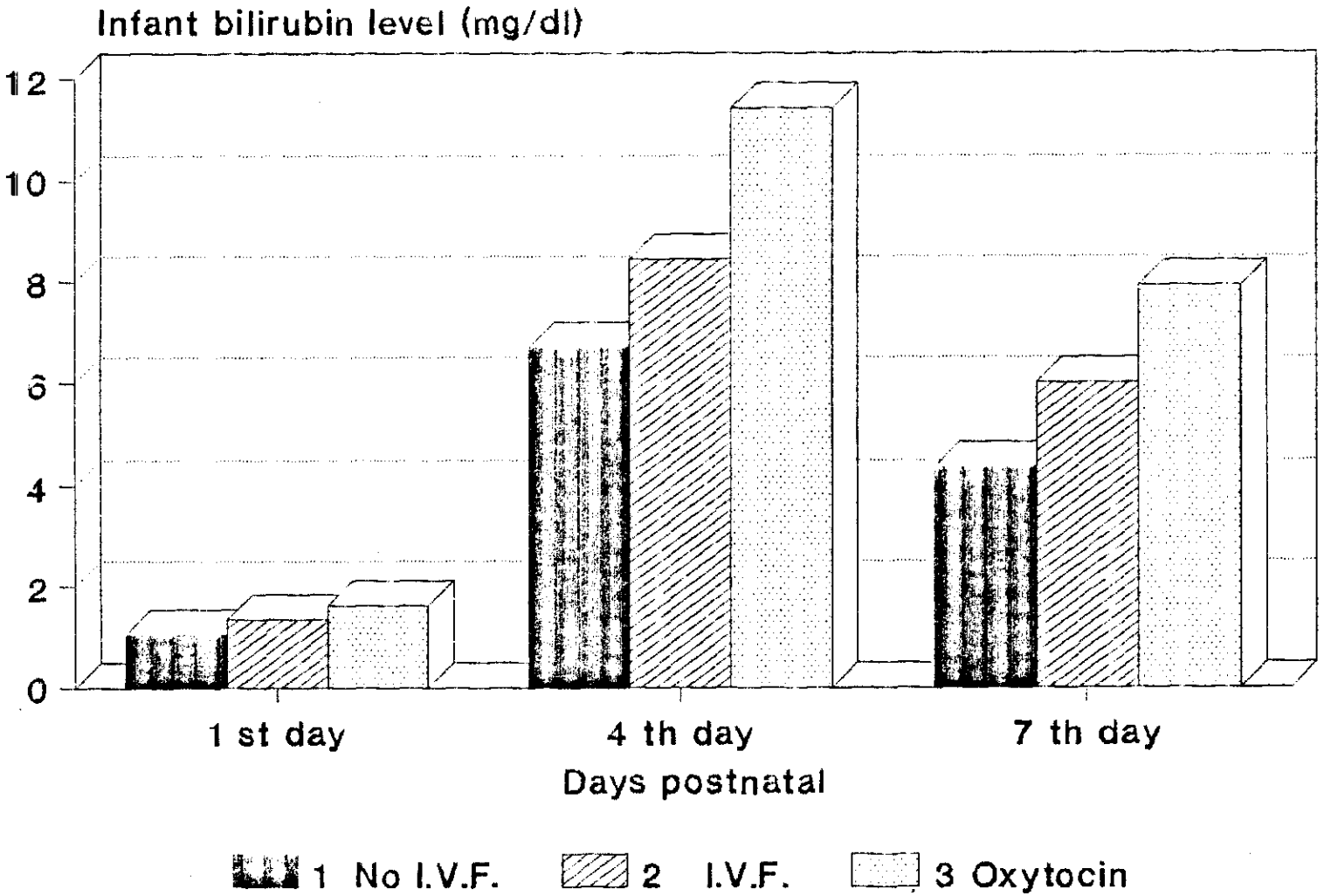
		1 st day			4 th day			7 th day		
	Group	Group (1)	Group (2)	Group (3)	Group (1)	Group (2)	Group (3)	Group (1)	Group (2)	Group (3)
Serum indirect bilirubin	Mean	1.03	1.35	1.61	6.69	8.44	11.43	4.35	6.02	7.91
	S.D.	±0.47	±0.46	±0.73	±2.94	±2.36	±3.26	±2.96	±1.49	±3.22
	No.	17	22	61	16	15	45	9	9	19
	F	5.31			15.75			4.64		
	P≤0.05									
	Result	Significant differences			Significant differences			Significant differences		
		Group (1)	Group (2)		Group (1)	Group (2)		Group (1)	Group (2)	
	Group (3)	0.59 (0.37)*	0.26 (0.33)		4.74 (1.79)*	2.99 (1.84)*		3.55 (2.42)*	1.88 (2.42)	
	Group (2)	0.32 (0.44)			1.75 (2.21)			1.67 (2.82)		

Group (1) (No I.V.F.)

Group (2) (I.V.F.)

Group (3) (Oxytocin)

Fig. (3):Effect of Oxytocin and I.V.F. Intake on Levels of Serum Bilirubin in Newborns in the 1st, 4th and 7th Days Post-natally.



I.V.F.(Intravenous Fluids)

Table (2 A)

Effect of oxytocin dose on levels of serum bilirubin in newborns regardless of amount of I.V.F. in the 1 st, 4 th and 7 th days post – natally.

		1 st day		4 th day		7 th day	
		⩽ 10 U.	> 10 U.	⩽ 10 U.	> 10 U.	⩽ 10 U.	> 10 U.
Serum indirect bilirubin	Mean	1.55	1.67	8.84	13.50	5.36	10.20
	S.D.	±0.63	±0.80	±2.27	±2.32	±1.75	±2.41
	No.	31	30	20	25	9	10
	t	0.63		6.6		4.7	
		Not significant		Significant		Significant	

$P \leqslant 0.05$

Fig. (4): Effect of Oxytocin Dose on Levels of Serum Bilirubin in Newborns in the 1st, 4th and 7th Days Post-natally.

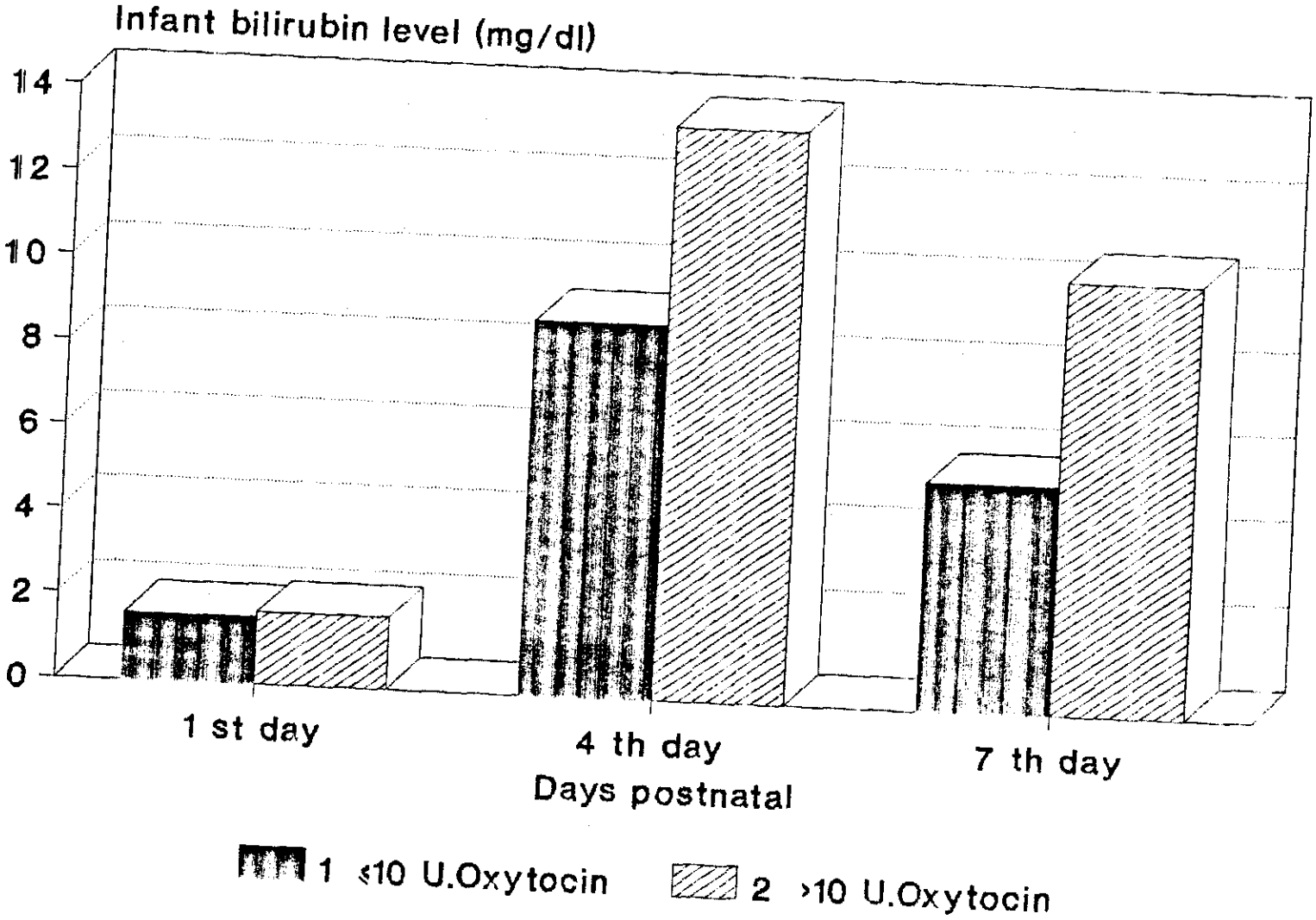


Table (2 B)

Effect of oxytocin dose on levels of serum bilirubin in newborns of mothers receiving from 1001 c.c. – 2000 c.c. I.V.F. in the 1 st, 4 th and 7 th days post – natally

		1 st day		4 th day		7 th day	
		⩽ 10 U.	> 10 U.	⩽ 10 U.	> 10 U.	⩽ 10 U.	> 10 U.
Serum indirect bilirubin	Mean	1.28	1.72	7.73	13.63	4.40	12.47
	S.D.	±0.30	±0.52	±0.12	±2.35	±0.4	±1.54
	No.	7	10	3	6	1	3
	t	1.74		3.83		3.71	
		Not significant		Significant		Significant	

$P \leqslant 0.05$

Table (2 C)

Effect of oxytocin dose on levels of serum bilirubin in newborns of mothers receiving from 2001 c.c. – 3000 c.c. I.V.F. in the 1 st, 4 th and 7 th days post – natally.

		1 st day		4 th day		7 th day	
		⩽ 10 U.	> 10 U.	⩽ 10 U.	> 10 U.	⩽ 10 U.	> 10 U.
Serum indirect bilirubin	Mean	2.40	1.65	10.30	13.46	8.50	9.23
	S.D.	±0.60	±0.89	±0.70	±2.31	±0.83	±2.03
	No.	1	21	1	19	1	7
	t	0.80		1.29		0.31	
		Not significant		Significant		Not significant	

$P \leqslant 0.05$

Table (3 A)

Effect of I.V.F. intake on levels of serum bilirubin in newborns regardless of oxytocin intake in the 1 st, 4 th and 7 th days post-natally.

		1 st day			4 th day			7 th day		
	Group	Group (a)	Group (b)	Group (c)	Group (a)	Group (b)	Group (c)	Group (a)	Group (b)	Group (c)
Serum indirect bilirubin	Mean	1.50	1.49	1.67	8.70	10.49	12.89	5.41	7.98	9.14
	S.D.	±0.66	±0.44	±0.86	±2.46	±3.44	±2.59	±1.57	±3.52	±1.92
	No.	33	26	24	23	15	22	11	9	8
	F	0.55			12.18			5.25		
		P≤0.05								
	Result	No significant differences			Significant differences			Significant differences		
	Group (a)				Group (b)	Group (c)		Group (b)	Group (c)	
	Group (b)				1.79 (1.90)	4.20 (1.70)*		2.57 (2.40)*	3.73 (2.48)*	
						2.40 (1.91)*			1.16 (2.59)	

Group (a) (I.V.F.) ≤ 1000 c.c.
Group (b) (I.V.F.) 1001-2000 c.c.
Group (c) (I.V.F.) 2001-3000 c.c.

Fig. (5): Effect of I.V.F. Intake on Levels of Serum Bilirubin in Newborns in the 1st, 4th and 7th Days Post-natally.

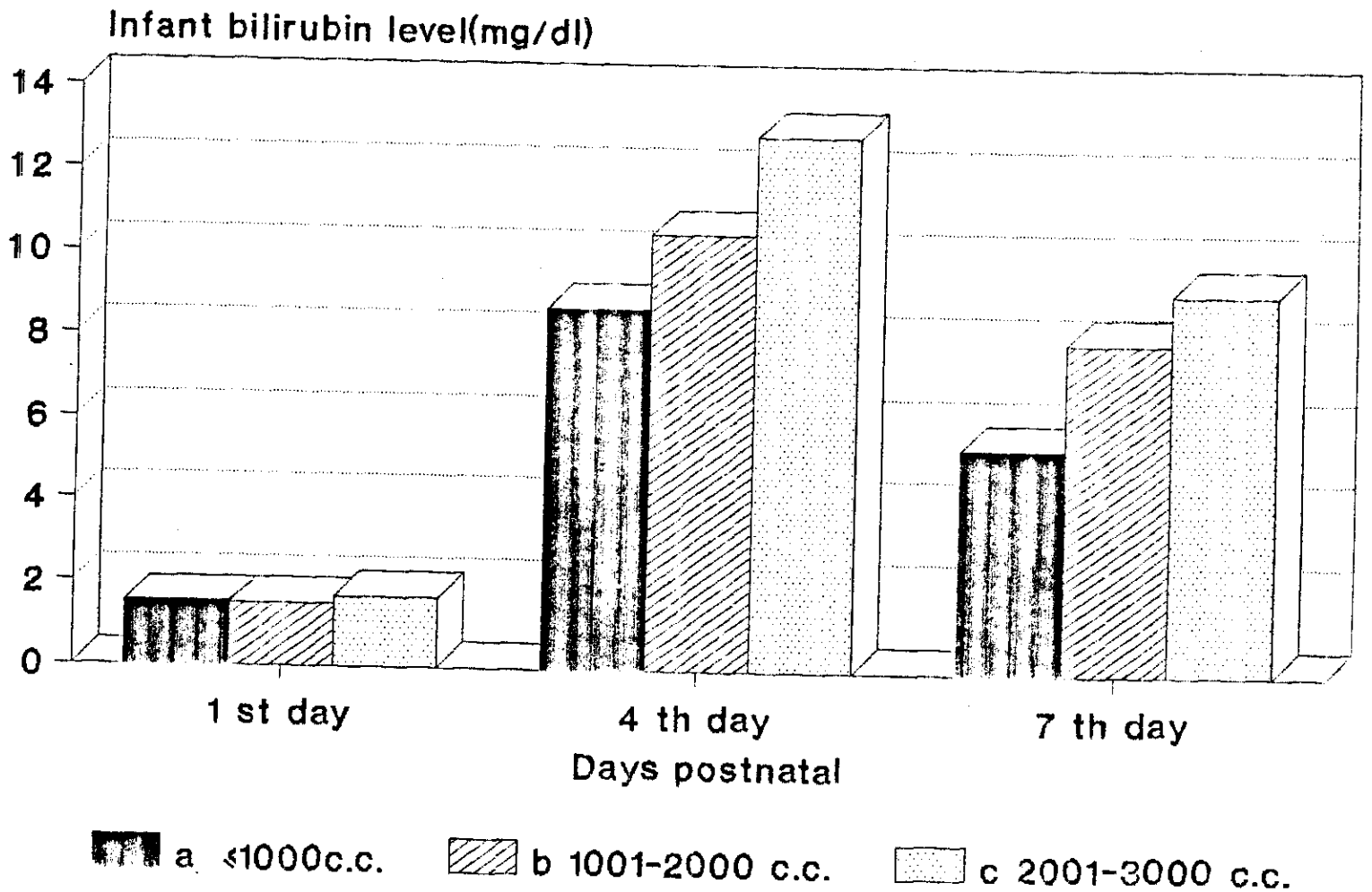


Table (3 B)

Effect of I.V.F. intake on levels of serum bilirubin in newborns of mothers who did not receive oxytocin in the 1 st,4 th and 7 th days post-natally.

		1 st day			4 th day			7 th day		
	Group	Group (a)	Group (b)	Group (c)	Group (a)	Group (b)	Group (c)	Group (a)	Group (b)	Group (c)
Serum indirect bilirubin	Mean	1.34	1.39	1.10	8.20	8.72	8.70	5.73	6.05	6.24
	S.D.	±0.57	±0.28	±0.46	±2.22	±2.69	±1.94	±2.01	±1.79	±2.23
	No.	12	9	1	8	6	1	7	6	4
	F	0.17			0.07			0.34		
		P≤0.05								
	Result	No significant differences			No significant differences			No significant differences		

Group (a) (I.V.F.) ≤ 1000 c.c.
Group (b) (I.V.F.) 1001-2000 c.c.
Group (c) (I.V.F.) 2001-3000 c.c.

Table (3 C)

Effect of I.V.F. intake on levels of serum bilirubin in newborns of mothers who received up to 10 U. of oxytocin in the 1 st, 4 th and 7 th days post-natally.

		1 st day			4 th day			7 th day		
	Group	Group (a)	Group (b)	Group (c)	Group (a)	Group (b)	Group (c)	Group (a)	Group (b)	Group (c)
Serum indirect bilirubin	Mean	1.58	1.26	2.11	8.96	7.73	9.6	5.04	4.40	8.50
	S.D.	±0.69	±0.30	±0.30	±2.54	±0.12	±0.70	±1.52	±1.36	±1.14
	No.	22	7	2	15	3	2	7	1	1
	F	1.31			0.44			2.14		
		P≤0.05								
	Result	No significant differences			No significant differences			No significant differences		

Group (a) (I.V.F.) ⩽ 1000 c.c.
Group (b) (I.V.F.) 1001-2000 c.c.
Group (c) (I.V.F.) 2001-3000 c.c.

Table (3 D)

Effect of I.V.F. intake on levels of serum bilirubin in newborns of mothers who received more than 10 U. of oxytocin in the 1 st, 4 th and 7 th days post-natally.

		1 st day		4 th day		7 th day	
	Group	Group (b)	Group (c)	Group (b)	Group (c)	Group (b)	Group (c)
Serum indirect bilirubin	Mean	1.72	1.65	13.63	13.46	12.47	9.23
	S.D.	±0.52	±0.89	±2.35	±2.31	±1.54	±2.03
	No.	9	21	6	19	3	7
	t	0.21		0.15		2.21	
	P≤0.05						
	Result	No significant differences		No significant differences		No significant differences	

Group (b) (I.V.F.) 1001-2000 c.c.
Group (c) (I.V.F.) 2001-3000 c.c.

Note:

Group (a) (≤ 1000 c.c.) not found here because it's not found with oxytocin > 10 U.

Table (4 A)

Effect of type of feeding (breast VS. artificial) on serum bilirubin values in newborns regardless of oxytocin intake in the 1 st, 4 th and 7 th days post-natally.

		1 st day		4 th day		7 th day	
	Group	Breast	Artificial	Breast	Artificial	Breast	Artificial
Serum indirect bilirubin	Mean	1.52	1.41	9.84	9.83	6.05	6.36
	S.D.	±0.73	±0.70	±3.39	±3.99	±2.85	±3.49
	No.	47	30	47	29	22	15
	t	0.64		0.01		1.21	
	P≤0.05						
	Result	No significant differences		No significant differences		No significant differences	

Fig. (6): Effect of Type of Feeding (Breast VS. Artificial) on Levels of Serum Bilirubin in Newborns in the 1st, 4th and 7th Days Post-natally.

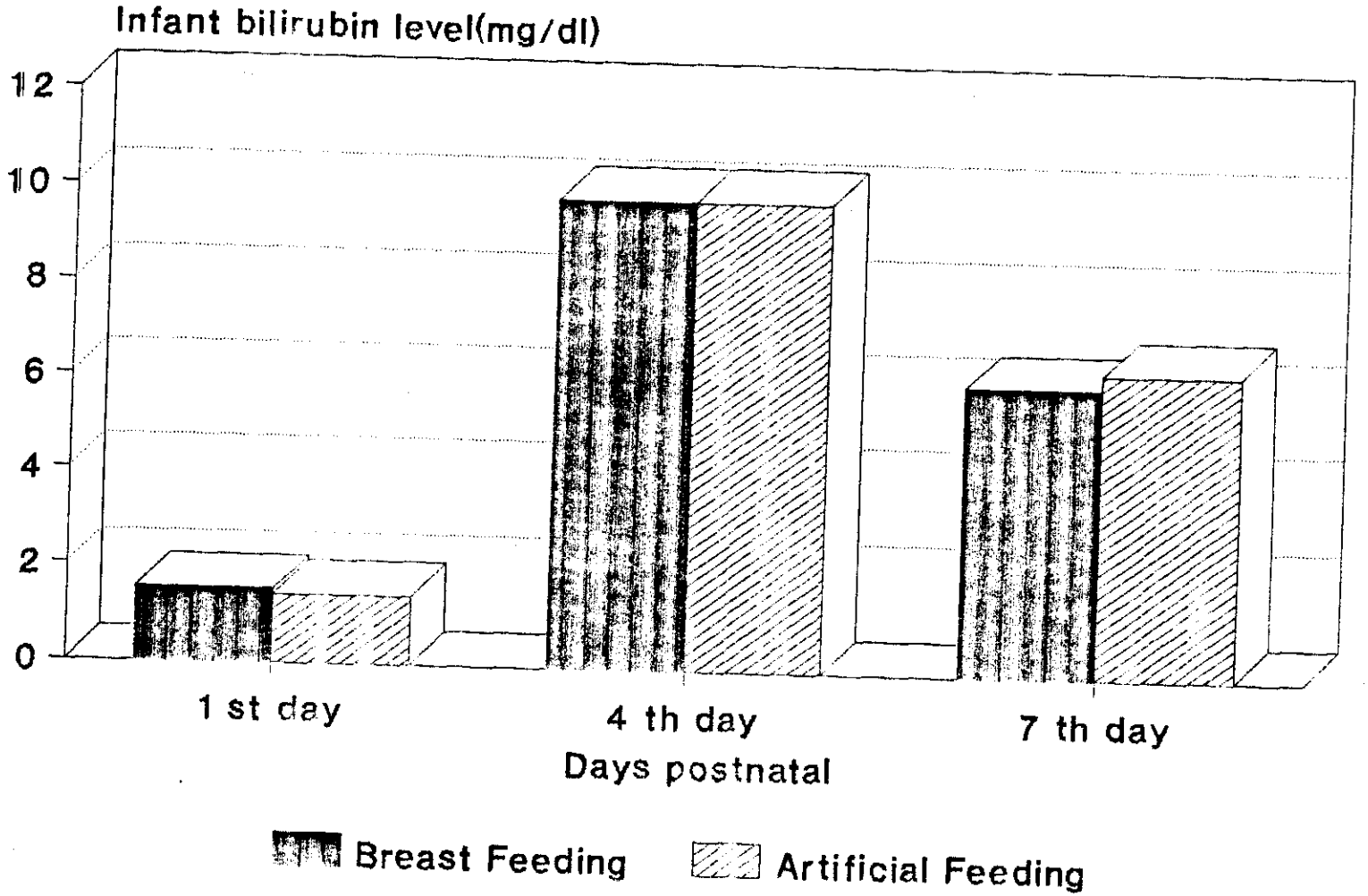


Table (4 B)

Effect of type of feeding (breast VS. artificial) on serum bilirubin values in newborns of mothers who did not receive oxytocin in the 1 st, 4 th and 7 th days post-natally.

		1 st day		4 th day		7 th day	
	Group	Breast	Artificial	Breast	Artificial	Breast	Artificial
Serum indirect bilirubin	Mean	1.16	1.36	8.28	5.72	5.25	5.07
	S.D.	±0.45	±0.62	±3.02	±0.61	±2.94	±1.15
	No.	22	9	22	9	12	6
	t	0.92		2.04		0.14	
	$P \leqslant 0.05$						
	Result	No significant differences		No significant differences		No significant differences	

Table (4 C)

Effect of type of feeding (breast VS. artificial) on serum bilirubin values in newborns of mothers who received up to 10 U. of oxytocin in the 1 st, 4 th and 7 th days post-natally.

		1 st day		4 th day		7 th day	
	Group	Breast	Artificial	Breast	Artificial	Breast	Artificial
Serum indirect bilirubin	Mean	1.70	1.45	8.66	8.81	5.40	5.30
	S.D.	±0.72	±0.70	±1.95	±2.60	±2.05	±1.29
	No.	11	10	11	9	5	4
	t	0.71		0.05		0.08	
	$P \leqslant 0.05$						
	Result	No significant differences		No significant differences		No significant differences	

Table (4 D)

Effect of type of feeding (breast VS. artificial) on serum bilirubin values in newborns of mothers who received more than 10 U. of oxytocin in the 1 st, 4 th and 7 th days post-natally.

		1 st day		4 th day		7 th day	
	Group	Breast	Artificial	Breast	Artificial	Breast	Artificial
Serum indirect bilirubin	Mean	1.86	1.41	13.08	14.04	8.64	11.76
	S.D.	±0.84	±0.75	±2.51	±1.94	±1.45	±2.15
	No.	14	11	14	11	5	5
	t	1.34		1.0		2.04	
	$P \leq 0.05$						
	Result	No significant differences		No significant differences		No significant differences	

Table (5 A)

Effect of infant sex on serum bilirubin levels in newborns regardless of oxytocin intake in the 1 st, 4 th and 7 th days post-natally.

		1 st day		4 th day		7 th day	
	Group	Male	Female	Male	Female	Male	Female
Serum indirect bilirubin	Mean	1.33	1.61	9.26	10.48	5.82	7.39
	S.D.	±0.62	±0.70	±3.67	±3.48	±2.55	±3.58
	No.	53	47	40	36	19	18
	t	1.58		1.46		1.51	
	P≤0.05						
	Result	No significant differences		No significant differences		No significant differences	

Fig. (7): Effect of Infant Sex on Levels of Serum Bilirubin in Newborns in the 1st, 4th and 7th Days Post-natally.

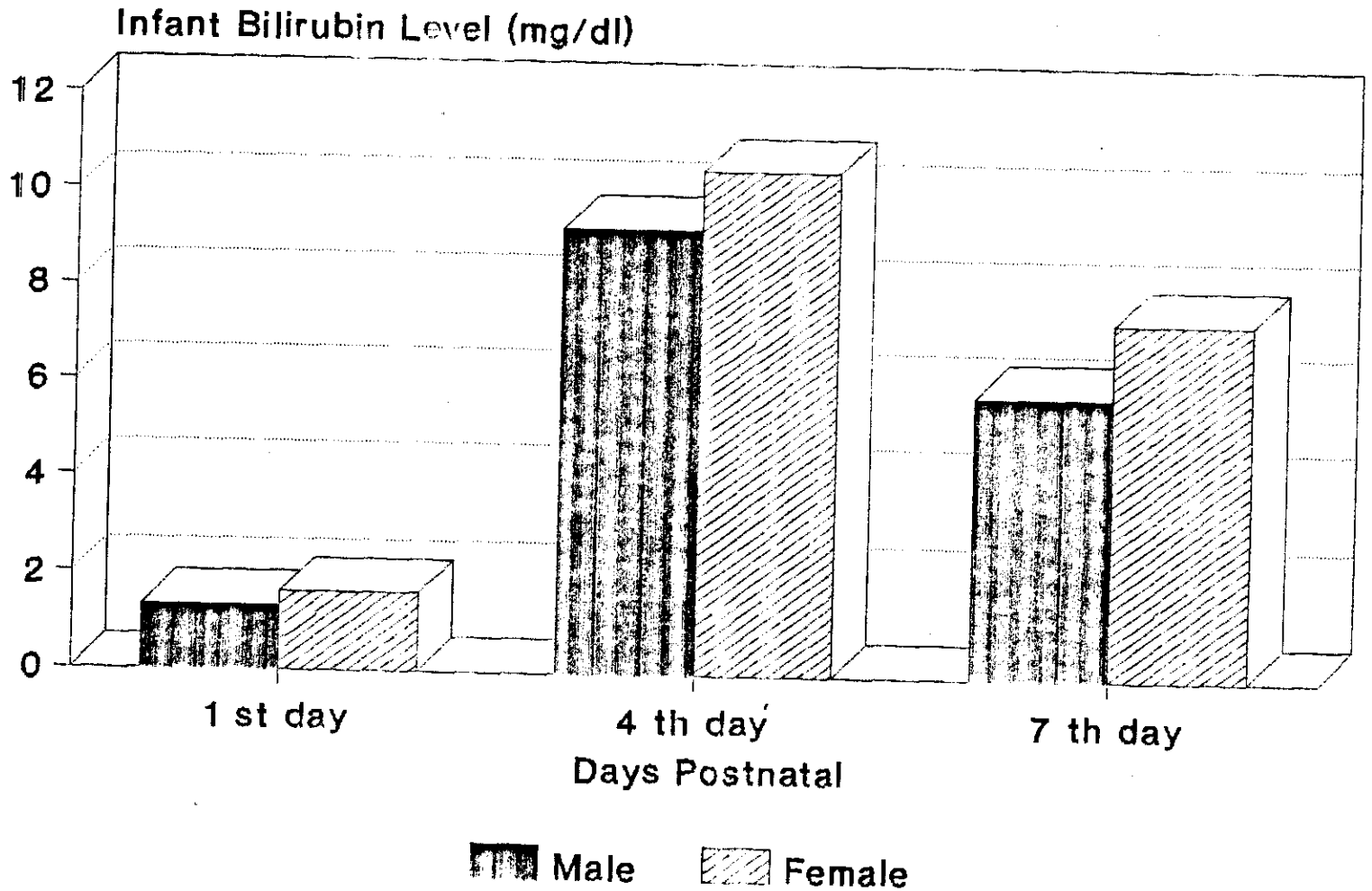


Table (5 B)

Effect of infant sex on serum bilirubin levels in newborns of mothers who did not receive oxytocin in the 1 st, 4 th and 7 th days post-natally.

		1 st day		4 th day		7 th day	
	Group	Male	Female	Male	Female	Male	Female
Serum indirect bilirubin	Mean	1.17	1.29	7.44	7.73	5.40	4.76
	S.D.	±0.47	±0.50	±2.66	±3.10	±2.40	±2.60
	No.	25	14	21	10	12	6
	t	0.70		0.26		0.49	
	$P \leqslant 0.05$						
	Result	No significant differences		No significant differences		No significant differences	

Table (5 C)

Effect of infant sex on serum bilirubin levels in newborns of mothers who received up to 10 U. of oxytocin in the 1 st, 4 th and 7 th days post-natally.

		1 st day		4 th day		7 th day	
	Group	Male	Female	Male	Female	Male	Female
Serum indirect bilirubin	Mean	1.40	1.69	8.61	9.03	4.60	5.96
	S.D.	±0.61	±0.63	±2.86	±1.61	±1.80	±1.45
	No.	15	16	9	11	4	5
	t	1.21		0.39		1.11	
	$P \leq 0.05$						
	Result	No significant differences		No significant differences		No significant differences	

Table (5 D)

Effect of infant sex on serum bilirubin levels in newborns of mothers who received more than 10 U. of oxytocin in the 1 st, 4 th and 7 th days post-natally.

		1 st day		4 th day		7 th day	
	Group	Male	Female	Male	Female	Male	Female
Serum indirect bilirubin	Mean	1.52	1.79	13.67	13.39	9.10	10.67
	S.D.	±0.78	±0.80	±2.18	±2.41	±0.37	±2.74
	No.	13	17	10	15	3	7
	t	0.88		0.29		0.89	
		P≤0.05					
	Result	No significant differences		No significant differences		No significant differences	

Table (6)

Effect of birth weight on levels of serum bilirubin in newborns on the 1st, 4th and 7th days post-natally.

		1 st day			4 th day			7 th day		
	Group	(I)	(II)	(III)	(I)	(II)	(III)	(I)	(II)	(III)
Serum indirect bilirubin	Mean	1.65	1.39	1.31	10.20	9.92	8.74	7.51	6.13	5.15
	S.D.	±0.67	±0.67	±0.60	±3.52	±3.71	±3.37	±3.37	±3.16	±0.62
	No.	32	56	12	25	40	11	15	18	4
	F	1.86			0.63			1.19		
		P≤0.05								
	Result	No significant differences			No significant differences			No significant differences		

Group (I) 2500 – 3000 gms.

Group (II) 3001 – 3500 gms.

Group (III) >3500 gms.

Table (7 A)

Effect of maternal gravidity on levels of serum bilirubin in newborns on the 1st, 4th and 7th days post-natally.

		1 st day			4 th day			7 th day		
	Group	Group (X)	Group (Y)	Group (Z)	Group (X)	Group (Y)	Group (Z)	Group (X)	Group (Y)	Group (Z)
Serum indirect bilirubin	Mean	1.61	1.42	1.11	12.27	8.53	8.27	8.77	5.35	6.87
	S.D.	±0.72	±0.65	±0.43	±2.94	±3.30	±2.98	±3.52	±2.42	±1.68
	No.	32	61	7	27	43	6	12	22	3
	F	1.64			12.02			5.39		
	P≤0.05									
	Result	No Significant differences			Significant differences			Significant differences		
		Group (Y)	Group (Z)		Group (Y)	Group (Z)		Group (Y)	Group (Z)	
	Group (X)				3.74 (1.57)*	4.01 (2.89)*		3.41 (2.11)*	1.9 (3.80)	
	Group (Y)					0.27 (2.80)			1.51 (3.63)	

Group (X) Primigravidae.

Group (Y) Multiparae.

Group (Z) Grandmultiparae.

Table (7 B)

Effect of oxytocin dose (<10 U. and>10 U.) on levels of serum bilirubin in newborns regardless of primigravidae mothers in the 1 st, 4 th and 7 th days post – natally.

		1 st day		4 th day		7 th day	
		⩽ 10 U.	> 10 U.	⩽ 10 U.	> 10 U.	⩽ 10 U.	> 10 U.
Serum indirect bilirubin	Mean	1.7	1.60	8.91	13.5	5.1	10.6
	S.D.	±0.56	±0.78	±1.42	±2.42	±2.14	±2.49
	No.	11	21	7	19	4	8
	t	0.37		4.54		3.45	
		Not significant		Significant		Significant	

$P \leqslant 0.05$

Fig. (8): Effect of Maternal Gravidity on Levels of Serum Bilirubin in Newborns in the 1st, 4th and 7th Days Post-natally.

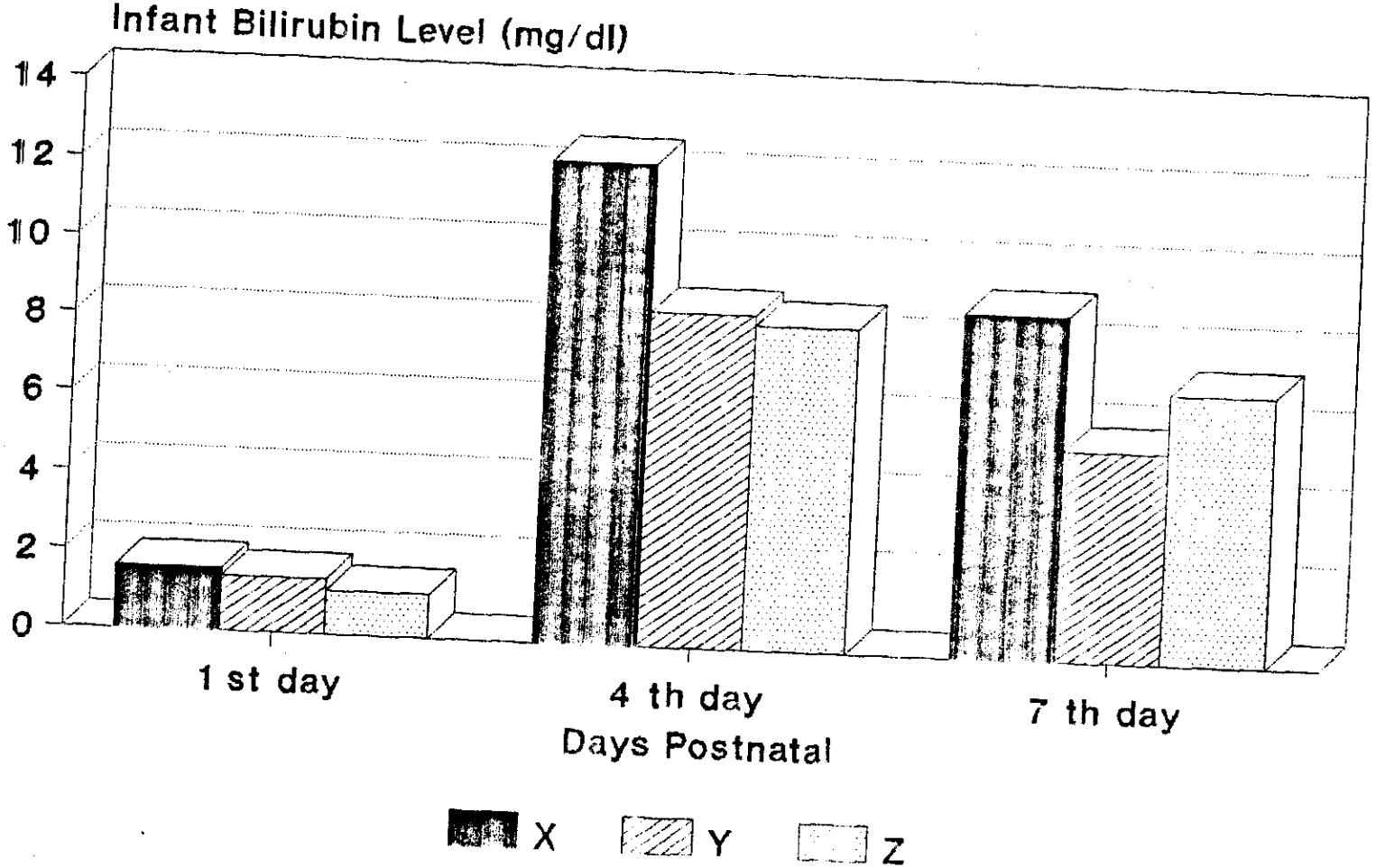


Table (8)

Effect of duration of labour on serum bilirubin of the newborns. in the 1 st, 4 th and 7 th days post – natally.

		1 st day		4 th day		7 th day	
		⩽ 10 hours	> 10 hours	⩽ 10 hours	> 10 hours	⩽ 10 hours	> 10 hours
Serum indirect bilirubin	Mean	1.46	1.50	9.43	11.53	6.25	8.74
	S.D.	±0.65	±0.79	±3.58	±3.33	±3.09	±2.98
	No.	84	16	61	15	32	5
	t	0.23		1.93		1.64	
		Not significant		Not sgnificant		Not significant	

$P \leqslant 0.05$

Fig. (9): Effect of Perinatal Asphyxia (Apgar Score at 1 minute) on Levels of Serum Bilirubin in Newborns in the 1st, 4th and 7th Days Post-natally.

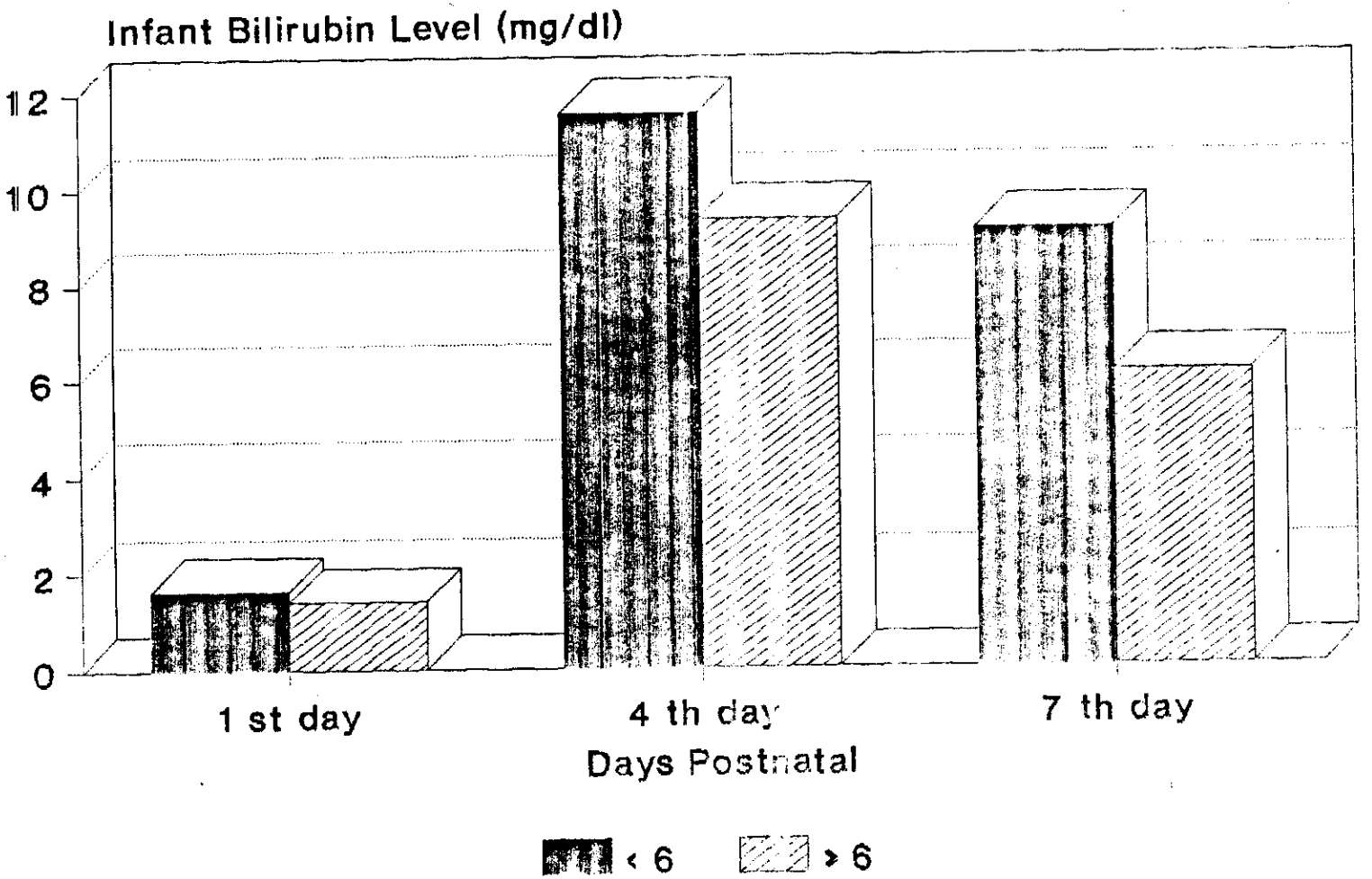


Table (10 A)

Effect of contraceptive pill usage on serum bilirubin of newborns regardless of oxytocin intake in the 1st, 4th and 7th days post – natally.

		1 st day		4 th day		7 th day	
		User	Non user	User	Non user	User	Non user
Serum indirect bilirubin	Mean	1.30	1.51	8.64	9.28	5.23	6.84
	S.D.	±0.55	±0.70	±2.70	±3.45	±1.48	±3.4
	No.	24	76	20	56	11	26
	t	1.45		1.53		1.78	
		Not significant		Not significant		Not significant	

$P \leqslant 0.05$

Fig. (10): Effect of Maternal Contraceptive pill Usage on Levels of Serum Bilirubin in Newborns in the 1st, 4th and 7th Days Post-natally.

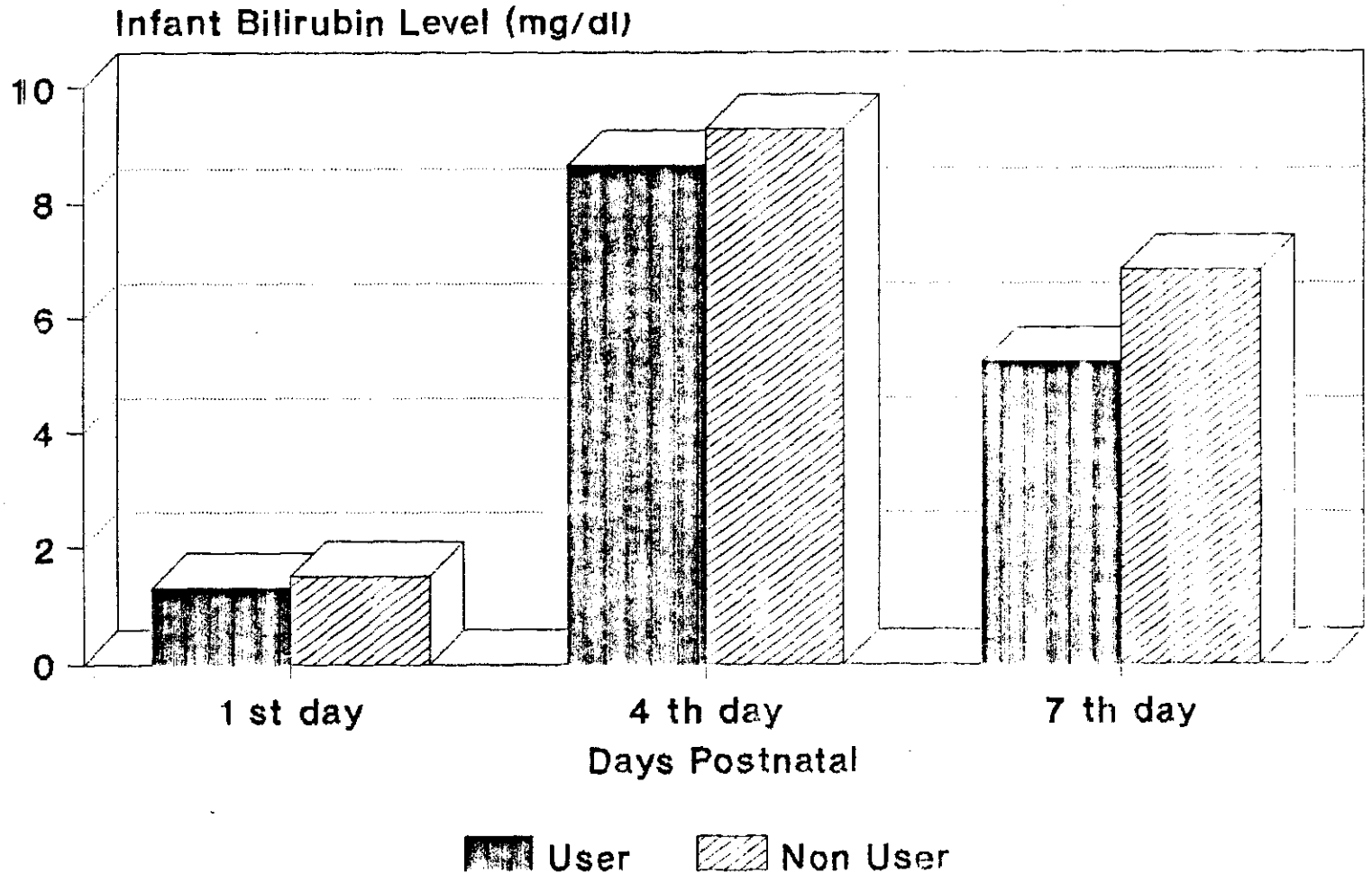


Table (10 B)
Effect of contraceptive pill usage on serum bilirubin of newborns in mothers who did not receive oxytocin in the 1 st, 4 th and 7 th days post – natally.

		1 st day		4 th day		7 th day	
		User	Non user	User	Non user	User	Non user
Serum indirect bilirubin	Mean	1.45	1.1	7.03	8.23	4.57	5.81
	S.D.	±0.54	±0.41	±1.66	±2.97	±1.32	±3.14
	No.	14	24	13	18	9	9
	t	2.01		1.95		1.03	
		Not significant		Not significant		Not significant	

$P \leqslant 0.05$

Table (10 C)

Effect of contraceptive pill usage on serum bilirubin of newborns in mothers who received up to 10 U. of oxytocin in the 1 st, 4 th and 7 th days post – natally.

		1 st day		4 th day		7 th day	
		User	Non user	User	Non user	User	Non user
Serum indirect bilirubin	Mean	1.27	1.69	9.37	8.56	5.7	5.26
	S.D.	±0.55	±0.59	±2.9	±1.77	±1.80	±1.72
	No.	8	24	7	13	2	7
	t	1.93		0.74		0.28	
		Not significant		Not significant		Not significant	

$P \leqslant 0.05$

Table (10 D)

Effect of contraceptive pill usage on serum bilirubin of newborns in mothers who received more than 10 U. of oxytocin in the 1st, 4th and 7th days post – natally.

		1 st day		4 th day		7 th day	
		User	Non user	User	Non user	User	Non user
Serum indirect bilirubin	Mean	1.07	1.72	12.87	13.5	9.95	10.2
	S.D.	±0.07	±0.81	±1.9	±2.32	±2.2	±2.41
	No.	2	28	11	25	8	10
	t	1.09		1.54		0.96	
		Not significant		Not significant		Not significant	

$P \leqslant 0.05$

Table (11)

Effect of maternal age on levels of serum bilirubin in newborns on the 1st, 4th and 7th days post-natally.

		1 st day			4 th day			7 th day		
	Group	(o)	(p)	(q)	(o)	(p)	(q)	(o)	(p)	(q)
Serum indirect bilirubin	Mean	1.85	1.43	1.55	11.63	10.02	77.49	8.5	6.83	4.13
	S.D.	±0.48	±0.68	±0.62	±2.78	±3.51	±3.95	±2.64	±3.17	±2.46
	No.	5	86	9	4	64	8	1	32	4
	F	0.98			2.29			1.46		
		P≤0.05								
	Result	No significant differences			No significant differences			No significant differences		

Group (o) < 20 years.

Group (p) 20 – 34 years.

Group (q) ≥35 years.

Table (12)

Effect of maternal hyponatremia on serum bilirubin of newborns in the 1 st, 4 th and 7 th days post – natally.

		1 st day		4 th day		7 th day	
		< 130 meq.	⩾ 130 meq.	< 130 meq.	⩾ 130 meq.	< 130 meq.	⩾ 130 meq.
Serum indirect bilirubin	Mean	1.64	1.42	11.48	9.54	10.8	8.23
	S.D.	±0.82	±0.65	±2.91	±3.48	±1.95	±3.05
	No.	5	88	5	69	3	33
	t	0.72		1.43		1.48	
		Not significant		Not significant		Not significant	

$P \leqslant 0.05$

Fig. (11): Effect of Maternal Hyponatremia on Levels of Serum Bilirubin in Newborns in the 1st, 4th and 7th Days Post-natally.

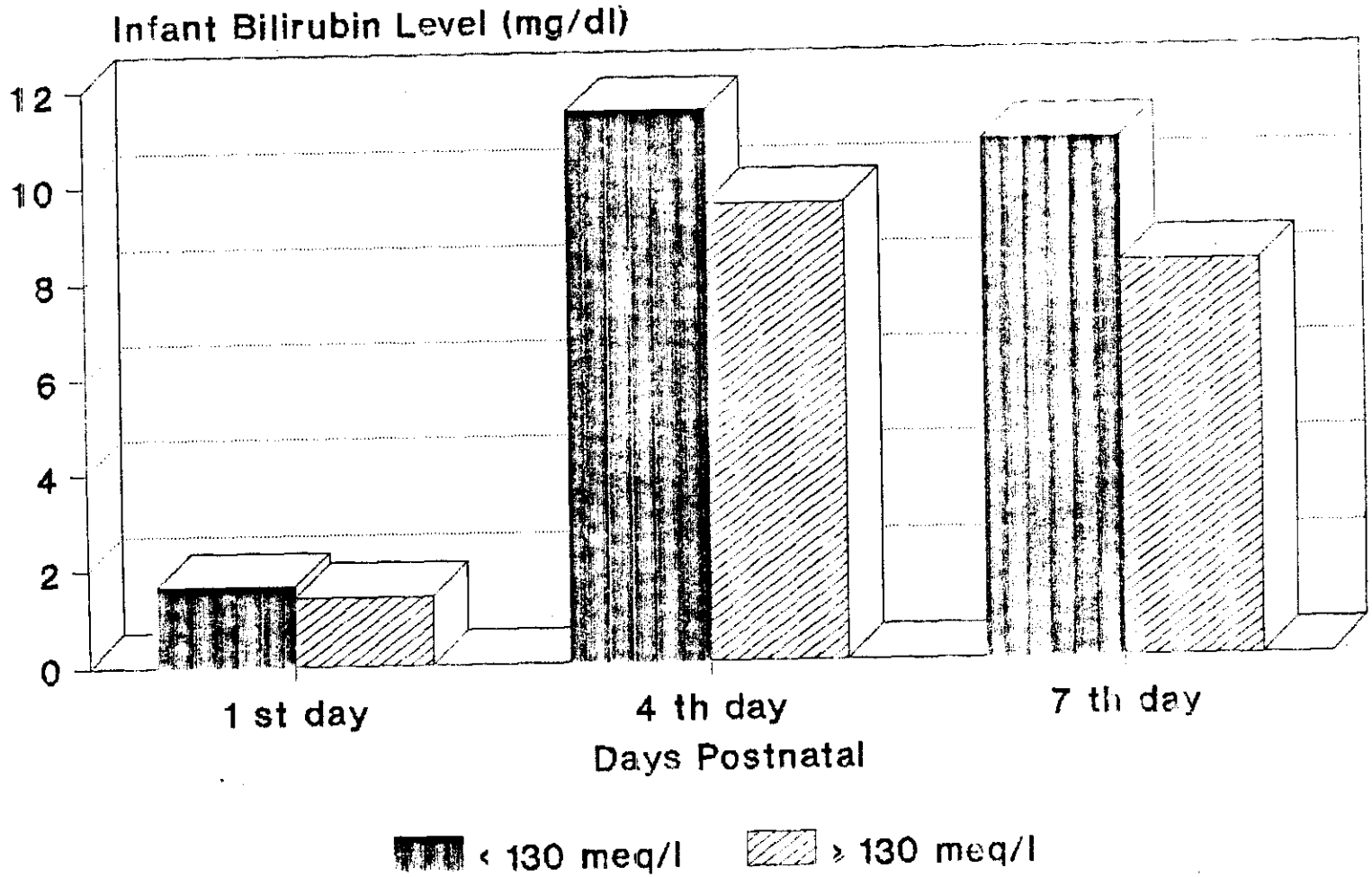


Table (13)
Effect of infant serum Sodium on his bilirubin level in the 1st day post – natally.

		1 st day	
		< 130 meq.	⩾ 130 meq.
Serum indirect bilirubin	Mean	1.85	1.45
	S.D.	±0.85	±0.65
	No.	6	86
	t	1.42	
		Not significant	

$P \leqslant 0.05$

Table (14)

Effect of oxytocin and I.V.F. intake on levels of serum Sodium of newborns in the 1st, 4th and 7th days post-natally.

		1 st day			4 th day			7 th day		
	Group	Group (1)	Group (2)	Group (3)	Group (1)	Group (2)	Group (3)	Group (1)	Group (2)	Group (3)
Serum Sodium	Mean	137.41	133.45	131.3	136.81	135.27	134.41	136.33	135.56	136.11
	S.D.	±3.71	±2.6	±3.98	±3.23	±2.05	±3.05	±3.13	±1.77	±2.15
	No.	17	22	61	16	15	46	9	9	19
	F	17.96			3.88			0.25		
	P≤0.05									
	Result	Significant differences			Significant differences			No significant differences		
		Group (2)	Group (3)		Group (2)	Group (3)				
	Group (1)	3.96 (2.46)*	6.11 (2.05)*		1.55 (2.14)*	2.40 (1.73)*				
	Group (2)		2.15 (1.92)*			0.85 (1.77)				

Group (1) (No I.V.F.)

Group (2) (I.V.F.)

Group (3) (Oxytocin)

Fig. (12): Effect of Oxytocin and I.V.F. on Levels of Serum Sodium in Newborns in the 1st, 4th and 7th Days Post-natally.

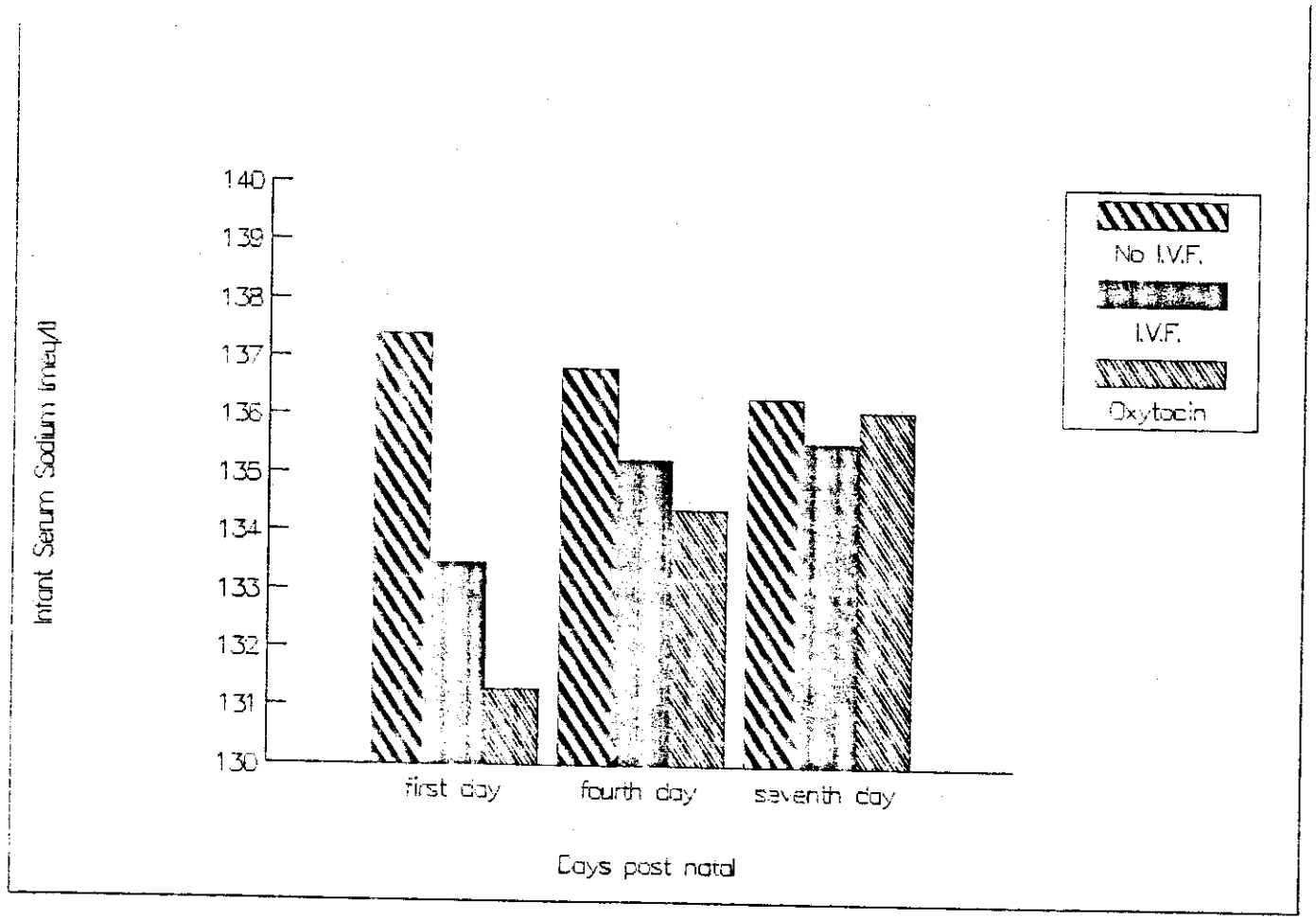


Table (15 A)
Effect of oxytocin dose on levels of serum Sodium in newborns regardless of amount of I.V.F. in the 1 st, 4 th and 7 th days post – natally.

		1 st day		4 th day		7 th day	
		⩽ 10 U.	> 10 U.	⩽ 10 U.	> 10 U.	⩽ 10 U.	> 10 U.
Serum Sodium	Mean	133.53	129.07	136.33	132.8	136.67	135.6
	S.D.	±4.14	±2.16	±2.71	±2.30	±2.21	±1.96
	No.	31	30	21	25	9	10
	t	5.15		4.68		1.05	
		Significant		Significant		Not significant	

$P \leqslant 0.05$

Fig. (13): Effect of OXytocin Dose on Serum Sodium in Newborns in the 1st, 4th and 7th Days Post-natally.

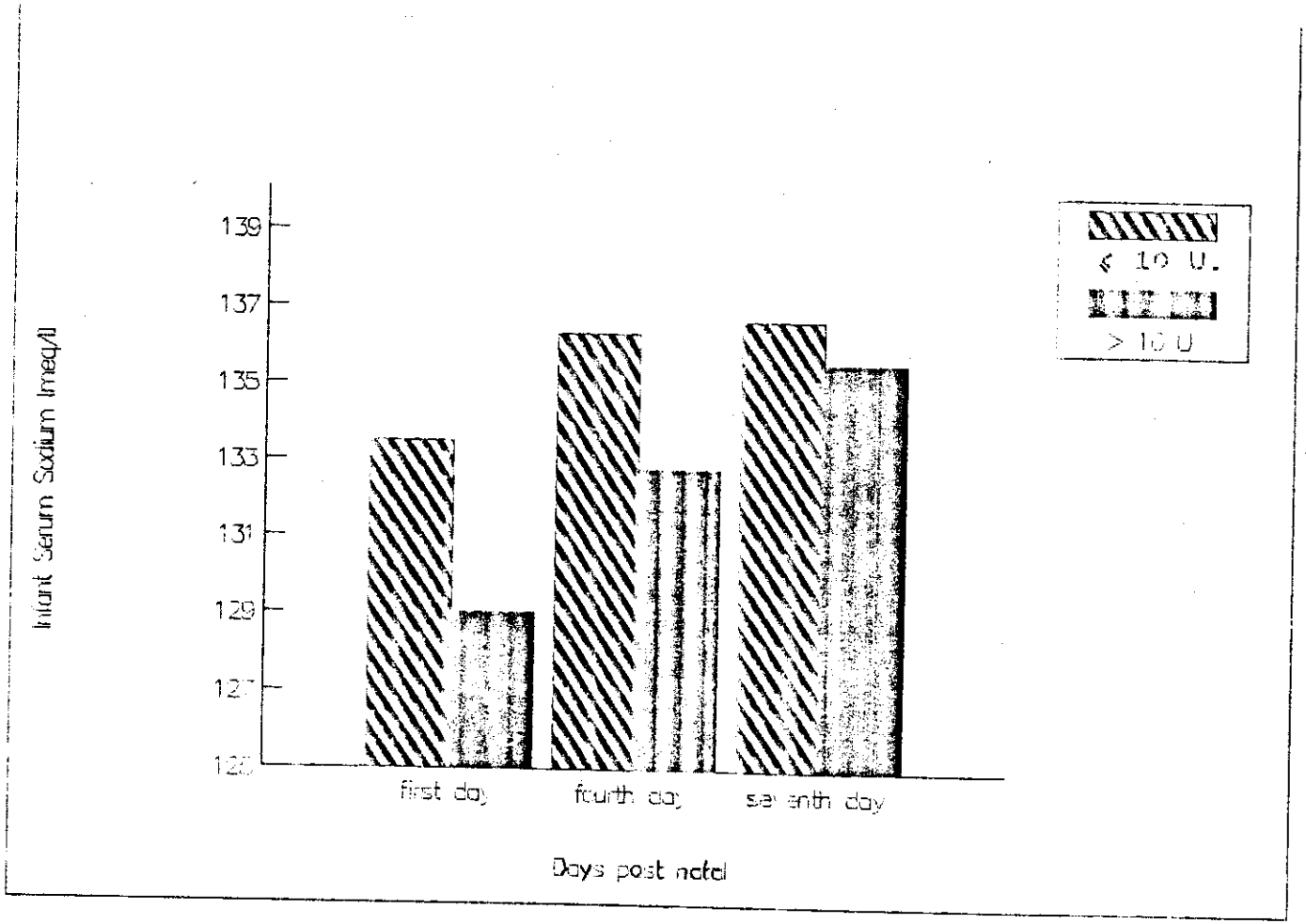


Table (15 B)

Effect of oxytocin dose on levels of serum Sodium in newborns of mothers who received I.V.F. from 1001 – 2000 c.c. in the 1st, 4th and 7th days post – natally.

		1 st day		4 th day		7 th day	
		⩽ 10 U.	> 10 U.	⩽ 10 U.	> 10 U.	⩽ 10 U.	> 10 U.
Serum Sodium	Mean	131.29	129.78	136.0	134.33	136.0	136.67
	S.D.	±1.03	±2.35	±2.45	±2.49	±0.86	±0.94
	No.	7	9	4	6	1	3
	t	1.48		0.93		0.50	
		Not significant		Not significant		Not significant	

$P \leqslant 0.05$

Table (15 C)

Effect of oxytocin dose on levels of serum Sodium in newborns of mothers who received I.V.F. from 2001 – 3000 c.c. in the 1 st, 4 th and 7 th days post – natally.

		1 st day		4 th day		7 th day	
		⩽ 10 U.	> 10 U.	⩽ 10 U.	> 10 U.	⩽ 10 U.	> 10 U.
Serum Sodium	Mean	131.0	128.76	138.0	132.32	134	135.14
	S.D.	±0.97	±2.0	±1.2	±2.0	±0.78	±2.1
	No.	2	21	1	19	1	7
	t	1.07		2.69		0.47	
		Not significant		Not significant		Not significant	

$P \leqslant 0.05$

Table (16 A)

Effect of I.V.F. intake on levels of serum Sodium in newborns regardless of oxytocin intake in the 1 st, 4 th and 7 th days post-natally.

		1 st day			4 th day			7 th day		
	Group	Group (a)	Group (b)	Group (c)	Group (a)	Group (b)	Group (c)	Group (a)	Group (b)	Group (c)
Serum Sodium	Mean	134.68	131.16	128.88	136.39	134.81	132.64	136.45	136.11	135.0
	S.D.	±3.89	±2.24	±1.94	±2.62	±2.16	±2.23	±2.15	±1.66	±2.00
	No.	33	26	24	23	16	22	11	9	8
	F	26.55			13.55			1.19		
	P≤0.05									
	Result	Significant differences			Significant differences			No significant differences		
		Group (b)	Group (c)		Group (b)	Group (c)				
	Group (a)	3.52 (1.59)*	5.8 (1.61)*		1.59 (1.58)*	3.75 (1.45)*				
	Group (b)		2.29 (1.69)*			2.18 (1.59)*				

Group (a) (I.V.F.) ≤ 1000 c.c.

Group (b) (I.V.F.) 1001-2000 c.c.

Group (c) (I.V.F.) 2001-3000 c.c.

Fig. (14): Effect of I.V.F. on Serum Sodium in Newborns in the 1st, 4th and 7th Days Post-natally.

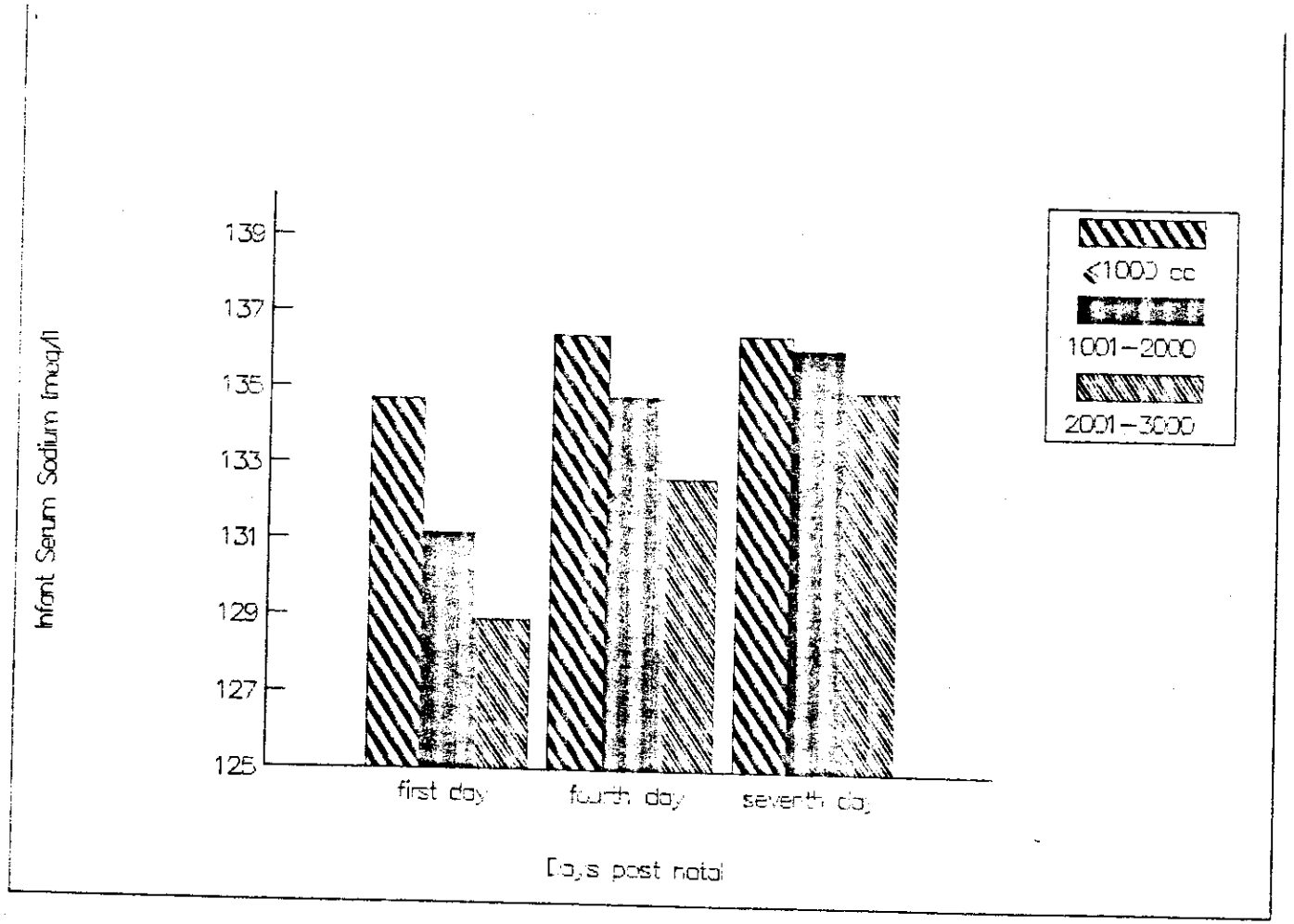


Table (16 B)

Effect of I.V.F. intake on levels of serum Sodium in newborns of mothers who did not receive oxytocin in the 1 st, 4 th and 7 th days post-natally.

		1 st day			4 th day			7 th day		
	Group	Group (a)	Group (b)	Group (c)	Group (a)	Group (b)	Group (c)	Group (a)	Group (b)	Group (c)
Serum Sodium	Mean	134.70	132.44	130	136.25	134.50	132.0	135.2	134.87	136.11
	S.D.	±2.49	±2.01	±1.31	±2.11	±0.96	±0.68	±1.73	±2.04	±1.46
	No.	12	9	1	8	6	1	6	4	3
	F	3.17			3.21			2.16		
		$P \leqslant 0.05$								
	Result	No significant differences			No significant differences			No significant differences		

Group (a) (I.V.F.) ⩽ 1000 c.c.

Group (b) (I.V.F.) 1001-2000 c.c.

Group (c) (I.V.F.) 2001-3000 c.c.

Table (16 C)

Effect of I.V.F. intake on levels of serum Sodium in newborns of mothers who received up to 10 U. of oxytocin in the 1 st, 4 th and 7 th days post-natally.

		1 st day			4 th day			7 th day		
	Group	Group (a)	Group (b)	Group (c)	Group (a)	Group (b)	Group (c)	Group (a)	Group (b)	Group (c)
Serum Sodium	Mean	134.67	131.29	129.50	136.47	136.00	136.0	137.14	136.0	134.0
	S.D.	±4.40	±1.03	±1.50	±2.85	±2.45	±2.00	±2.23	±2.15	±1.56
	No.	22	7	2	15	4	2	7	1	1
	F	3.06			0.05			0.79		
		P⩽0.05								
	Result	No significant differences			No significant differences			No significant differences		

Group (a) (I.V.F.) ⩽ 1000 c.c.

Group (b) (I.V.F.) 1001-2000 c.c.

Group (c) (I.V.F.) 2001-3000 c.c.

Fig. (15): Effect of Mother Serum Soduim on Serum Sodium of thier Newborns in the 1st, 4th and 7th Days Post-natally.

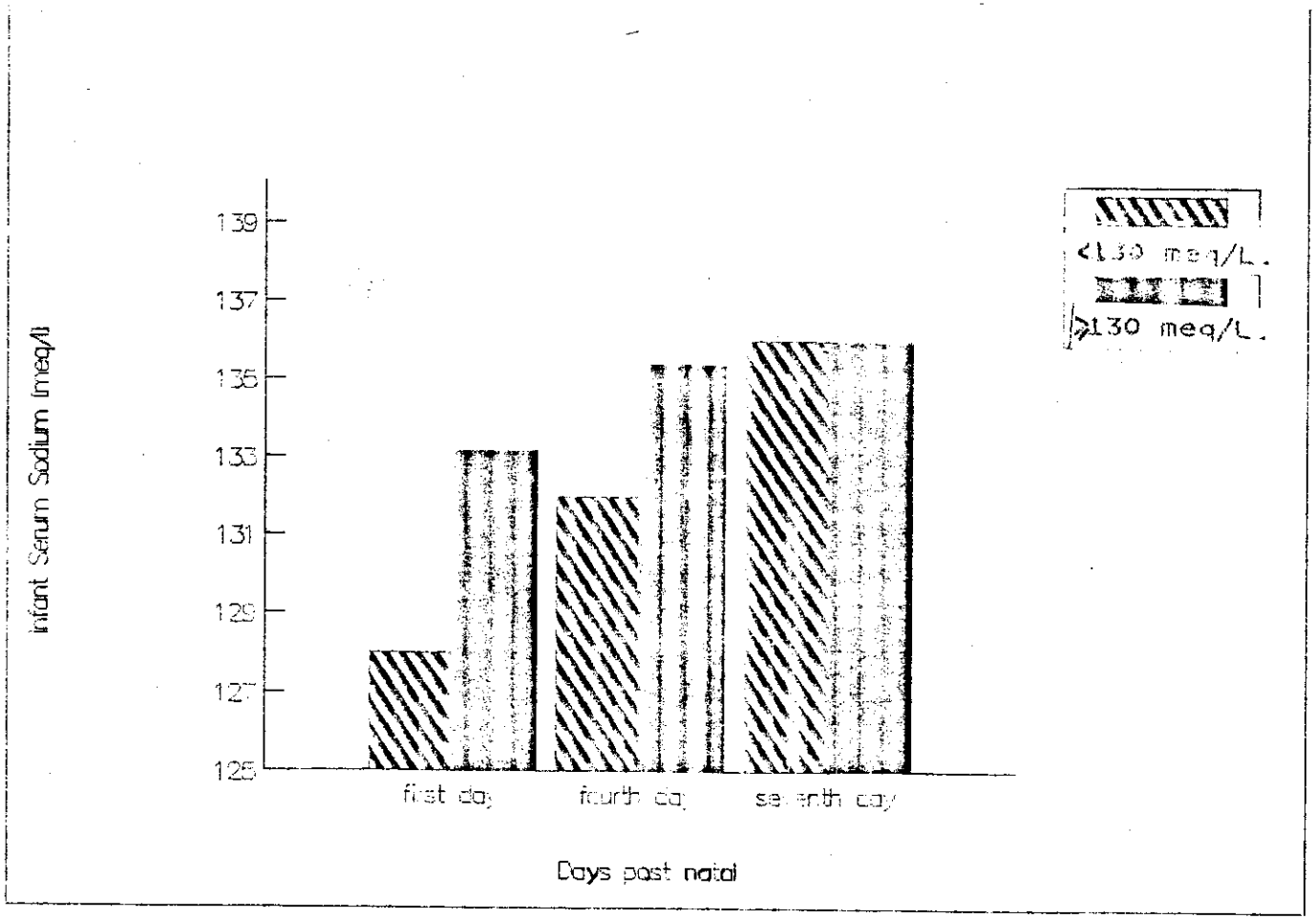


Table (18)

Effect of mother hemoglobin on infant hemoglobin in the 1st day post – natally.

		1 st day	
		< 12 gm%	⩾ 12 gm%
Hemoglobin	Mean	15.66	15.58
	S.D.	±0.83	±0.81
	No.	44	56
	t	0.46	
		Not significant	

$P \leqslant 0.05$

Table (19)
Arrangement of factors affecting infant bilirubin according to the correlation analysis.

Ser. No.	Factor	Correlation coefficient (r)			Correlation type
		1 st day	4 th day	7 th day	
1	Oxytocin	+ 0.10	+ 0.78	+ 0.75	+
2	I.V.F.	+ 0.11	+ 0.57	+ 0.50	+
3	Gravidity	– 0.19	– 0.49	– 0.39	–
4	Apgar score	– 0.05	– 0.24	– 0.33	–
5	Maternal sodium	+ 1.15	– 0.23	– 0.19	–
6	Duration of labour	+ 0.11	+ 0.21	– 0.20	+
7	Maternal age	– 0.18	– 0.18	– 0.16	–
8	Infant weight	– 0.15	– 0.10	– 0.14	–
9	Infant sodium	– 0.10	–	–	–

Note :

5–9 Not significant.