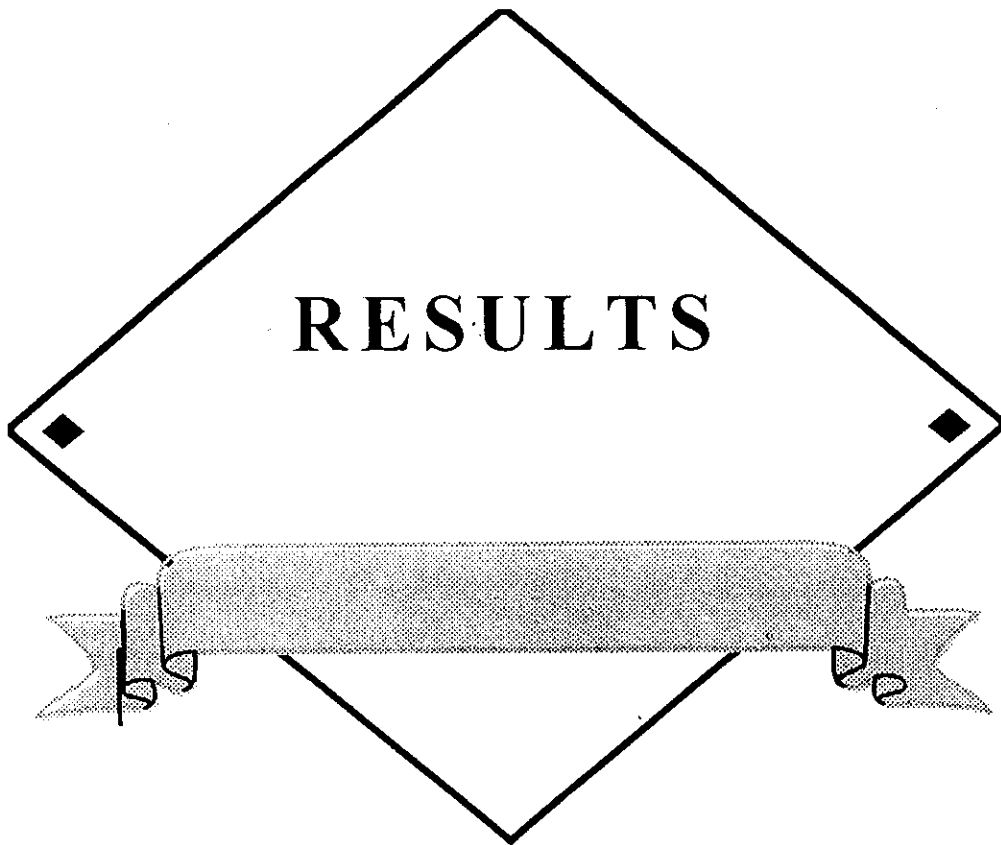


RESULTS



RESULTS

The results of the present study are illustrated in 13 tables and 7 figures.

Table 1 shows the distribution of studied children and from the table we found that studied children are classified into 30 (33.34%) control, 20 (22.27%) mild, moderate and severe malnourished for each group.

Table 2 shows the age distribution of studied children and from the table we found that in control group 15 (50%) are ≤ 1 year and 15 (50%) > 1 year, in mild group 8 (40%) are ≤ 1 year and 12 (60%) are > 1 year, in moderate group 7 (35%) are ≤ 1 year and 13 (65%) are > 1 year and in severe group 9 (45%) are ≤ 1 year and 11 (55%) are > 1 year.

Table 3 shows the sex distribution of studied children and from the table we found that in control group 18 (60%) are males and 12 (40%) are females, in mild group 13 (65%) are males and 7 (35%) are females, in moderate group 15 (75%) are males and 5 (25%) are females and in severe group 13 (65%) are males and 7 (35%) are females.

Table 4 & Figure 1 : show the seroconversion rate in control and malnourished group. From the table we found that in control group 14 infants (46.66%) are low responders and 16 infants (53.33%) are high responders while in malnourished group 5 infants (8.34%) are non responders, 44 infants (73.33%) are low responders and 11 infants (18.33%) are high responders.

Table 5 & Figure 2 : Show the seroconversion rate in different degrees of malnutrition. From the table we found that in mild group 9 infants (45%) are low responders and 11 infants (55%) are high responders. In moderate group all infants (100%) are low responders. In severe group 5 infants (25%) are non responders and 15 infants (75%) are low responders.

Table 6 & Figure 3 : Show comparison between the mean Anti HBsAb titre in diseased versus control group. From the table we found a statistically significant difference between the mean Anti HBsAb titre in both group.

Tables 7,8,9 & Figure 4 : Show comparison between the mean Anti HBsAb titre in different degrees of malnutrition versus control group. We found that no statistically significant difference between the mean titre in mild versus control. However, a statistically significant difference is detected between the mean Anti HBsAb titre in both moderate and severe group versus control group.

Table 10, 11 & Figure 5 : Show the effect of age and sex on the mean Anti HBsAb titre in malnourished children. From the tables we found that neither the age nor the sex affects the response.

Table 12, 13 & Figure 6 : Show the effect of the pattern of feeding and complication on the mean Anti HBsAb titre in malnourished children. From the tables a statistically significant difference is detected between the mean titre in breast and artificially fed infants and between the mean titre in complicated and non complicated cases.

Clinical and laboratory data in control group

No.	Age	Sex	Weight	Feeding	Recurrent infection	Midarm circumf.	Head circumf.	Chest circumf.	HBsAg	Anti HBcAb	Anti HBsAb 175 IU/L
1	24 m	Male	11 kg	Breast	- ve	14.5 cm	47 cm	47 cm	- ve	- ve	175
2	18 m	Female	10.20 kg	Breast	- ve	13.5 cm	46 cm	45.5 cm	- ve	- ve	50
3	7 m	F	6.5 kg	Artificial	- ve	13.5 cm	42 cm	41.5 cm	- ve	- ve	125
4	9 m	M	8.750 kg	Breast	- ve	13.5 cm	43 cm	43 cm	- ve	- ve	50
5	13 m	M	9 kg	Breast	+ ve	13.5 cm	45 cm	45.5 cm	- ve	- ve	25
6	10 m	F	8 kg	Breast	- ve	13.5 cm	43 cm	43 cm	- ve	- ve	95
7	12 m	F	10 kg	Breast	- ve	14 cm	45 cm	45 cm	- ve	- ve	105
8	20 m	F	11 kg	Breast	- ve	13.5 cm	46 cm	46 cm	- ve	- ve	25
9	18 m	M	7.5 kg	Breast	- ve	13.5 cm	46 cm	46.5 cm	- ve	- ve	50
10	10 m	M	9 kg	Artificial	- ve	13.5 cm	44 cm	44 cm	- ve	- ve	105
11	8 m	M	7 kg	Breast	- ve	14 cm	43 cm	42.5 cm	- ve	- ve	65
12	9 m	M	8 kg	Breast	- ve	13.5 cm	43 cm	43 cm	- ve	- ve	150
13	10 m	F	8.5 kg	Breast	+ ve	14 cm	43.5 cm	44 cm	- ve	- ve	85
14	9 m	M	9 kg	Breast	- ve	14 cm	43 cm	42.5 cm	- ve	- ve	125
15	13 m	F	9.5 kg	Artificial	+ ve	14.5 cm	45 cm	45 cm	- ve	- ve	70

Clinical and laboratory data in control group (cont.)

No.	Age	Sex	Weight	Feeding	Recurrent infection	Midarm circumf.	Head circumf.	Chest circumf.	HBsAg	Anti HBcAb	Anti HBsAb
16	16 m	Female	10 kg	Breast	-ve	14.5 cm	45.5 cm	45.5 cm	-ve	-ve	160 IU/L
17	24 m	Male	11.5 kg	Breast	-ve	13.5 cm	46.5 cm	46 cm	-ve	-ve	100
18	22 m	F	12 kg	Breast	+ve	14 cm	46 cm	45 cm	-ve	-ve	140
19	9 m	M	8.25 kg	Breast	-ve	13.5 cm	43 cm	42 cm	-ve	-ve	130
20	16 m	M	10.400 kg	Breast	-ve	14 cm	45.5 cm	45 cm	-ve	-ve	85
21	10 m	M	9 kg	Breast	-ve	14 cm	44 cm	44.5 cm	-ve	-ve	60
22	13 m	M	9.5 kg	Breast	-ve	14 cm	45 cm	45 cm	-ve	-ve	95
23	15 m	M	10 kg	Breast	-ve	13.5 cm	45 cm	45 cm	-ve	-ve	75
24	12 m	F	9 kg	Artificial	+ve	13.5 cm	45 cm	45.5 cm	-ve	-ve	155
25	9 m	F	8.300 kg	Breast	-ve	14 cm	43 cm	43 cm	-ve	-ve	105
26	13 m	F	9 kg	Breast	-ve	13.5 cm	44 cm	45 cm	-ve	-ve	160
27	14 m	M	11 kg	Breast	-ve	14 cm	45 cm	45.5 cm	-ve	-ve	140
28	15 m	M	10.800 kg	Breast	-ve	14 cm	45 cm	45 cm	-ve	-ve	170
29	18 m	M	11.200 kg	Breast	-ve	14.5 cm	45.5 cm	45 cm	-ve	-ve	105
30	18 m	M	8.700 kg	Breast	-ve	13.5 cm	43 cm	43.5 cm	-ve	-ve	30

Clinical and laboratory data in cases with mild malnutrition

No.	Age	Sex	Weight	Feeding	Recurrent infection	Midarm circumf.	Head circumf.	Chest circumf.	HBsAg	Anti HBcAb	Anti HBsAb Iu/L
1	18 m	Male	9.300 kg	Breast	- ve	13.5 cm	46 cm	46 cm	- ve	- ve	85
2	12 m	Female	7.300 kg	Breast	- ve	13 cm	45 cm	45.5 cm	- ve	- ve	190
3	16 m	F	8.400 kg	Breast	- ve	13 cm	45.5 cm	46 cm	- ve	- ve	100
4	10 m	M	8 kg	Breast	- ve	12.5 cm	44 cm	44 cm	- ve	- ve	150
5	9 m	M	6.800 kg	Artificial	- ve	12.5 cm	43 cm	43.5 cm	- ve	- ve	50
6	13 m	M	8.100 kg	Artificial	- ve	13 cm	45 cm	45 cm	- ve	- ve	75
7	14 m	M	8 kg	Breast	- ve	13 cm	45.5 cm	45.5 cm	- ve	- ve	200
8	20 m	M	9.700 kg	Breast	- ve	13.5 cm	46.5 cm	47 cm	- ve	- ve	100
9	15 m	M	7.800 kg	Breast	- ve	13 cm	46 cm	46 cm	- ve	- ve	100
10	10 m	F	7 kg	Breast	- ve	12.5 cm	44 cm	45 cm	- ve	- ve	80
11	9 m	F	7 kg	Breas	- ve	12.5 cm	43 cm	44 cm	- ve	- ve	65
12	22 m	F	10 kg	Breast	- ve	13.5 cm	46 cm	46 cm	- ve	- ve	120
13	13 m	M	8 kg	Breast	+ve	13 cm	45 cm	45.5 cm	- ve	- ve	75
14	15 m	M	8.200 kg	Artificial	- ve	13 cm	45.5 cm	46 cm	- ve	- ve	80
15	24 m	M	10 kg	Breast	- ve	13.5 cm	47 cm	48 cm	- ve	- ve	60
16	9 m	F	7.5 kg	Breast	- ve	12.5 cm	44 cm	45 cm	- ve	- ve	100
17	10 m	F	8 kg	Breast	- ve	12.5 cm	44 cm	44 cm	- ve	- ve	130
18	12 m	M	7.800 kg	Breast	- ve	12.5 cm	45 cm	45.5 cm	- ve	- ve	90
19	14 m	M	8.200 kg	Breast	- ve	12.5 cm	45.5 cm	46 cm	- ve	- ve	95
20	20 m	M	10 kg	Breast	- ve	13 cm	46 cm	46 cm	- ve	- ve	80

Clinical and laboratory data in cases with moderate malnutrition

No.	Age	Sex	Weight	Feeding	Recurrent infection	Midarm circumf.	Head circumf.	Chest circumf.	HBsAg	Anti HBcAb	Anti HBsAb
1	24 m	Male	8.400 kg	Breast	- ve	13.5 cm	47 cm	46.5 cm	- ve	- ve	65 lu/L
2	18 m	M	6.800 kg	Breast	- ve	13 cm	46 cm	45 cm	- ve	- ve	65
3	15 m	M	7.100 kg	Breast	+ ve	12.5 cm	45 cm	45 cm	- ve	- ve	20
4	24 m	Female	7.5 kg	Artificial	- ve	13.5 cm	47 cm	46 cm	- ve	- ve	50
5	12 m	M	6.750 kg	Breast	+ ve	13 cm	45 cm	44.5 cm	- ve	- ve	70
6	13 m	F	6.250 kg	Breast	- ve	12.5 cm	45 cm	44 cm	- ve	- ve	75
7	9 m	M	5.5 kg	Breast	- ve	12.5 cm	43 cm	41 cm	- ve	- ve	75
8	16 m	M	7 kg	Breast	- ve	13.5 cm	46 cm	44.5 cm	- ve	- ve	65
9	14 m	M	6.5 kg	Artificial	- ve	13 cm	45 cm	43.5 cm	- ve	- ve	70
10	18 m	M	5.400 kg	Artificial	+ ve	12.5 cm	42 cm	40.5 cm	- ve	- ve	55
11	9 m	M	5.5 kg	Breast	+ ve	13 cm	42.5 cm	42 cm	- ve	- ve	70
12	13 m	M	6.100 kg	Breast	- ve	13 cm	44 cm	42 cm	- ve	- ve	65
13	10 m	M	6 kg	Artificial	- ve	13.5 cm	43 cm	42 cm	- ve	- ve	65
14	22 m	M	7.300 kg	Breast	- ve	13.5 cm	45 cm	44 cm	- ve	- ve	70
15	18 m	F	7 kg	Artificial	- ve	12.5 cm	45 cm	45 cm	- ve	- ve	70
16	20 m	M	7.300 kg	Breast	- ve	13.5 cm	46 cm	44 cm	- ve	- ve	65
17	9 m	M	6 kg	Breast	- ve	13.5 cm	43 cm	42 cm	- ve	- ve	45
18	13 m	F	6.250 kg	Breast	- ve	12.5 cm	45 cm	44 cm	- ve	- ve	60
19	14 m	F	7.100 kg	Artificial	- ve	12.5 cm	45 cm	43 cm	- ve	- ve	75
20	9 m	M	6.250 kg	Breast	- ve	13 cm	43 cm	42.5 cm	- ve	- ve	70

Clinical and laboratory data in cases with severe malnutrition

No.	Age	Sex	Weight	Feeding	Recurrent infection	Midarm circumf.	Head circumf.	Chest circumf.	HBsAg	Anti HBcAb	Anti HBsAb
1	15	Female	5.5	Artificial	+ ve	9.5	45	42.5	- ve	- ve	10 lu/L
2	18	Male	5.5	Breast	+ ve	9.5	46	43	- ve	- ve	25
3	13	F	5	Breast	+ ve	9	43	41	- ve	- ve	45
4	7	F	4.200	Artificial	- ve	6	42	40	- ve	- ve	5
5	9	M	4.800	Artificial	- ve	6.5	44	43.5	- ve	- ve	150
6	9	F	4.5	Artificial	+ ve	7	42	41	- ve	- ve	10
7	24	F	7	Breast	+ ve	11.5	46	45	- ve	- ve	25
8	18	M	6.5	Breast	+ ve	10	46	44	- ve	- ve	5
9	8	M	5	Breast	+ ve	7	41	40	- ve	- ve	0
10	9	F	4.600	Artificial	- ve	7.5	41	41	- ve	- ve	75
11	10	M	4.300	Artificial	- ve	8	43.5	43	- ve	- ve	15
12	12	F	4.500	Breast	- ve	10	45	45	- ve	- ve	25
13	18	M	6.200	Breast	+ ve	9.5	45	44	- ve	- ve	10
14	9	M	4.100	Breast	+ ve	6	42.5	41	- ve	- ve	5
15	10	M	5.250	Artificial	+ ve	8	42	41	- ve	- ve	5
16	13	M	5	Breast	- ve	8.5	47	46	- ve	- ve	25
17	24	M	6.800	Breast	- ve	9	46	45.5	- ve	- ve	30
18	18	M	6	Artificial	- ve	8.5	45	45	- ve	- ve	20
19	14	M	5.100	Breast	- ve	10	45	44	- ve	- ve	15
20	17	M	6	Breast	- ve	11	44	44	- ve	- ve	15

Table (1) : Distribution of studied children.

Studied children	Number	Percent
Control	30	33.34 %
Mild	20	22.22 %
Moderate	20	22.22 %
Severe	20	22.22%
Total	90	100%

Table (2): Age distribution of studied children :

Studied children	≤ 1 year		> 1 year	
	Number	Percent	Number	Percent
Control No. (30)	15/30	50 %	15/30	50 %
Mild No. (20)	8 / 20	40 %	12/20	60 %
Moderate No. (20)	7 /20	35 %	13/20	65 %
Severe No. (20)	9/20	45 %	11/20	55 %
Total	39/90	43.33%	51/90	56.67 %

Table (3) : Sex distribution of studied children

Studied children	Male		Female	
	Number	Percent	Number	Percent
Control No (30)	18/30	60 %	12/30	40 %
Mild No. (20)	13/20	65 %	7 / 20	35 %
Moderate No. (20)	15/20	75 %	5 / 20	25 %
Severe No. (20)	13/20	65%	7 / 20	35%
Total	59/90	65.56 %	31 / 90	34.44%

Table (4) : Seroconversion rate in control and malnourished group.

Level of antibodies Iu / L	Control		Malnourished	
	No	%	No	%
< 10 Iu / L (No response)	--	--	5	8.34 %
10 - 100 Iu/L (Low response)	14	46.66 %	44	73.33%
> 100 Iu/L (high response)	16	53.33%	11	18.33 %
Total	30	100 %	60	100 %

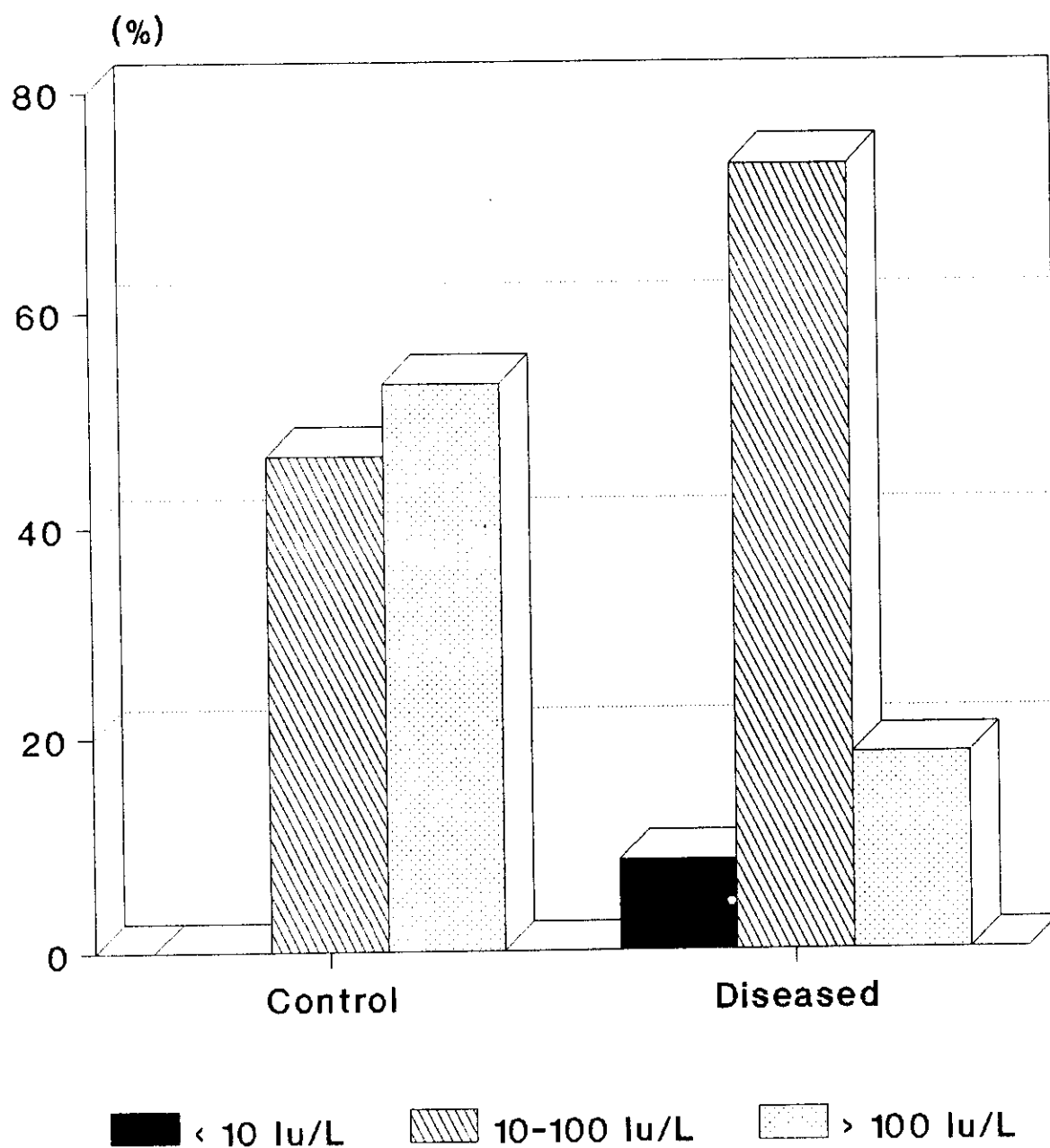


Fig.(1):Hepatitis B vaccine response in diseased and control group.

Table (5): Sero conversion rate in different degree of malnutrition

Level of antibodies Iu/L	Mild		Moderate		Severe	
	No	%	No	%	No	%
< 10 Iu/L (No response)	--	--	--	--	5	25 %
10 - 100 Iu/L (low response)	9	45 %	20	100 %	15	75 %
> 100 Iu/L (high response)	11	55 %	--	--	--	--
Total	20	100 %	20	100 %	20	100 %

Table (6): Comparison between the mean Anti HBsAb titre in diseased versus control group.

Group	Number	Mean Anti HBsAb titre in Iu/L	S.D	T	P
Diseased	60	62.58	± 42.78	- 4.331	< 0.05 (Significant)
Control	30	102	± 42.58		

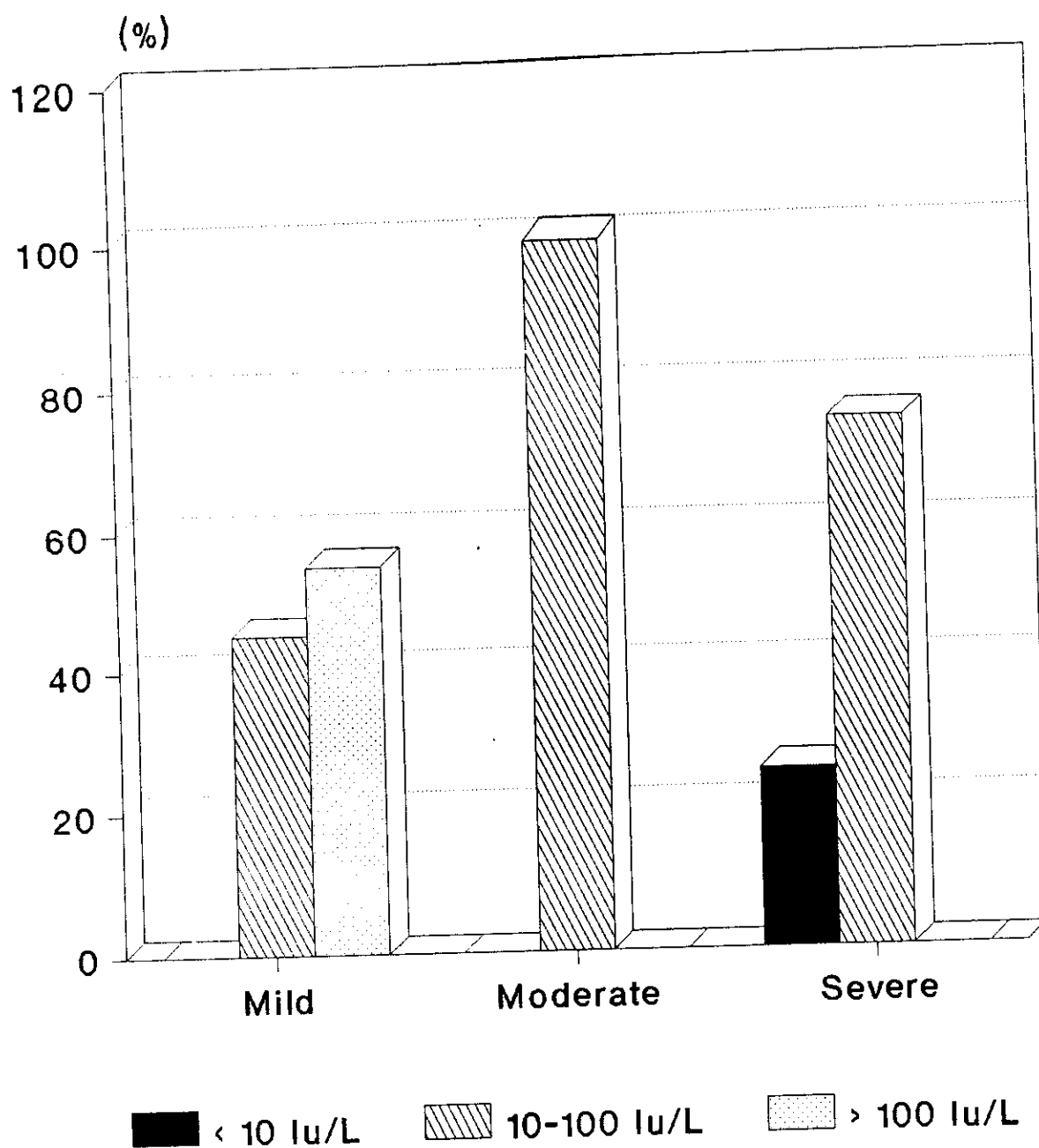


Fig.(2):Seroconversion rate in different degrees of malnutrition.

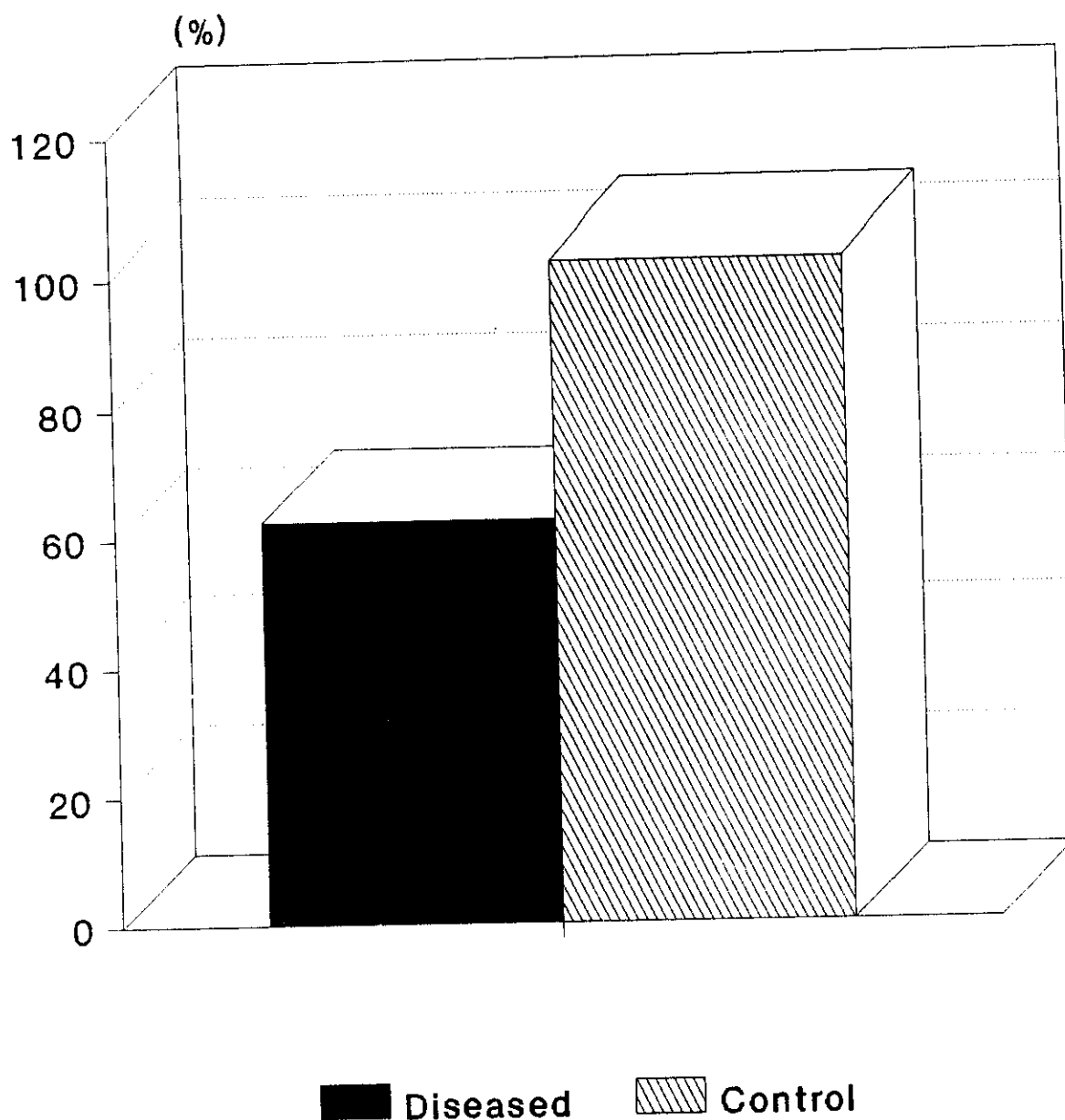


Fig.(3):Comparison between the mean antiHBsAb titre in diseased versus control group.

Table (7): Comparison between the mean Anti HBsAb titre in mild versus control group.

Group	Number	Mean Anti HBsAb titre in Iu/L	S.D	T	P
Mild	20	98.75	± 39.59	- 0.275	> 0.05 (non significant)
Control	30	102	± 42.58		

Table (8) : Comparison between the mean Anti HBsAb titre in moderate versus control group.

Group	Number	Mean Anti HBsAb titre in Iu/L	S.D	T	P
Moderate	20	63.25	± 12.9	- 4.673	< 0.05 (significant)
Control	30	102	± 42.58		

Table (9): Comparison between the mean Anti HBsAb titre in severe versus control group.

Group	Number	Mean Anti HBsAb titre in Iu/L	S.D	T	P
Severe	20	25.75	± 33.84	- 7.028	< 0.01 (highly significant)
Control	30	102	± 42.58		

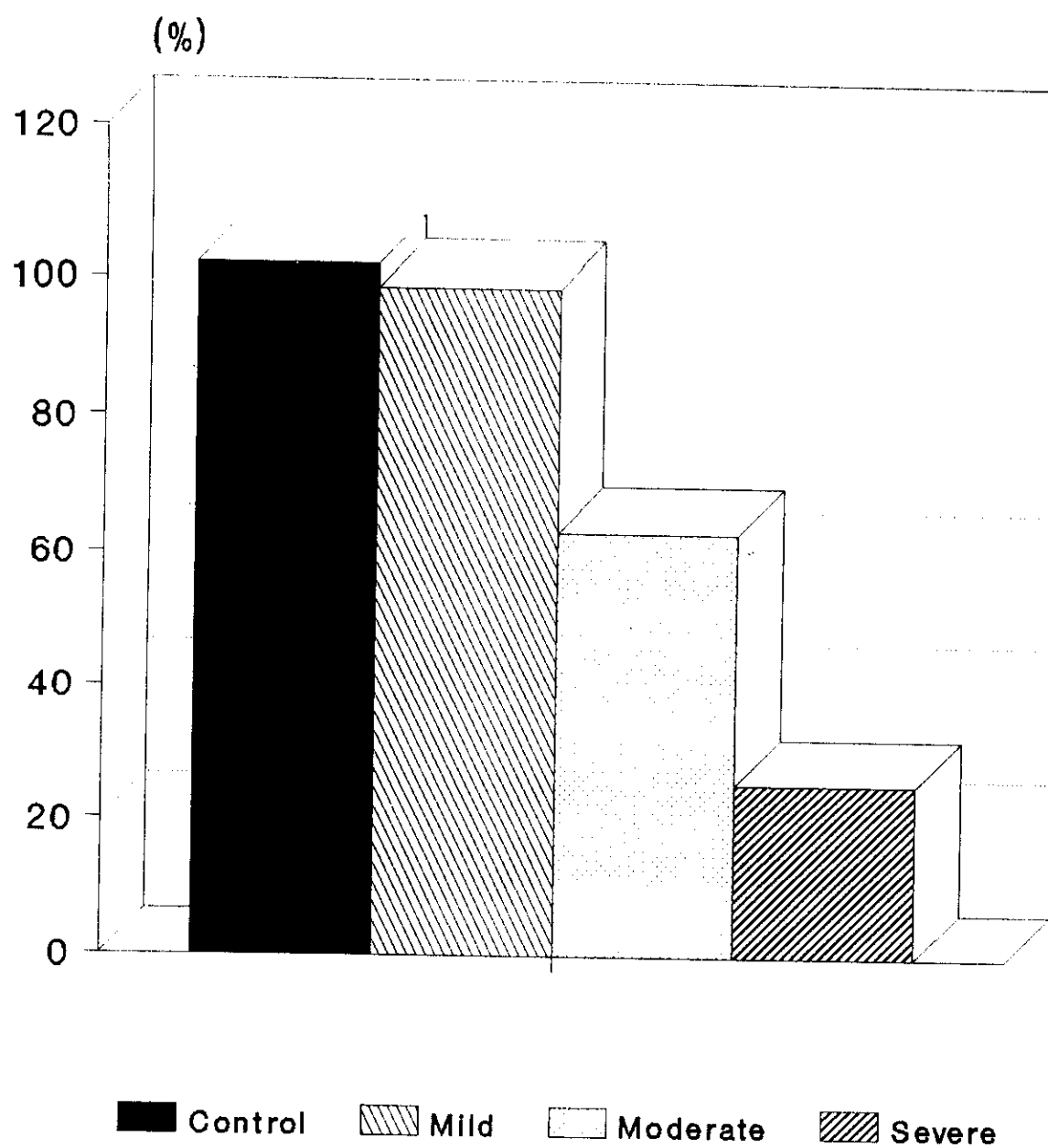


Fig.(4):Comparison between the mean antiHBsAb titre in different degrees of malnutrition.

Table (10): Effect of age on the mean Anti HBsAb titre in malnourished children.

Group	Number	Mean Anti HBsAb titre in Iu/L	S.D	T	P
< 1 year	24	64.79	+ 49.70	0.3073	> 0.05 (non significant)
> 1 year	36	61.11	±38.17		

Table (11) : Effect of sex on the mean Anti HBsAb titre in malnourished children.

Group	Number	Mean Anti HBsAb titre in Iu/L	S.D	T	P
Male	41	60	± 42.68	- 0.653	> 0.05 (non significant)
female	19	67.75	± 43.63		

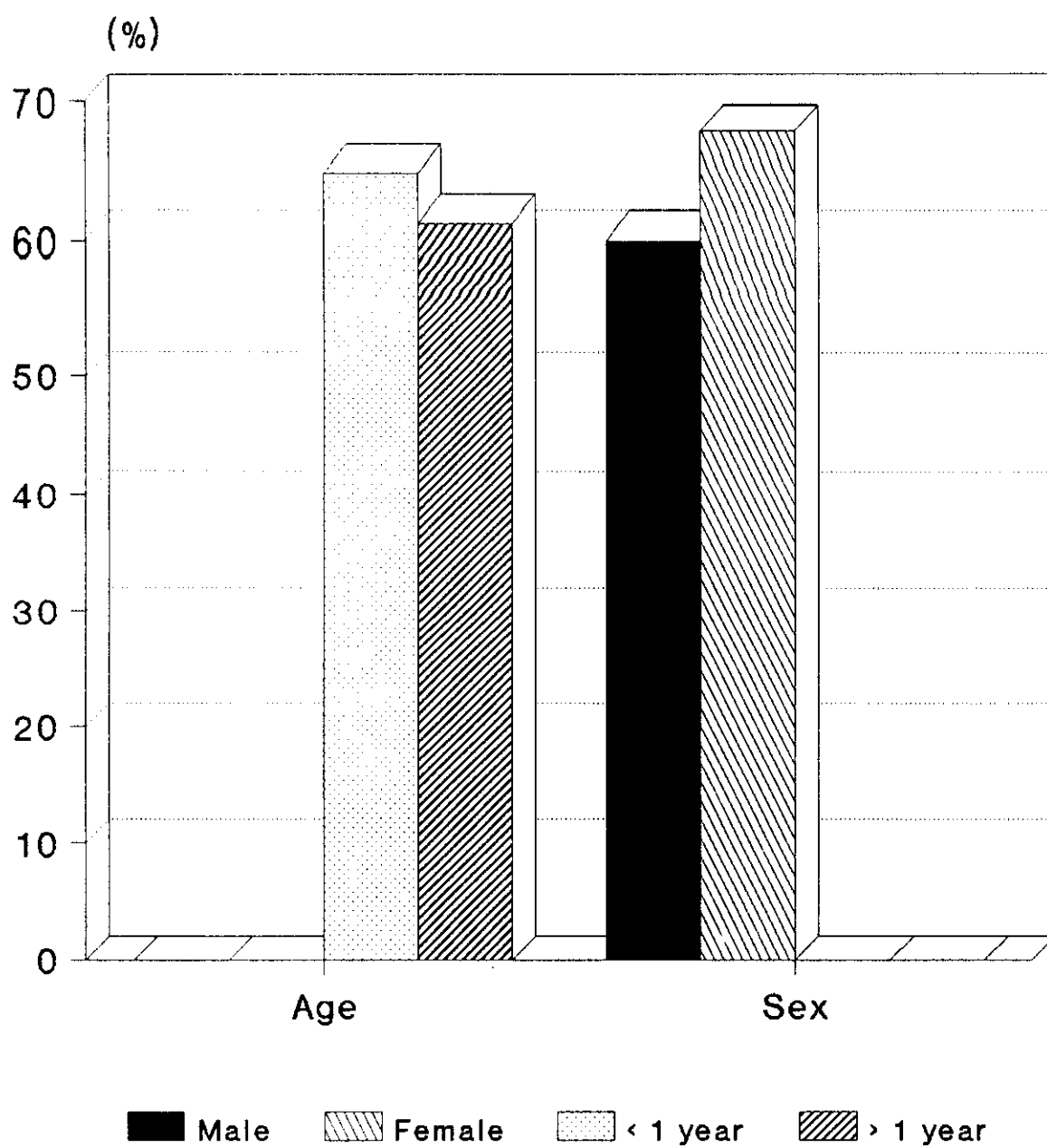


Fig.(5):Show the effect of age and sex on the mean antiHBsAb titre in malnutrition.

Table (12): Effect of the pattern of feeding on the mean Anti HBsAb titre in malnourished children.

Group	Number	Mean Anti HBsAb titre in Iu/L	S.D	T	P
Breast	42	67.61	+ 44.76	1.9149	0.05 (Significant)
Artificial	18	45.90	± 29.81		

Table (13): Effect of complication on the mean Anti HBs Ab titre in malnourished children.

Group	Number	Mean Anti HBsAb titre in Iu/L	S.D	T	P
Complicated	22	36.19	±37.48	3.95	< 0.05 (Significant)
Non complicated	38	76.79	± 38.87		

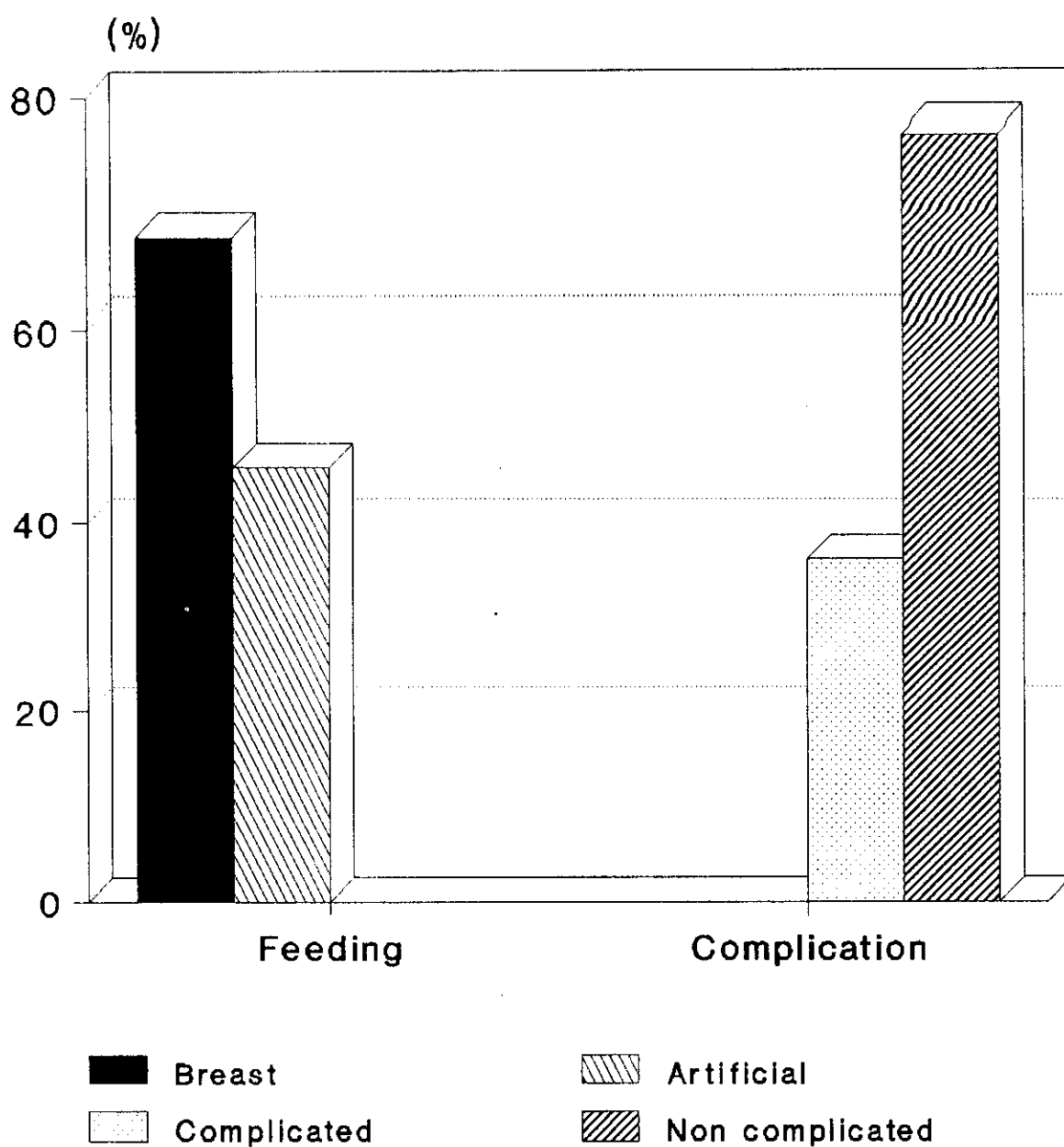


Fig.(6):The effect of pattern of feeding and complication on the mean antiHBsAb titre in malnutrition.

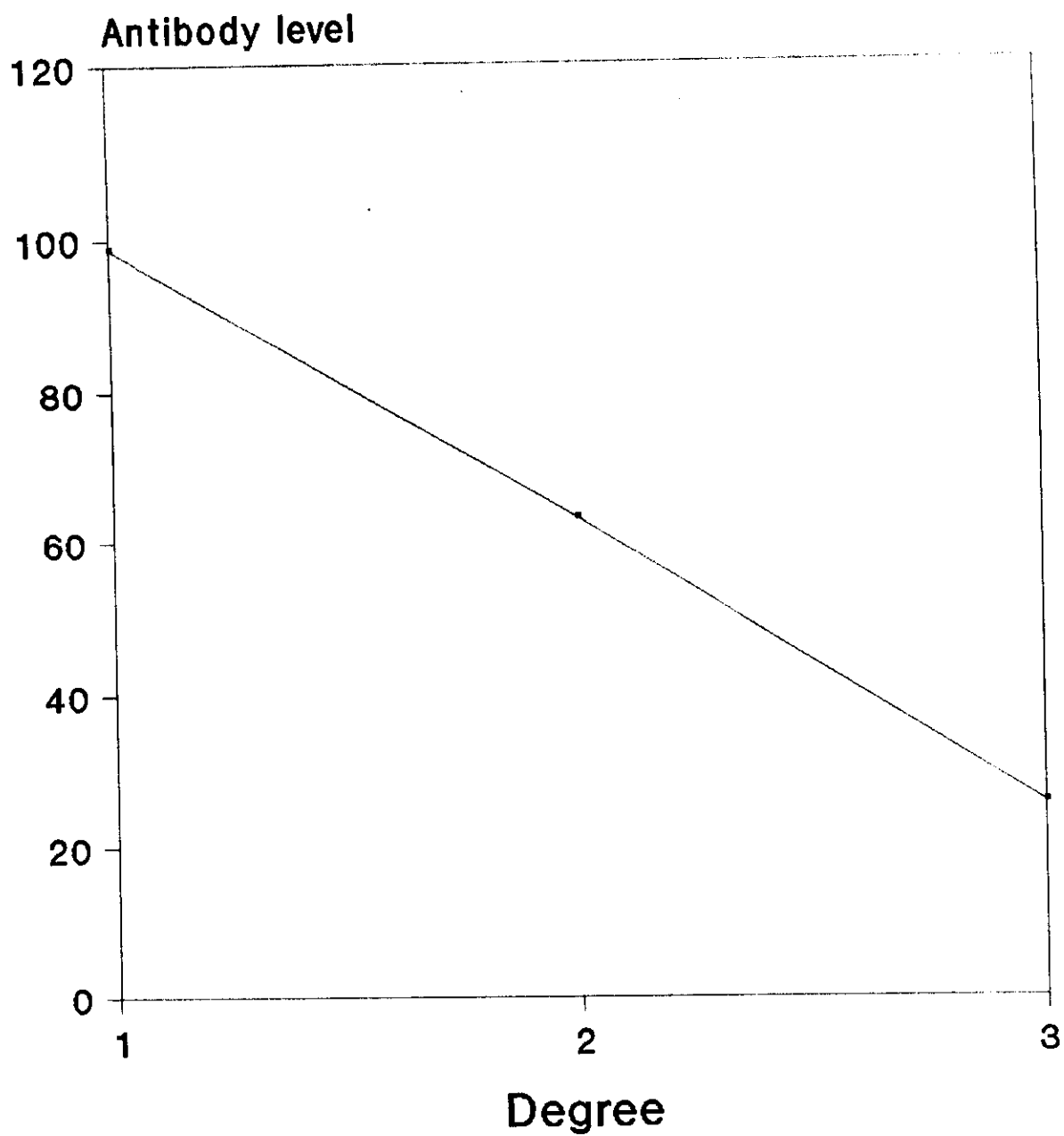


Fig.(7): Co-relation study between the severity of malnutrition and the antibody level.