

- Blood was allowed to sediment or was centrifuged if the leukocyte count was less than $10 \times 10^9/l$ in order to separate the buffy coat layer.
- Equal volumes of the leukocyte suspension (in supernatant or buffy coat) and the substrate (0.25-0.5 ml of each) were mixed in a tube and shaken gently for 5 to 10 seconds.
- Films were made from the mixture and were allowed to dry in the air.
- Once dried they were fixed for 1 minute then rinsed in buffer.
- Slides were then incubated at 27°C in a Coplin jar with the phosphate buffer for 10 minutes.
- After drying, the films were counterstained with May-Grunwald-Geimsa.
- Positive lysozyme activity was seen as an area of bacterial lysis of variable size in the immediate vicinity of cells.

Scoring

The area of lysis was scored for 100 neutrophils as follows:

Score 0 = no lysis

Score 1 = lysis of one row of bacteria around the neutrophil

Score 2 = lysis of 2 rows of bacteria around the neutrophil

Score 3 = lysis of 3 rows of bacteria around the neutrophil

The total score was calculated by multiplying the number of cells with lysis by the score number.

From this work, examples for the pathogenic function of neutrophils ingesting candida albicans and the lytic activity of neutrophils lysozymes on micrococcus lysodicticus are illustrated in figures 4-9; pages 76-78.

FIG. No. 4: 4 neutrophils from a preterm neonate; of which
1 is ingesting 1 candida cell.

FIG. No. 5: 4 neutrophils from a 3 month old infant; of
which 1 is ingesting 2 candida cells.

FIG. No. 6: 3 neutrophils from an adult; 1 is ingesting 2 candida cells, and of the others each is ingesting 1.

FIG. No. 7: Score 2 neutrophil lysozyme activity from a fullterm neonate.

RESULTS AND ANALYSIS OF RESULTS

Results of our study are shown in Tables 2 to 23 and illustrated in Figures 10 to 19. Work was carried out on 6 groups including 23 Preterms, 25 fullterms, 10 infants aged 3, 6, 12 months old, and adults aged between 20-25 years old.

I- Table No.2 presents data collected from the group of preterm neonates. 15 cases were female; 8 cases were male, 2 cases were born by Cesarean Section and the rest were delivered vaginally. Gestational ages ranged between 32 and 36 weeks. Birth weights ranged from 1300 to 2400 gms. Table shows also their total leukocytic count (T.L.C.). Differential count (D.C.), absolute neutrophil count (A.N.C.), in addition to the percentage of phagocytosis (P%), phagocytic index (P.I.), and lysozyme score (L.S.). Clinical comments on some of those neonates were also recorded.

Their mean values, standard error of mean (S.E.) of the results of A.N.C., P%, PI, and L.S. are shown in Table No.3.

- Table No.4 presents data collected from 25 fullterm neonates 15 cases were female and 10 cases were male . 3 of the cases were born by Cesarean section and the rest were vaginally delivered. Gestational ages ranged between

37 and 42 weeks. Birth weights ranged from 2800 to 4000 gms. Table shows also their T.L.C., D.C., A.N.C., P%, P.I., and L.S.

Their mean, S.E. of mean, t test and P values of the results obtained are shown in Table No.5.

- Table No.6 presents data collected from 10 cases of infants aged 3 months $\pm$ 5 days old. 4 of them were female and 6 were male. Table shows also their T.L.C., D.C., A.N.C., P%, P.I., and L.S.

Their mean, S.E. of mean, t test, and P values of the results obtained are shown in Table No.7.

- Table No.8 presents data collected from 10 cases of infants aged 6 months $\pm$ 7 days old. 4 of them were female and 6 were male. Table also shows their T.L.C., D.C., A.N.C., P%, P.I., and L.S.

Their mean, S.E. of mean, t test, and P values of results obtained are shown in Table No.9.

- Table No.10 presents data collected from 10 cases of infants aged 12 months $\pm$ 5 days old. 5 of them were female and 5 were male. Table shows their T.L.C., D.C., A.N.C., P%, P.I., and L.S.

Their mean, S.E. of mean, t test and P values of the results obtained are shown in Table No.11. In cases No.8 and 9 of this group, the values of P% and P.I. were abarrent and thus excluded from the statistical analysis; unfortunately films were badly prepared.

- Table No.12 presents data collected from 10 cases of adults aged between 20-25 years old, 5 of them were female and 5 were male. Table shows also their T.L.C., D.C., A.N.C., P%, P.I., and L.S.

Their mean, S.E. of mean, t test, and P values of the results obtained are shown in Table No.13.

Tables No.14, 15, 16 and 17 present the statistical analysis of each of the 4 parameters A.N.C., P%, P.I., and L.S. respectively, for all age groups studied.

Figures No.10 to 13 are histograms showing the mean values of each of the studied parameters A.N.C., P%, P.I, and L.S. respectively, for all age groups included.

Table No.18 presents the Parson correlation coefficient (r) and P values of the different parameters to each others in the group of Preterm neonates. These parameters are the A.N.C., P%, P.I., and L.S.

- Tables No.19, 20, 21, 22 and 23 present the same correlation in the following groups: Fullterm neonates, 3 month, 6 month, 12 month old infants and adults respectively.

- Figures No.14 to 19 are scatter Figures showing the positive relation ship between P% and P.I. These were done for Preterms, Fullterms, 3 month, 6 month, 12 month old infants and adults respectively.

TABLE No 2 : Data collected from evaluation of the phagocytic function and Lysozyme activity of neutrophils of 23 preterm neonates

No	Sex	Mode of delivery	Birth wt.(kg)	Gest.age (Dup)	T.L.C. $\times 10^9/L$	Mon. %	Lymph. %	Bas. %	Eos. %	Staph. %	Seg. %	R.N.C. $\times 10^9/L$	Phago. %	Lys. score	Clinical comments
1	F	C.S.	1.800	+/-33	7.800	0	30	0	2	4	56	4.68	66	99	
2	F	C.S.	1.525	+/-32	7.100	3	64	0	3	1	29	2.13	60	150	
3	F	Sp.D.	1.600	+/-34	7.800	0	56	0	4	0	40	3.12	33	96	
4	F	Sp.D.	1.575	+/-34	15.250	0	22	0	0	0	70	11.89	30	188	Triplet delivery 2 Still birth
5	F	Sp.D.	1.700	+/-33	11.500	1	34	0	0	2	63	7.475	66	136	
6	F	Sp.D.	1.600	+/-34	9.350	0	56	0	0	0	44	4.114	62	204	Cured from E coli infection
7	F	Sp.D.	1.650	+/-35	6.500	0	62	0	0	0	30	2.47	61	152	
8	F	Sp.D.	1.600	+/-36	9.000	0	52	0	0	2	46	4.32	98	129	
9	F	Sp.D.	1.610	+/-35	13.200	0	46	0	4	2	48	6.60	86	110	
10	F	Sp.D.	1.400	+/-33	20.000	0	70	0	2	4	24	5.20	50	80	
11	F	Sp.D.	1.300	+/-32	7.550	0	68	0	2	4	26	2.265	40	98	
12	F	Sp.D.	1.425	+/-33	9.800	0	50	0	0	0	50	4.50	30	170	Infant of toxemic Mother
13	F	Sp.D.	1.700	+/-35	9.750	0	3	0	2	0	62	6.045	70	142	
14	F	Sp.D.	1.550	+/-34	11.600	2	24	0	0	0	06	10.90	80	170	
15	F	Sp.D.	1.500	+/-34	8.200	0	24	0	2	2	72	6.068	36	220	
16	M	Sp.D.	1.400	+/-32	10.100	1	40	1	3	5	50	5.50	46	95	
17	M	Sp.D.	1.350	+/-34	9.000	0	36	0	0	4	64	6.12	58	210	
18	M	Sp.D.	1.320	+/-33	5.200	0	72	0	2	0	10	0.936	45	159	
19	M	Sp.D.	1.600	+/-35	5.100	0	24	0	0	6	68	3.774	39	258	
20	M	Sp.D.	1.650	+/-36	8.000	1	25	0	0	12	62	5.92	33	218	
21	M	Sp.D.	1.450	+/-36	7.100	2	36	0	2	6	54	4.26	80	180	
22	M	Sp.D.	1.900	+/-34	10.000	2	75	0	0	2	21	2.484	30	174	
23	M	Sp.D.	2.400	+/-35	18.600	0	70	0	2	2	26	5.200	50	170	

Age at sampling :

All samples were taken during the first week after birth - Preterm infants : <37 weeks - Low birth weight : <2500 gms.

-R.N.C. = Absolute Neutrophil Count

-T.L.C. = Total Leukocytic Count

-Dup = Duponits

TABLE No.3: Statistical data showing the mean values (M) and standard error of mean (SE) of results obtained from 23 preterm neonates.

Preterm	Absolute neutrophil count	Percentage of phagocytosis	Phagocytic Index	Lysozyme Score
Mean	5.03	54.3	.73	155.7
S.E. of mean	.52	4.1	.06	9.7

TABLE No 1 : Data collected from the evaluation of phagocytic function and Lysozyme activity of neutrophils of 25 fullterm neonates

No	Sex	Mode of delivery	Birth wt.(kg)	Gest.age (Dap)	T.L.C. $\times 10^9/L$	Mon. %	Lymph. %	Bas. %	Eos. %	Steph. %	Sag. %	R.N.C. $\times 10^9/L$	Phago. %	Phago. index	Lys. score	Clinical comments
1	F	C.S	3.200	+/- 40	7.950	1	36	0	0	3	60	5.000	72	.90	179	
2	F	C.S	4.000	+/- 42	6.450	3	30	1	1	3	54	3.670	32	.40	212	
3	F	Sp.D	3.600	+/- 42	7.900	2	32	0	2	5	59	5.050	72	.92	255	
4	F	Sp.D	3.000	+/- 38	12.900	4	42	0	1	3	50	6.830	46	.66	106	
5	F	Sp.D	3.300	+/- 40	24.000	5	29	0	2	3	61	15.360	18	.22	102	
6	F	Sp.D	3.000	+/- 38	9.400	4	20	1	3	11	53	6.016	44	.40	100	
7	F	Sp.D	2.900	+/- 37	7.200	2	40	0	2	10	46	4.032	72	.90	110	
8	F	Sp.D	3.100	+/- 40	8.600	3	23	0	6	8	60	5.048	40	.64	168	
9	F	Sp.D	3.200	+/- 40	11.000	0	27	0	2	4	66	7.700	66	.76	154	
10	F	Sp.D	3.250	+/- 40	9.000	8	30	0	2	3	65	6.120	54	.68	200	
11	F	Sp.D	3.210	+/- 38	11.000	0	30	0	0	3	59	6.000	66	.76	236	
12	M	C.S	3.225	+/- 38	17.300	0	25	0	0	0	75	12.170	24	.30	169	
13	M	Sp.D	3.000	+/- 37	10.000	1	41	0	2	4	52	5.600	10	.20	150	
14	M	Sp.D	3.300	+/- 38	8.900	2	39	0	3	3	53	4.900	80	.04	167	
15	M	Sp.D	2.000	+/- 37	21.300	0	40	0	2	2	40	10.650	16	.10	106	
16	M	Sp.D	3.300	+/- 40	10.300	0	47	0	3	5	46	5.253	23	.26	167	
17	M	Sp.D	3.520	+/- 42	14.000	0	30	0	1	3	66	9.660	72	.93	175	
18	M	Sp.D	3.400	+/- 40	11.400	1	30	0	2	10	57	7.630	43	.40	220	
19	M	Sp.D	3.500	+/- 42	11.000	3	35	0	2	2	50	6.000	29	.30	150	
20	M	Sp.D	3.000	+/- 40	14.000	0	20	1	4	13	62	10.500	17	.10	104	
21	M	Sp.D	2.950	+/- 40	8.000	4	30	0	0	6	52	5.100	6	.10	74	
22	M	Sp.D	3.100	+/- 38	8.200	2	42	0	0	6	50	4.592	70	.95	00	
23	M	Sp.D	3.150	+/- 38	10.300	0	20	0	0	4	76	8.240	00	1.02	102	
24	M	Sp.D	2.900	+/- 37	9.450	0	42	0	2	4	50	5.103	30	.52	04	
25	M	Sp.D	3.050	+/- 38	11.700	1	16	0	2	17	64	9.477	72	1.30	112	

Age of sampling: All samples were taken during the first week after birth - Full term infants

TABLE NO.5: Statistical data showing the mean (M), standard error of mean (SE), t and P values of the results obtained from 25 fullterm neonates; this group is compared to the preterms one.

Fullterm neonates	Absolute neutrophil count	Percentage of phagocytosis	Phagocytic Index	Lysozyme Score
Mean	7.152	47.40	.60	158.2
S.E. of mean	.570	4.80	.06	10.0
t	2.725	1.08	1.526	.176
P	< .01	> .05	> .05	> .05

TABLE No 6 : Data collected from the evaluation of phagocytic function and Lysozyme activity of neutrophils of 10 infants aged 3 months old

No	Sex	T.L.C. $\times 10^9/L$	Mon. %	Lymph. %	Bas. %	Eos. %	Staph. %	Seg. %	A.N.C. $\times 10^9/L$	Phago. %	Phago. index	Lys. score	Clinical comments
1	F	12.000	1	60	1	4	4	30	4.620	54	.80	122	
2	F	6.000	1	67	1	1	3	27	1.800	52	.72	118	
3	F	6.200	2	80	0	4	2	12	0.860	26	.26	130	
4	F	10.000	4	46	0	2	2	46	4.800	37	.54	130	
5	M	10.000	2	70	1	4	2	21	2.400	63	1.42	145	
6	M	6.400	8	60	2	4	1	25	1.660	60	.70	140	
7	M	9.000	2	66	0	1	3	28	2.790	51	.70	130	
8	M	5.400	2	60	1	4	4	29	1.782	58	.78	151	Umbilical hernia
9	M	4.500	3	46	1	2	3	45	2.160	54	.74	152	
10	M	6.000	3	57	0	0	2	48	3.000	54	.74	135	

Age of sampling: All samples were taken at age of 3 months old +/- 5 days

TABLE No.7: Statistical data showing the M, SE of mean, t, P values of the results obtained from 10 infants aged 3 months old; this group is compared to the preterms one.

3 month old infants	Absolute neutrophil count	Percentage of phagocytosis	Phagocytic Index	Lysozyme Score
Mean	2.59	50.90	.740	135.3
S.E. of mean	.40	3.50	.080	3.65
t	2.853	.349	.090	1.462
P	< .01	> .05	> .05	> .05

TABLE No 8 : Data collected from the evaluation of phagocytic function and Lysozyme activity of neutrophils of 10 infants aged 6 months old

No	Sex	T.L.C. $\times 10^9/L$	Mon. %	Lymph. %	Bas. %	Eos. %	Staph. %	Seg. %	R.N.C. $\times 10^9/L$	Phago. %	Phago. index	Lys. score	Clinical comments
1	F	9.600	1	63	0	0	2	35	3.500	70	1.20	117	Umbilical hernia
2	F	9.500	2	56	2	3	1	36	3.500	60	.85	165	
3	F	9.200	2	70	0	3	2	22	2.200	48	.46	129	
4	M	9.000	2	60	0	0	3	30	2.970	54	.80	122	
5	M	4.800	2	54	0	0	2	42	2.110	65	.90	124	Oblique Inguinal hernia
6	M	9.000	2	48	1	3	4	42	3.960	38	.45	117	
7	M	3.600	2	61	0	3	1	33	1.224	20	.24	172	
8	M	5.000	2	58	0	1	2	37	2.260	36	.38	129	
9	M	3.000	2	80	2	2	1	13	0.530	70	.84	115	
10	M	7.000	1	73	2	4	1	19	1.400	42	.44	131	

Age of sampling: All samples were taken at age of 6 months old +/- 7 days

TABLE No.9: Statistical data showing the M, SE of mean, t, P values of the results obtained from 10 infants aged 6 months old; this group is compared to the preterms one.

6 months old infants	Absolute neutrophil count	Percentage of phagocytosis	Phagocytic Index	Lysozyme Score
Mean	2.365	50.30	.70	132.1
S.E. of mean	.35	5.18	.09	6.4
t	3.15	.551	.026	1.499
P	< .01	> .05	> .05	> .05

TABLE No 10 : Data collected from the evaluation of phagocytic function and Lysozyme activity of neutrophils of 10 infants aged 12 months old

No	Sex	T.L.C. x10 /L	Mon. %	Lymph. %	Bas. %	Eos. %	Staph. %	Seg. %	R.N.C. x10 /L	Phago. %	Phago. index	Lys. score	Clinical comments
1	F	7.800	2	60	0	5	3	30	2.570	60	.90	180	
2	F	5.000	4	50	2	3	2	39	2.050	60	.68	125	
3	F	12.000	1	60	0	4	1	34	4.000	50	.60	117	
4	F	8.200	1	58	2	2	2	35	3.000	30	.32	145	
5	F	7.800	0	58	0	0	2	40	3.200	60	.91	175	
6	M	6.000	0	48	1	3	4	44	2.800	60	.82	180	
7	M	7.200	2	60	1	4	2	31	2.376	60	.76	125	
8	M	12.000	2	30	1	2	5	52	6.000	10	.10	120	
9	M	6.000	1	48	0	0	1	50	3.060	20	.30	147	
10	M	6.200	2	63	0	0	1	34	2.170	79	.71	170	

Age of sampling: All samples were taken at age of 12 months old +/- 5 days

TABLE No.11: Statistical data showing the M, SE of mean, t, P values of the results obtained from 10 infants aged 12 months old; this group is compared to the preterms one.

12 month old infants	Absolute neutrophil count	Percentage of phagocytosis	Phagocytic Index	Lysozyme Score
Mean	3.21	59.00	.71	148.4
S.E. of mean	.43	5.17	.06	8.19
t	2.11	.573	.08	.428
P	< .05	> .05	> .05	> .05

TABLE No 12 : Data collected from the evaluation of phagocytic function and Lysozyme activity of neutrophils of 18 adults control aged between 20-25 years old

No	Sex	T.L.C. $\times 10^9/L$	Mon. %	Lymph. %	Bas. %	Eos. %	Staph. %	Seg. %	R.N.c. $\times 10^9/L$	Phago. %	Phago. index	Lys. score	Clinical comments
1	F	7.400	0	25	0	2	5	68	5.482	71	1.41	262	
2	F	7.100	1	27	2	4	6	60	4.685	75	1.52	280	
3	F	5.800	1	40	0	3	2	54	3.248	75	1.43	278	
4	F	9.100	0	37	1	3	4	55	5.369	70	1.39	250	
5	F	6.300	2	39	1	2	4	52	3.528	85	1.72	244	
6	M	7.300	1	31	0	2	1	65	4.818	86	1.69	262	
7	M	8.200	3	43	1	2	6	45	4.182	89	1.81	250	
8	M	6.800	1	32	0	1	5	61	4.488	90	1.90	270	
9	M	5.100	1	28	0	4	3	64	3.417	78	1.52	268	
10	M	6.900	2	35	0	1	3	59	4.278	80	1.41	290	

Age of sampling: All samples were taken at age between 20-25 years old.

TABLE No.13: Statistical data showing the M, SE, t, and P values of the results obtained from 10 adults control aged between 20-25 years old; this group is compared to the preterms one.

Adults	Absolute neutrophil count	Percentage of phagocytosis	Phagocytic Index	Lysozyme Score
Mean	4.3	79.9	1.6	265.4
S.E. of mean	.2	2.3	0.05	4.68
t	.882	4.305	8.57	7.086
P	> .05	< .01	< .01	< .01

TABLE No. 14: Statistical data showing M, SE, t and P values of the results of absolute neutrophil count (A.N.C.) in the different age groups studied; each of the groups is compared to the first one

		Preterm	Fullterm	3 months	6 months	12 months	Adults
Neutrophil		neonates	neonates	old	old	old	
Count							
Mean		5.03	7.152	2.59	2.365	3.21	4.3
S.E. of mean		.52	.57	.4	.35	.4	.2
t			2.725	2.853	3.150	2.111	.882
P			<.01	<.01	<.01	<.05	>.05

TABLE NO. 15: Statistical data showing the M, S, t, and P values of the results of percentgae of phagocytosis in the different age groups studied; each of the groups is compared to the first one.

Percentage of		Preterm neonates	Fullterm neonates	3 months old	6 months old	12 months old	Adults
Phagocytosis							
Mean	54.3	47.4	50.9	50.3	59.0	79.9	
S.E. of mean	4.1	4.8	3.5	5.1	5.1	2.3	
t		1.080	.349	.551	.573	4.305	
P		>.05	>.05	>.05	>.05	<.01	

TABLE No. 16: Statistical data showing the M, S.E., t, and P values of the results of phagocytic index in the different age groups studied; each of the groups is compared to the first one.

Phagocytic index	Preterm		Fullterm		3 months		6 months		12 months		Adults	
	neonates	neonates	neonates	neonates	old	old	old	old	old	old	old	old
Mean	.73		.6		.74		.7		.71		1.6	
S.E. of mean	.06		.06		.08		.09		.06		.05	
t			1.526		.09		.026		.08		8.574	
p			>.05		>.05		>.05		>.05		<.01	

TABLE No. 17: Statistical data showing the M, S.E., t, and P values of the results of lysozyme score in the different age groups studied; each of the groups is compared to the first one.

Lysozyme score	Preterm neonates	Fullterm neonates	3 months old	6 months old	12 months old	Adults
Mean	155.7	158.2	135.3	132.1	148.4	265.4
S.E. of mean	9.7	10	3.65	6.4	8.1	4.6
t		.176	1.462	1.499	.428	7.08
P		>.05	>.05	>.05	>.05	<.01

TABLE No. 18: Statistical data showing the coefficient correlation (r) and significance (P) of different parameters studied to each others in the group of preterm neonates

Preterm Neonates	Absolute neutrophil Count	Percentage of Phagocytosis	Phagocytic Index	Lysozyme Score

Absolute neutrophil count				

Percentage of Phagocytosis	r = .138 P = >.05			

Phagocytic Index	r = .146 P = >.05	.962 <.001		

Lysozyme Score	r = .149 P = >.05	-.254 > .05	-.199 > .05	

TABLE No. 19: Statistical data showing the coefficient correlation (r) and significance (P) of different parameters studied to each others in the group of fullterm neonates

Fullterm Neonates	Absolute neutrophil Count	Percentage of Phagocytosis	Phagocytic Index	Lysozyme Score
Absolute neutrophil count				
Percentage of	r = -.364			
Phagocytosis	P = > .05			
Phagocytic Index	r = -.236	.878		
	P = > .05	<.001		
Lysozyme	r = -.047	.099	-.234	
Score	P = > .05	> .05	> .05	

TABLE No. 20: Statistical data showing the coefficient correlation (r) and significance (P) of different parameters studied to each others in the group of infants aged 3 months

3 Month old infants	Absolute neutrophil Count	Percentage of Phagocytosis	Phagocytic Index	Lysozyme Score
Absolute neu- trophil count				
Percentage of Phagocytosis	r = .009 P = >.05			
Phagocytic Index	r = .119 P = >.05	.798 <.02		
Lysozyme Score	r = -.325 P = >.05	.365 >.05	.348 >.05	

TABLE No. 21: Statistical data showing the coefficient correlation (r) and significance (P) of different parameters studied to each others in the group of infants aged 6 months

6 month old infants	Absolute neutrophil Count	Percentage of Phagocytosis	Phagocytic Index	Lysozyme Score
Absolute neu- trophil count				
Percentage of Phagocytosis	r = .124 P = >.05			
Phagocytic Index	r = .194 P = >.05	.927 <.001		
Lysozyme Score	r = -.1 P = >.06	-.273 <.05	.370 >.05	

TABLE No. 22: Statistical data showing the coefficient correlation(r) and significance (P) of different parameters studied to each others in the group of infants aged 12 months

12 Month	Absolute	Percentage of	Phagocytic	Lysozyme
Old Infants	neutrophil	Phagocytosis	Index	Score
Count				

Absolute neu-				
trophil count				

Percentage of	r = -.506			
Phagocytosis	P = >.05			

Phagocytic	r = -.191	.878		
Index	P = >.05	<.001		

Lysozyme	r = -.410	.412		.586
Score	P = >.05	>.05		>.05

TABLE NO. 23: Statistical data showing the coefficient correlation (r) and significance (P) of different parameters studied to each others in the group of adults

Adults	Absolute neutrophil Count	Percentage of Phagocytosis	Phagocytic Index	Lysozyme Score
Absolute neu-trophil count				
Percentage of Phagocytosis	r = .310 P = >.05			
Phagocytic Index	r = -.169 P = >.05	.922 <.001		
Lysozyme Score	r = -.130 P = >.05	.245 >.05	-.366 >.05	

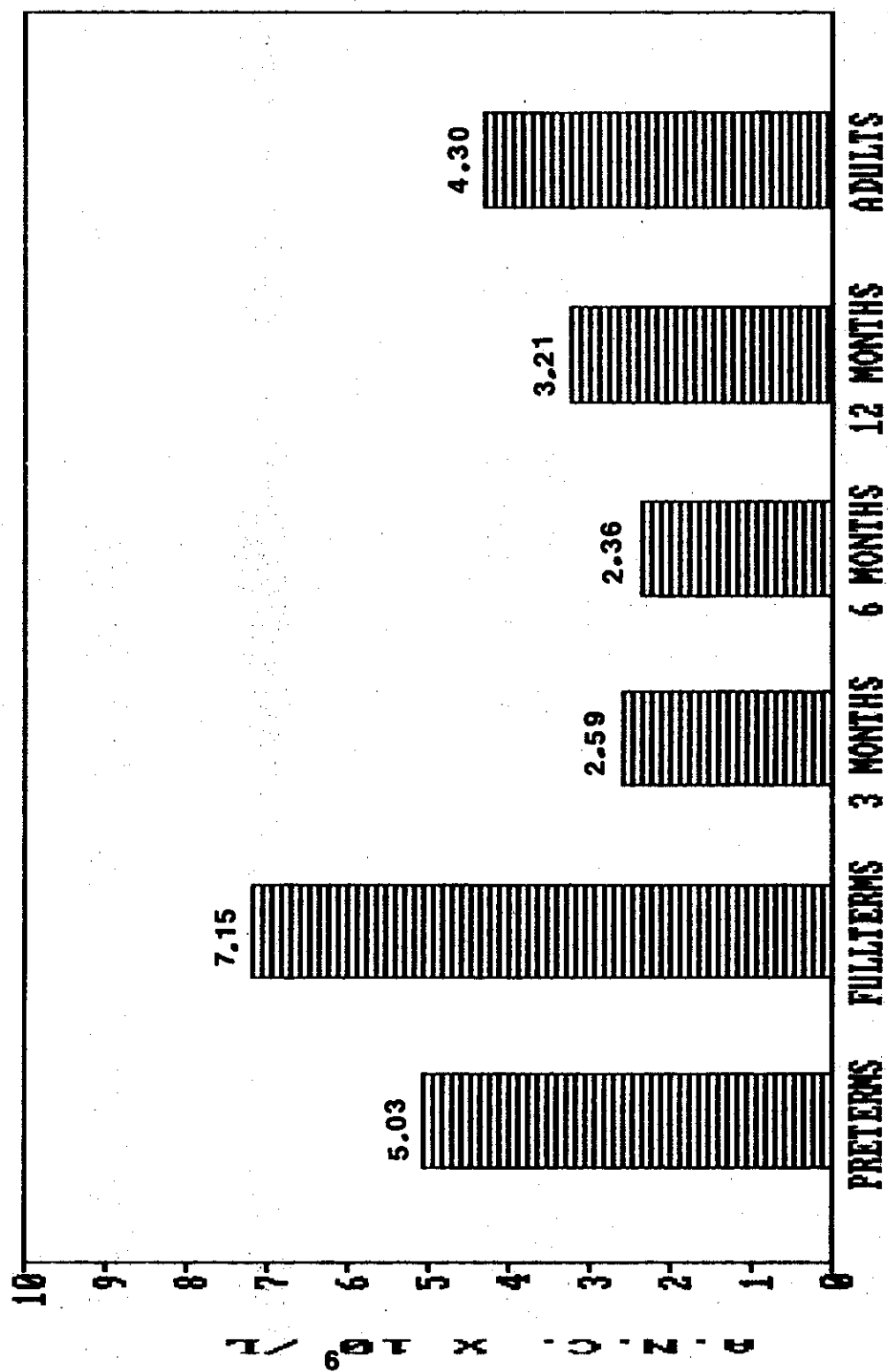


FIGURE No. 10: Histogram showing the mean values of absolute neutrophil count in the different studied groups

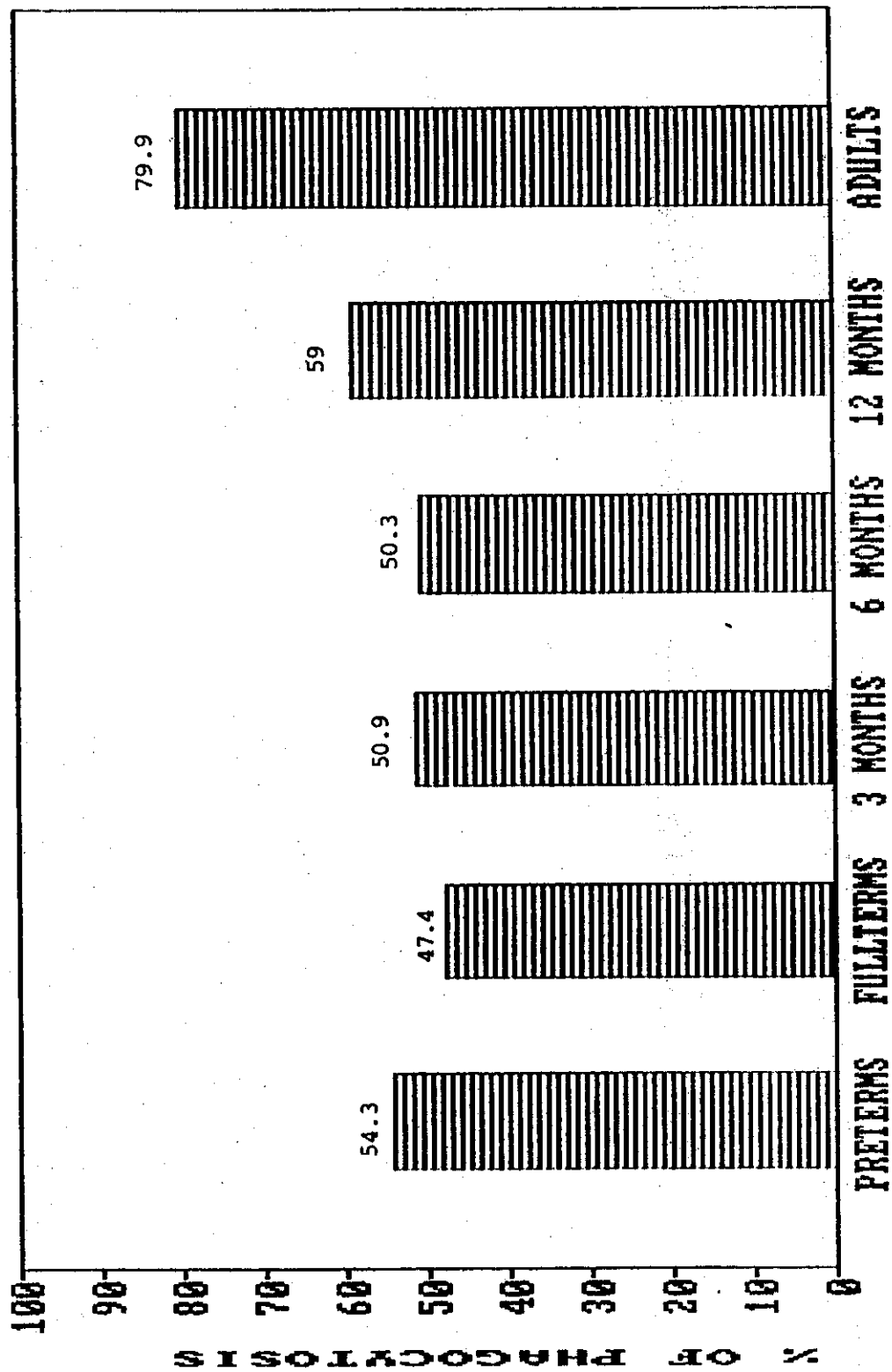


FIGURE No. 11: Histogram showing the mean values of percentage of phagocytosis in the different studied groups

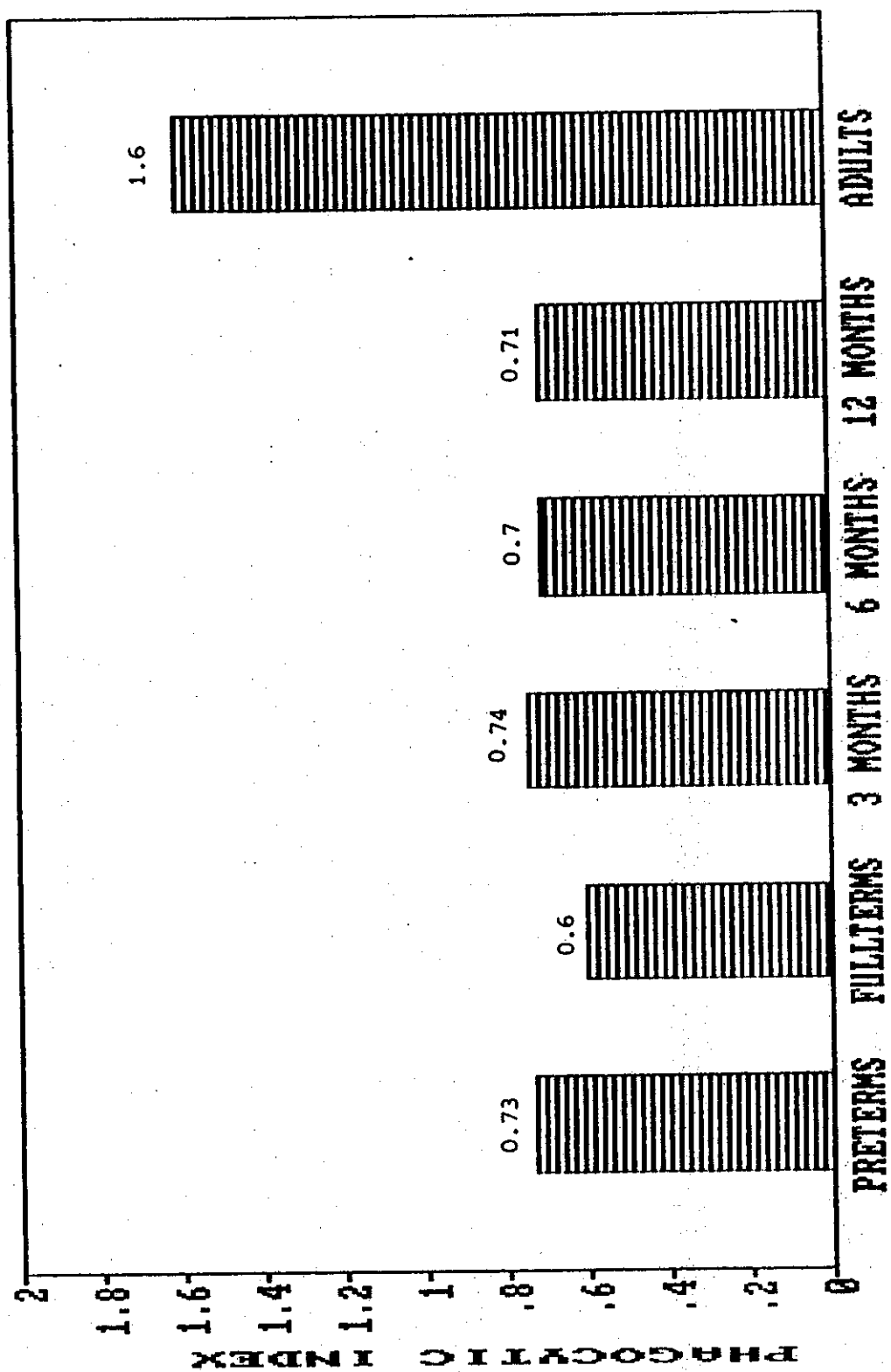


FIGURE NO. 12: Histogram showing the mean values of phagocytic index in the different studied groups

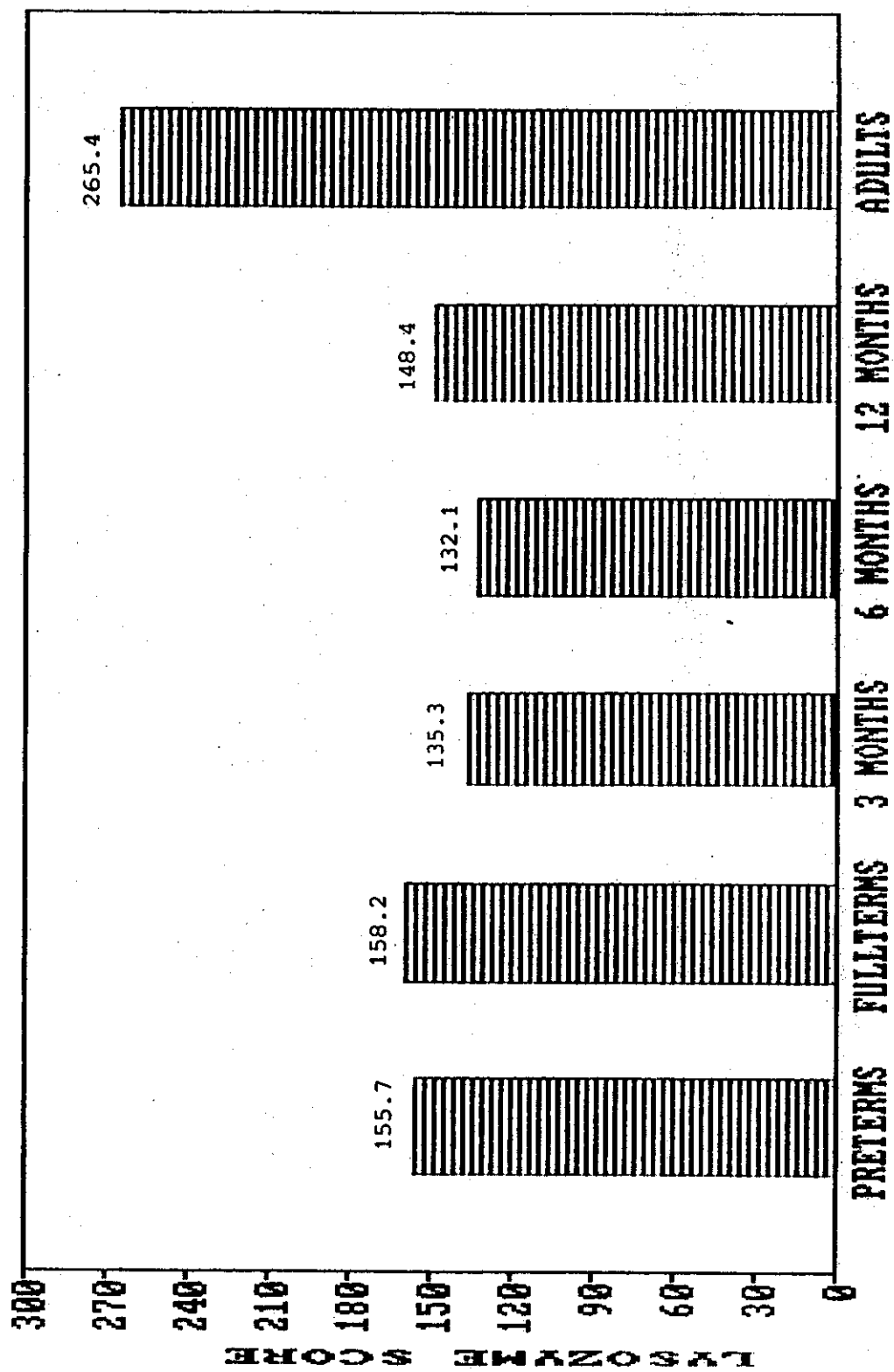


FIGURE No. 13: Histogram showing the mean values of lysozyme score in the different studied groups

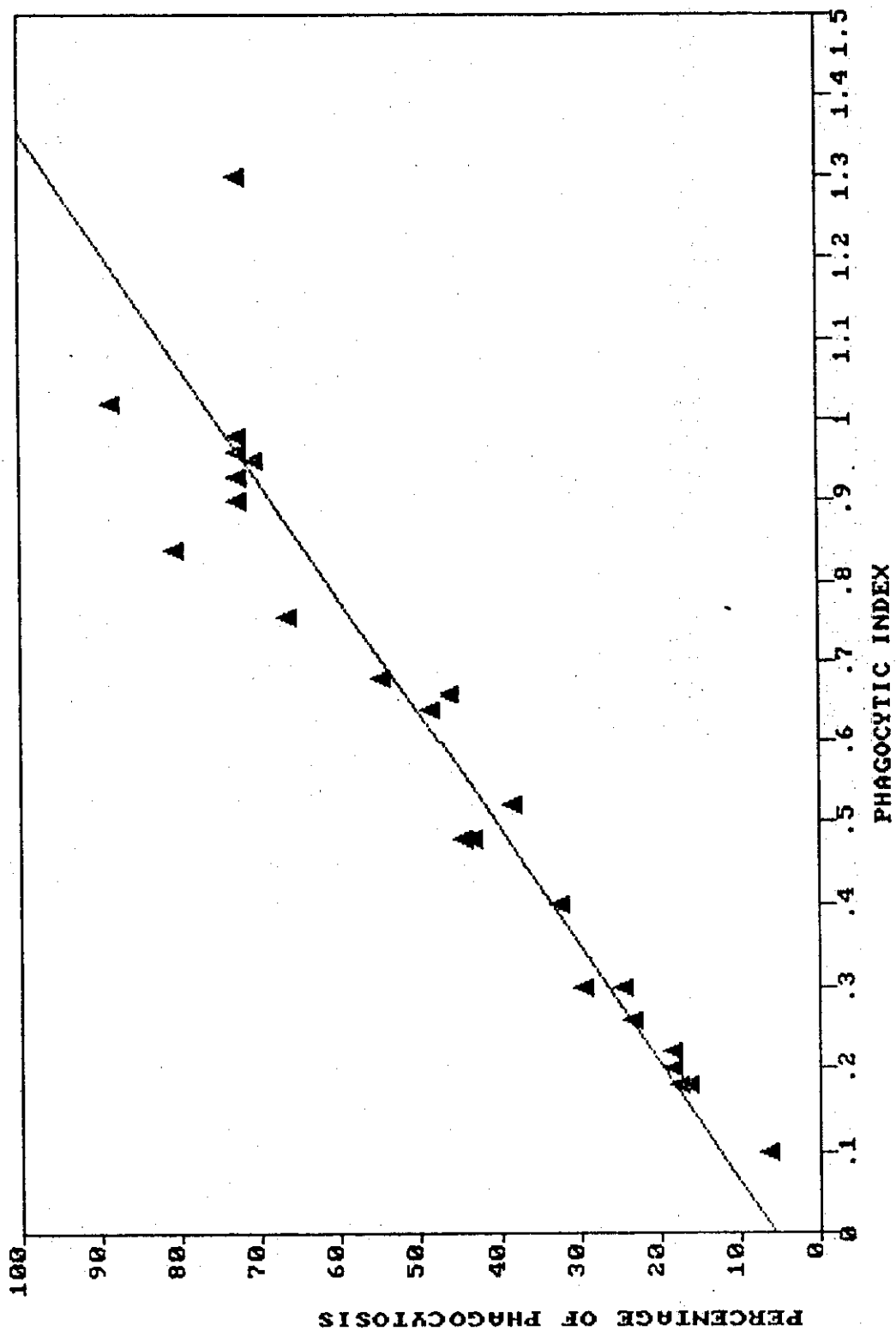


FIGURE No. 15: Scatter diagram showing the correlation between percentage of phagocytosis and phagocytic index in the group of preterms (23 cases)

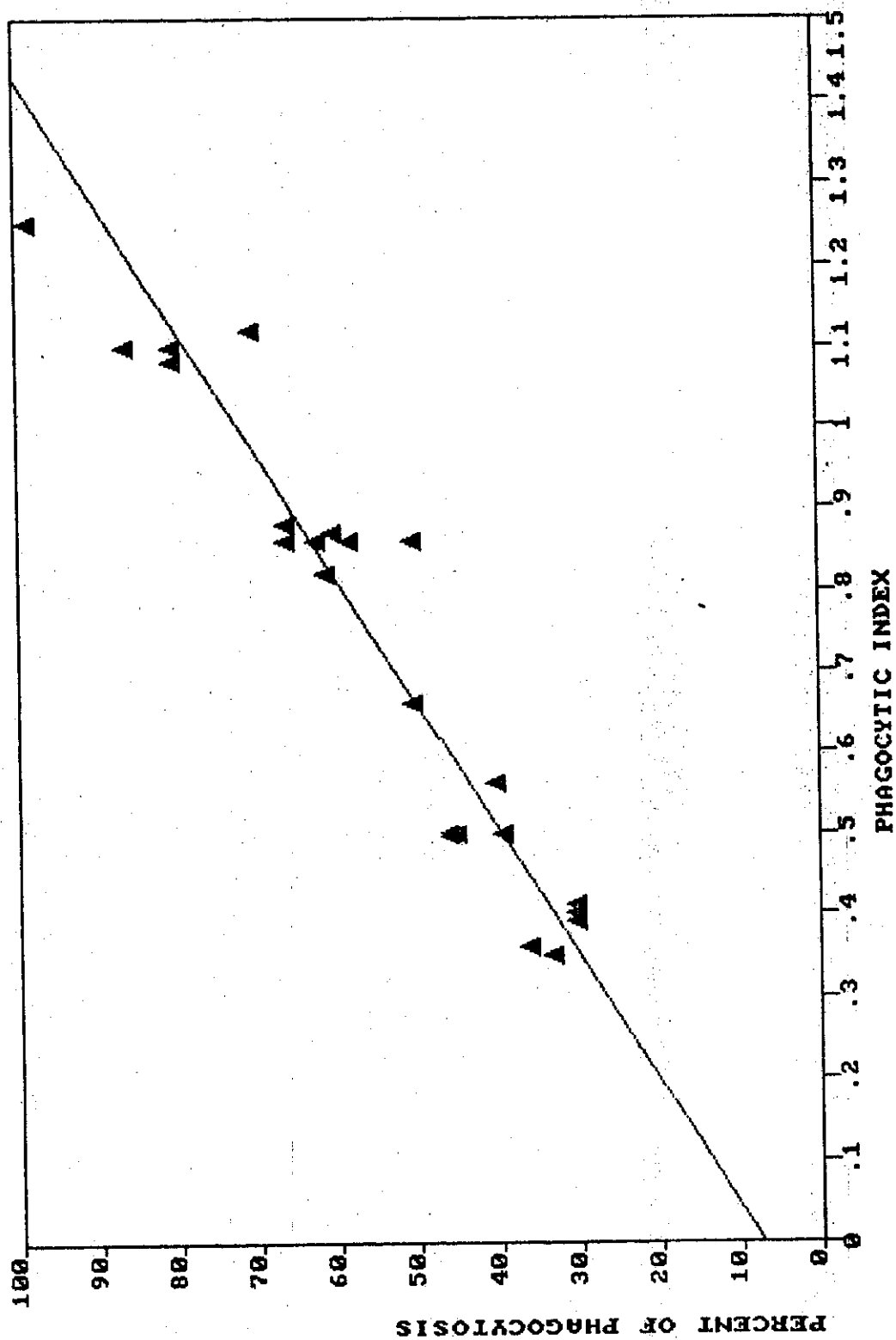


FIGURE No. 14: Scatter diagram showing the correlation between percentage of phagocytosis and phagocytic index in the group of fullterms (25 cases)

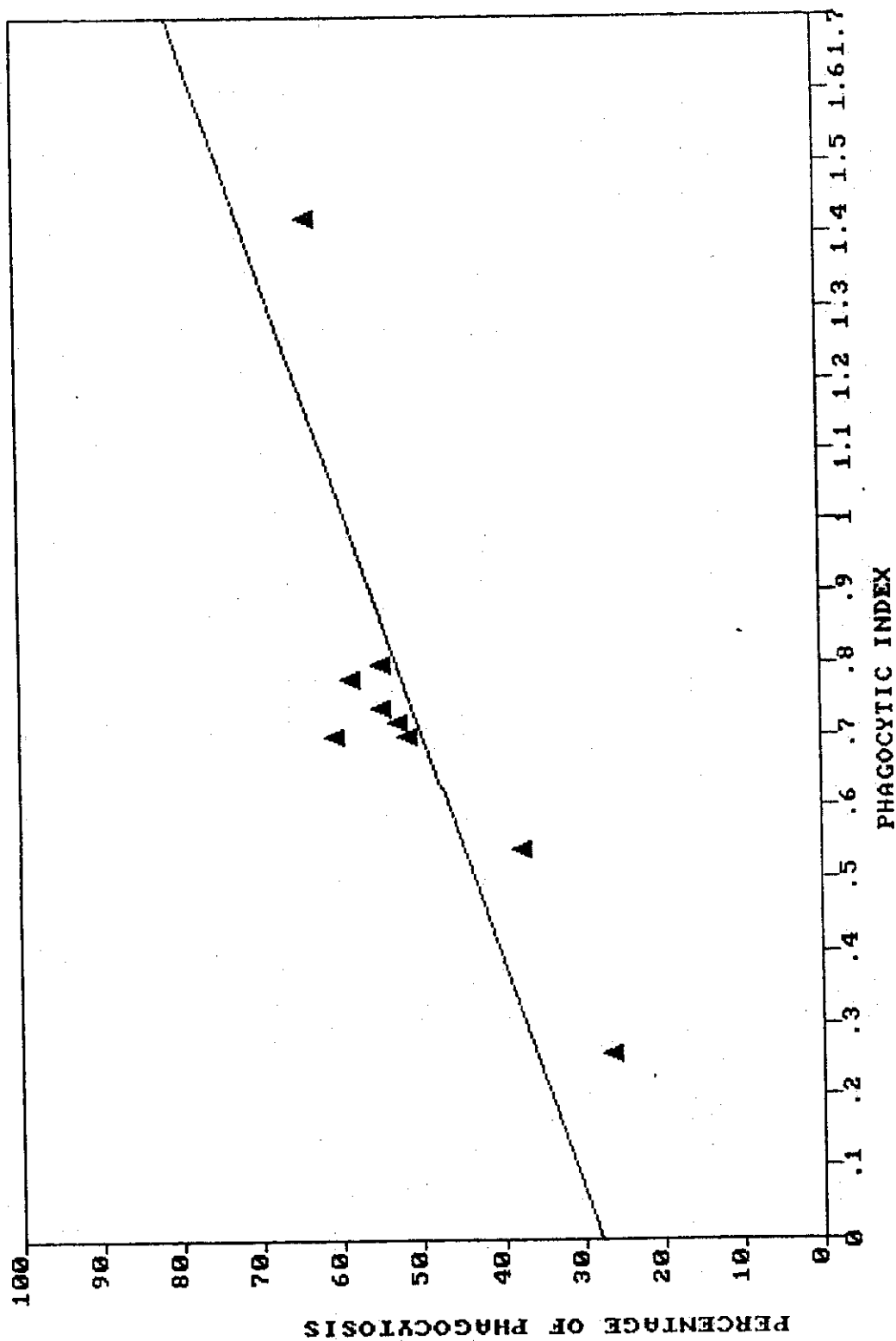
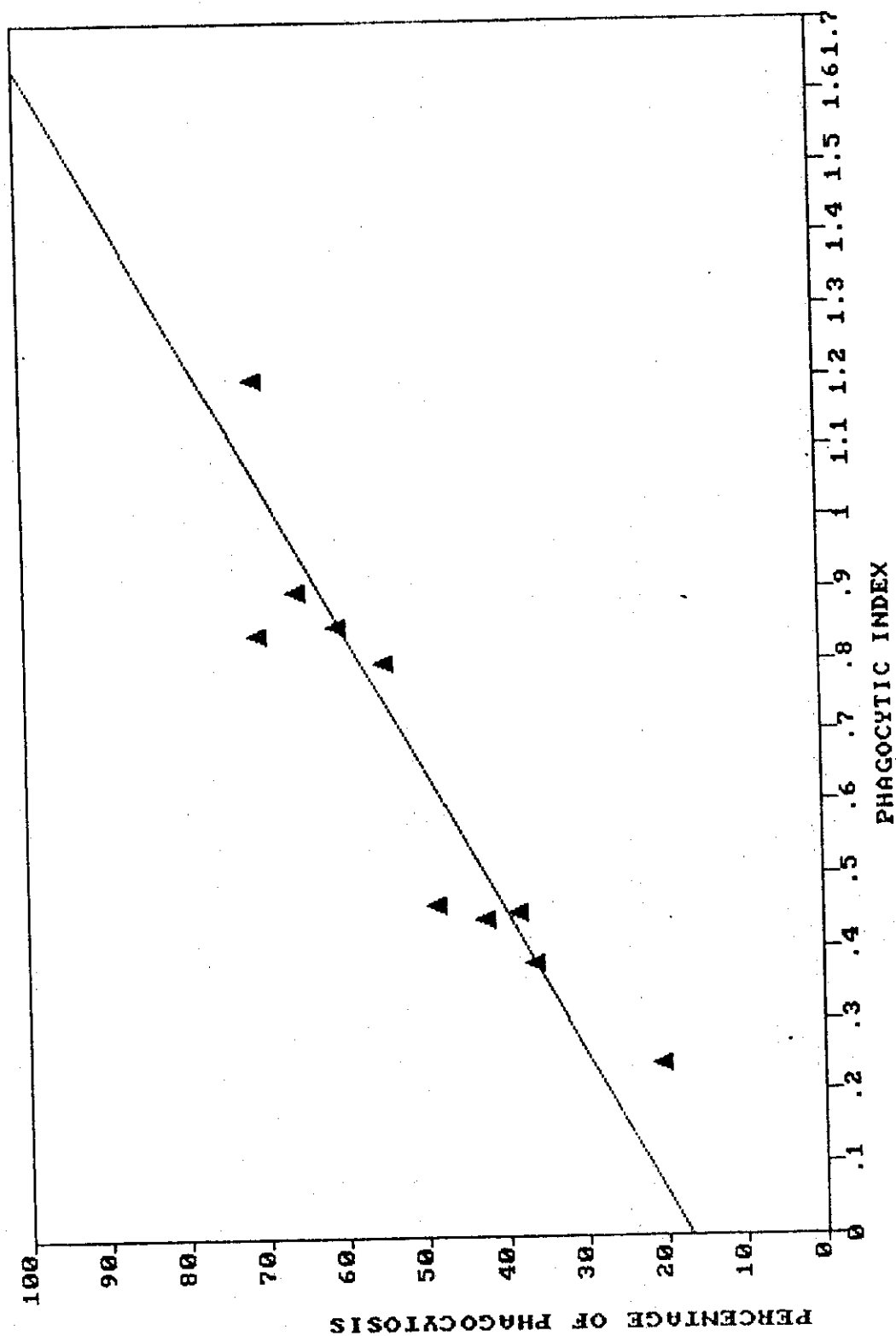


FIGURE No. 16: Scatter diagram showing the correlation between percentage of phagocytosis and phagocytic index in the group of infants aged 3 months old (10 cases)



FIGURES No. 17: Scatter diagram showing the correlation between percentage of phagocytic index in the group of infants aged 6 months old (10 cases).

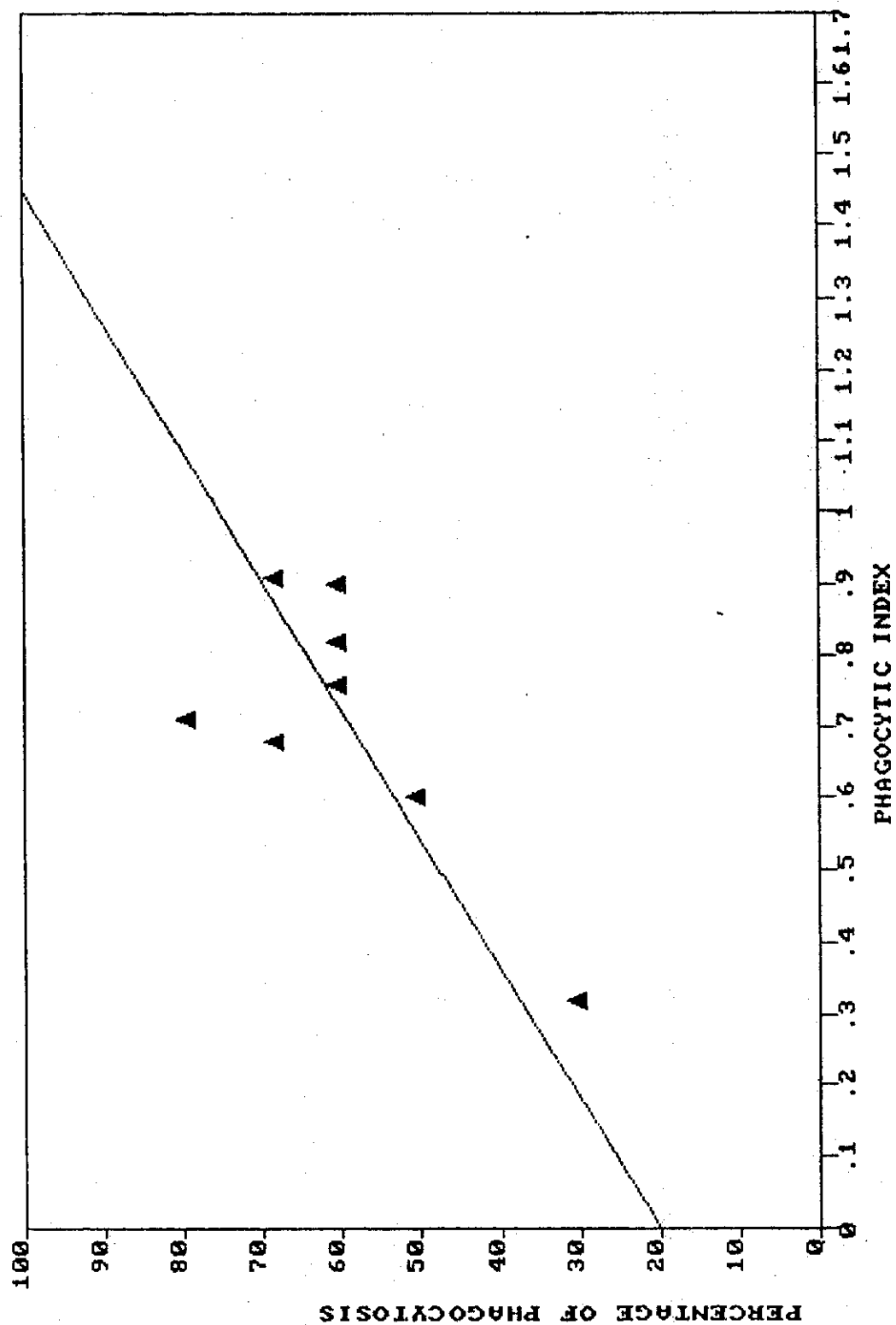


FIGURE No. 18: Scatter diagram showing the correlation between percentage of phagocytic index in the group of infants aged 12 months old (8cases).

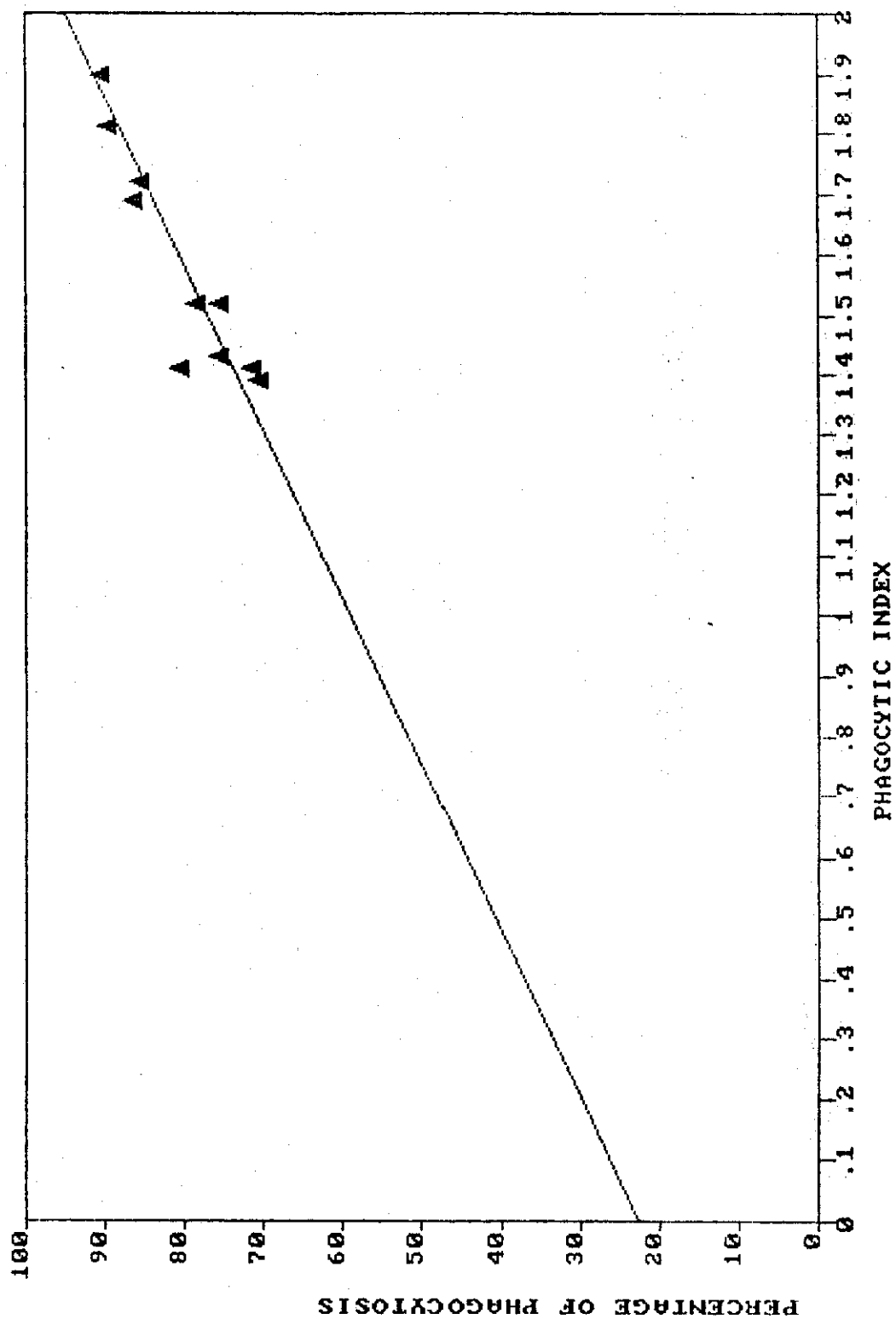


FIGURE No. 19: Scatter diagram showing the correlation between percentage of phagocytosis and phagocytic index in the group of adults (10 cases).

STATISTICAL ANALYSIS

I 1- Table No.14 and Figure No.10 concerned with mean values of A.N.C. in the different age groups show that:

- The value of Fullterms in their first week of life was statistically higher than that of Preterms. t test = 2.725; $P = <.01$.
- The value of 3 month old infants was statistically lower than that of Preterms group. t test = 2.853; $P = <.01$.
- The value of 6 month old infants was statistically lower than that of Preterms group. t test = 3.15; $P = <.01$.
- The value of 12 month old infants was statistically lower than that of Preterms group. t test = 2.111; $P = <.05$.
- The value of Adults group was not significantly different from that of Preterms group. t test = .882; $P = >.05$.

2- Table No.15 and Figure No.11 concerned with the P% in the different age groups show:

- No statistical significant difference between Preterm, Fullterm neonates, 3 month, 6 month, and 12 month old infants. t test were respectively -, 1.080, .349, .551, .573; ($P = >.05$)
- On the other hand there was a statistical significant difference between Adults and Preterms. $t = 4.305$; ($P = <.01$).

3- Table No.16 and Figure No.12 concerned with P.I. in the different age groups show:

- No statistical significant difference between Preterm, Fullterm neonates, 3 month, 6 month, 12 month old infants. t test were respectively: -, 1.526, .09, .026, .08 ($P = > .05$). On the other hand there was a statistical significant difference between adults and Preterms $t = 8.574$; ($P = < .01$).

4- Table No.17 and Figure No.13 concerned with the L.S. in the different age groups show:

- No statistical significant difference between Preterm, Fullterm neonates, 3 month, 6 month, 12 month old infants. t test were respectively: -, .176, 1.462, 1.499, .428; ($P = > .05$).

On the otherhand there was a statistical significant difference between Adults and Preterms. $t = 7.08$; ($P = < .01$).

II 1- Table No.18 and Figure No.14 show a highly significant positive correlation between percentage of phagocytosis (P%) versus phagocytic index (P.I.) in the group of Preterm neonates.

$$r = .962 ; \quad P = < .001$$

No statistical significant correlation was found between the following parameters:

- P% versus	A.N.C.	$r = .138$	; P = $>.05$
- P.I. "	A.N.C.	$r = .146$	; P = $>.05$
- L.S. "	A.N.C.	$r = .149$	; P = $>.05$
- L.S. "	P%	$r = .254$	; P = $>.05$
- L.S. "	P.I.	$r = .199$	; P = $>.05$

2- Table No.19 and Figure No.15 show a positive statistical correlation between P% versus P.I. in the group of Fullterm neonates.

$$r = .878 ; P = <.001$$

No statistical significant correlation was found between the following parameters:

- P% versus	A.N.C.	$r = -.364$	; P = $>.05$
- P.I. "	A.N.C.	$r = -.236$	; P = $>.05$
- L.S. "	A.N.C.	$r = -.047$	; P = $>.05$
- L.S. "	P%	$r = -.099$	; P = $>.05$
- L.S. "	P.I.	$r = -.234$	; P = $>.05$

3- Table No20 and Figure No.16 show a positive statistical significant correlation between P% versus P.I. in the group of 3 month old infants

$$r = 0.798 \quad ; \quad P = <0.02$$

No statistical significant correlation was found between the following parameters:

- P% versus A.N.C. $r = .009$; $P = >.05$
- P.I. " A.N.C. $r = .119$; $P = >.05$
- L.S. " A.N.C. $r = -.325$; $P = >.05$
- L.S. " P% $r = .365$; $P = >.05$
- L.S. " P.I. $r = .348$; $P = >.05$

4- Table No.21 and Figure No.17 show a positive statistical significant correlation between P% versus P.I. in the group of 6 month old infants

$$r = .927 \quad ; \quad P = <.001$$

No statistical significant correlation was found between the following parameters:

- P versus A.N.C. $r = .124$; $P = >.05$
- P.I. " A.N.C. $r = .194$; $P = >.05$
- L.S. " A.N.C. $r = -.1$; $P = >.05$
- L.S. " P% $r = -.273$; $P = >.05$
- L.S. " P.I. $r = .370$; $P = >.05$

5- Table No.22 and Figure No.18 show a positive statistical significant correlation between P% versus P.I. in the group of 12 month old infants.

$$r = .878 \quad ; \quad P = < .001$$

No statistical significant correlation was found between the following parameters:

- P versus A.N.C. $r = -.506$; $P = > .05$
- P.I. " A.N.C. $r = -.191$; $P = > .05$
- L.S. " A.N.C. $r = -.410$; $P = > .05$
- L.S. " P% $r = .412$; $P = > .05$
- L.S. " P.I. $r = .586$; $P = > .05$

6- Table No.23 and Figure No.19 show a positive statistical significant correlation between P% versus P.I. in the group of adults.

$$r = .922 \quad ; \quad P = < .001$$

No statistical significant correlation was found between the following parameters:

- P versus A.N.C. $r = .310$; $P = > .05$
- P.I. " A.N.C. $r = -.169$; $P = > .05$
- L.S. " A.N.C. $r = -.130$; $P = > .05$
- L.S. " P% $r = .245$; $P = > .05$
- L.S. " P.I. $r = -.366$; $P = > .05$

STATISTICAL METHODOLOGY

Data were tabulated in a suitable form. Descriptive measures were calculated viz mean and standard deviation for quantitative data.

For comparison between different groups t test of significance was resorted to according to the following equation (Armitage 1974):

$$t = \frac{X_1 - X_2}{\sqrt{\frac{SD_1^2 n_1 + SD_2^2 n_2}{n_1 + n_2 - 2} \left[\frac{1}{n_1} + \frac{1}{n_2} \right]}}$$

X_1 = mean of first variable

X_2 = mean of second variable

S.D. = Standard deviation

n_1 = number of cases of the first variable

n_2 = number of cases of the second variable

In this test calculated values were compared with tabulated values for the bidirectional (two-tailed) t test. The 95% level of significance ($2\alpha = .05$) was the least available as significant. So value is statistically significant if $P = < .05$.

In order to find the relation ship between any two quatitative measures Parson Correlation (r) was calculated, according to the following equation (Armitage 1974):

$$r = \frac{\sum xy - \frac{(\sum x)(\sum y)}{n}}{\sqrt{\left[\frac{\sum x^2 - \frac{(\sum x)^2}{n}}{n} \right] \left[\frac{\sum y^2 - \frac{(\sum y)^2}{n}}{n} \right]}}$$

r = correlation coefficient

x = first variable

y = second variable

n = number of cases

{ = summation

STATISTICAL CONCLUSION

I- Comparing the mean values of each of the 4 studied parameters ANC., P%, PI, LS, in the different age groups included in our work, results revealed the following:

1. Concerning the A.N.C.:

The highest significant mean value was that of Fullterm neonates (during the first week of life).

2. Concerning the P% - P.I. - L.S.

- No statistical significant difference was found in the following 5 groups : Preterm neonates, Fullterm neonates, 3 month, 6 month, 12 month old infants.
- Adults value was significantly higher than the infants values (Table No.14 to 17; Figures No.10 to 13).

II Studying the Parson correlation coefficient between the different 4 parameters studied in each of the age groups separately, results revealed the following:

1. There was a statistical significant correlation between P% and P.I. in all of the studied age groups.
2. L.S. was not significantly correlated with any of the other parameters in any of the studied age groups.
3. A.N.C. was not significantly correlated with any of the other parameters in any of the studied age groups.
(Tables No.18 to 23; Figures No.14 to 19).