Results

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I. Control Group

This group included twenty control subjects. All were males with an age ranging between 40-57 years, mean 47 ± 4.47 years. All control subjects included in this study were clinincally free and none had smoked within 2 hours of blood collection.

Table 1 shows the results of this control group. It can be seen that total leucocytic count (TLC) ranged between 4.7-7.1 X 10^3, mean 5.45 X 10^3 ± 0.79. The percentage of neutrophils in this group ranged between 40-68%, mean 58.4 ± 7.83%. The percentage of active phagocytic cells ranged between 6-13%, mean 9.3 ± 2.29% of number of neutrophils counted.

II. Cases with Acute Myocardial Infarction

Fifty patients were included. Their age ranged between 40-70 years, mean 55.9 ± 8.38 years. All presented with symptoms and clinical signs of acute myocardial infarction. ECG studies showed acute myocardial injury of varying extent. Serum creatine phosphokinase (CPK) enzyme was measured and ranged between 323-573 IU/L with a mean value of 448 ± 125 IU/L. Figure 1 represents the ECG of one of the cases investigated. Table 2 shows the results of this

studied group. It can be seen that TLC ranged between 5.6-15.5 X 10^3, mean 8.9 X 10^3 ± 2.73, the percentage of neutrophils ranged between 43-80%, mean 61.5 ± 8.18 and the percentage of active phagocytic cells ranged between 18-71%, with a mean value of 37.9 ± 14.79%.

In this studied group as observed from table 3, TLC shows statistically significant rise ($P < 0.05$) compared with normal control. The percentage of neutrophils shows an insignificant rise ($P > 0.05$) compared with the control while the percentage of active phagocytic cells showed highly significant rise ($P < 0.01$) when compared with the normal control.

The studied cases were classified according to cigarette smoking. The results are present in table 4. As observed, in smokers, TLC ranged between 5.6-13.8 X 10^3 with a mean of 9.06 X 10^3 ± 2.54, percentage of neutrophils ranged between 53-71%, mean 62.52% ± 5.74 and percentage of active phagocytic cells ranged between 18-74%, mean 40.59% ± 16.50. In nonsmokers, TLC ranged between 6-15.5 X 10^3, the mean being 8.7 X 10^3 ± 3.02, percentage of neutrophils ranged between 43-80%, with a mean of 60.24 ± 10.71% and percentage of active phagocytic cells ranged between 18-54% with a mean of 34.24 ± 11.39%. The difference between both groups was statistically insignificant ($P > 0.05$).

Table 5 shows the studied cases classified according to the presence of hypertension, TLC in hypertensives ranged between 6-11.3 X 10^3, mean 8.97 X 10^3 ± 2.75, percentage of neutrophils ranged between 53-66%, mean 61.50 ± 8.44 while percentage of active phagocytic cells ranged between 30-54% with a mean of 37.91 ± 5.15%. In nonhypertensive cases, TLC ranged between 5.6-15.5 X 10^3, the mean was 8.13 ± 2.60, while the percentage of neutrophils ranged between 43-80% with a mean of 62.25 ± 4.92% and percentage of active phagocytic cells ranged between 18-74% with a mean of 38.00 ± 11.31%. The difference between the two gruops was statistically insignificant ($P > 0.05$).

Table 6 shows the total leucocytic count, neutrophil percentage and the percentage of phagocytic active cells among the studied cases classified according to the presence of diabetes mellitus. It shows that TLC in the diabetic group ranged between 6-13.5 X 10^3 with a mean value of 8.61 X 10^3 ± 2.85, the percentage of neutrophils ranged between 43-71%, the mean being 62.89 ± 7.72% while the percentage of phagocytic active cells ranged between 18-74%, mean 36.06% ± 13.49. In nondiabetic patients, TLC ranged between 5.6-15.5 X 10^3, mean 9.38 X 10^3 ± 2.51 and percentage of neutrophils ranged between 53-80%, mean 59.47 ± 8.68% while percentage of phagocytic active cells ranged

between 18-71, mean 40.95 ± 16.63%. The difference between the two groups was statisitically insignificant ($P > 0.05$).

From the above results, it can be seen that the presence of risk factors (smoking, hypertension or diabetes) does not significantly affect the parameters investigated; namely TLC, neutrophil percentage and phagocytic activity.

The studied cases were further subdivided into groups GI, GII, GIII according to time of sampling from the occurrence of the myocardial attack; GI: sampling at first and second days from the occurrence of the attack, GII: sampling at 3rd, 4th days and GIII: sampling at 5th, 6th and 7th days.

Table 7 shows the total leucocytic count, neutrophil percentage and percentage of phagocytic active cells among the studied groups classified according to day of blood sampling from the occurrence of myocardial attack. It shows that TLC in GI ranged between 5.6-16.3 X 10^3 with a mean of 9.98 X 10^3 ± 2.56, TLC in GII ranged between 6-12.3 X 10^3, with a mean of 7.63 X 10^3 ± 1.86 while in GIII, TLC ranged between 6.3-15.5 X 10^3 with a mean of 9.16 X 10^3 ± 3.50. The difference was statistically significant ($P < 0.05$) between the three groups.

Neutrophil percentage ranged between 43-71% with a mean of 61.15 ± 9.62 in GI, GII neutrophil percentage ranged between 53-71% with a mean of 59.42 ± 4.67 and GIII neutrophil percentage ranged between 58-80% with a mean value of 66.00 ± 9.08%. The difference was statistically insignificant ($P > 0.05$).

In GI, the percentage of phagocytic active cells ranged between 18-74% with a mean value of 42.60 ± 19.96%, in GII, it ranged between 22-52% with a mean value of 33.37 ± 7.35% while in GIII, the range was 18-54% with a mean value of 37.27 ± 11.60%. The difference between the 3 groups was statistically insignificant ($P > 0.05$).

Figures 2, 3, and 4 illustrate the changes in TLC, neutrophil percentage and percentage of phagocytic active cells in the studied groups and the control gorup.

Table (1): Mean and S.D. of Total Leucocytic Count (TLC), Neutropil Percetage (Neut. %) and Percentage of Active Phagocytic Cells (Phagocytic %) among Control Subjects.

		Control (No. 20)
TLC $X10^3$	Range	4.7-7.1
	Mean	5.45
	S.D.±	0.79
Neut. %	Range	40.0-68.0
	Mean	58.4
	S.D.±	7.83
Phagocytic %	Range	6.0-13.0
	Mean	9.3
	S.D.±	2.29

Table (2): Mean and S.D. of Total Leucocytic Count (TLC), Neutropil Percetage (Neut. %) and Percentage of Active Phagocytic Cells (Phagocytic %) among the Studied Group.

		Cases (No. 50)
TLC $X10^3$	Range	5.6-15.5
	Mean	8.9
	S.D.±	2.73
Neut. %	Range	43.0-80.0
	Mean	61.5
	S.D.±	8.18
Phagocytic %	Range	18.0-71.0
	Mean	37.9
	S.D.±	14.79

Table (3): Mean and S.D. of Total Leucocytic Count (TLC), Neutropil Percetage (Neut. %) and Percentage of Active Phagocytic Cells (Phagocytic %) among the Studied Group and Control Subjects.

	Cases	Control	P
TLC $X10^3$			
Range	5.6-15.5	4.7-7.1 X 10^3	
Mean	8.9	5.45 X 10^3	< 0.05
S.D.±	2.7	30.79	
Neut. %			
Range	43.0-80.0	40.0-68.0	
Mean	61.5	58.4	> 0.05
S.D.±			
Phagocytic %			
Range	18.0-71.0	6.0-13.0	
Mean	37.9	9.3	< 0.01
S.D.±	14.79	2.29	

Table (4): Mean and S.D. of Total Leucocytic Count (TLC), Neutropil Percetage (Neut. %) and Percentage of Active Phagocytic Cells (Phagocytic %) among the Studied Cases according to Cigarette Smoking.

	Smokers (n = 29)	Nonsomokers (n = 21)	P
TLC $X10^3$			
Range	5.6-13.8	6.0-15.5	
Mean	9.06	8.7	> 0.05
S.D.±	2.54	3.02	
Neut. %			
Range	53.0-71.0	43.0-80.0	
Mean	62.52	60.24	> 0.05
S.D.±	5.74	10.71	
Phagocytic %			
Range	18.0-74.0	18.0-54.0	
Mean	40.59	34.24	> 0.05
S.D.±	16.50	11.39	

Table (5): Mean and S.D. of Total Leucocytic Count (TLC), Neutropil Percetage (Neut. %) and Percentage of Active Phagocytic Cells (Phagocytic %) among the Studied Cases according to Hypertension.

	Hypertensive (n = 4)	Nonhypertensive (n = 46)	P
TLC $X10^3$			
Range	6.0-11.3	5.6-15.5	
Mean	8.97	8.13	> 0.05
S.D.±	2.75	2.60	
Neut. %			
Range	53.0-66.0	43.0-80.0	
Mean	61.50	62.25	> 0.05
S.D.±	8.44	4.92	
Phagocytic %			
Range	30.0-54.0	18.0-74.0	
Mean	37.91	38.0	> 0.05
S.D.±	15.15	11.31	

Table (6): Mean and S.D. of Total Leucocytic Count (TLC), Neutropil Percetage (Neut. %) and Percentage of Active Phagocytic Cells (Phagocytic %) among the Studied Cases according to the Presence of Diabetes Metllitus.

	Diabetic (n = 19)	Nondiabetic (n = 31)	P
TLC $X10^3$			
Range	6.0-13.5	5.6-15.5	
Mean	8.61	9.38	> 0.05
S.D.±	2.85	2.51	
Neut. %			
Range	43.0-71.1	53.0-80.0	
Mean	62.89	59.47	> 0.05
S.D.±	7.72	8.68	
Phagocytic %			
Range	18.0-74.0	18.0-71.0	
Mean	36.06	40.95	> 0.05
S.D.±	13.49	16.63	

Table (7): Mean and S.D. of Total Leucocytic Count (TLC), Neutropil Percetage (Neut. %) and Percentage of Active Phagocytic Cells (Phagocytic %) among the Studied Groups Classified according to Day of Blood Sampling from the Occurrence of Myocardial attack.

	Group I	Group II	Group III	P
TLC $X10^3$				
Range	5.6-16.3	6.0-12.3	6.3-15.5	
Mean	9.98	7.63	9.16	< 0.05
S.D.±	2.56	1.86	3.50	
Neut. %				
Range	43.0-71.0	53.0-71.0	58.0-80.0	
Mean	61.15	59.42	66.0	> 0.05
S.D.±	9.62	4.67	9.08	
Phagocytic %				
Range	18.0-74.0	22.0-52.0	18.0-54.0	
Mean	42.60	33.37	37.27	> 0.05
S.D.±	19.96	7.35	11.60	

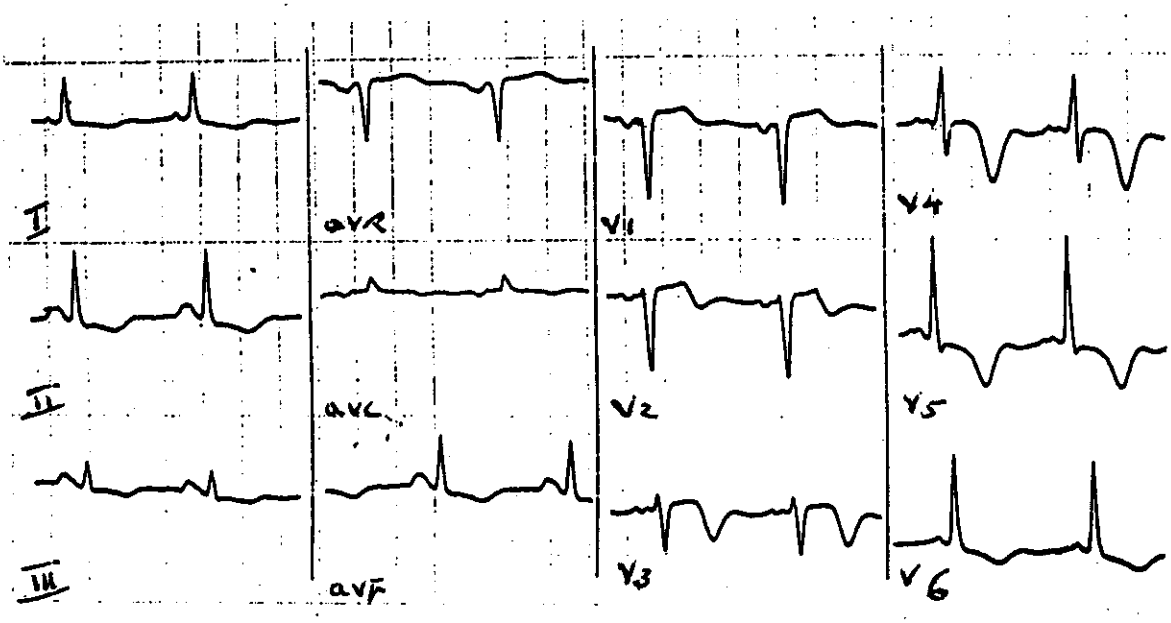


Fig. (1): The ECG changes of one of the cases investigated.

E.C.G. of a man with recent antero-septal myocardial infarction.

- Inverted T in L I,II,III,aVL, aVf
- Raised S-T segment in V L-4
- T inversion in all chest leads.
- Deep Q in Vi

Fig. (2): Changes in Total Leucocytic Count in the Studied Groups and the Control Group

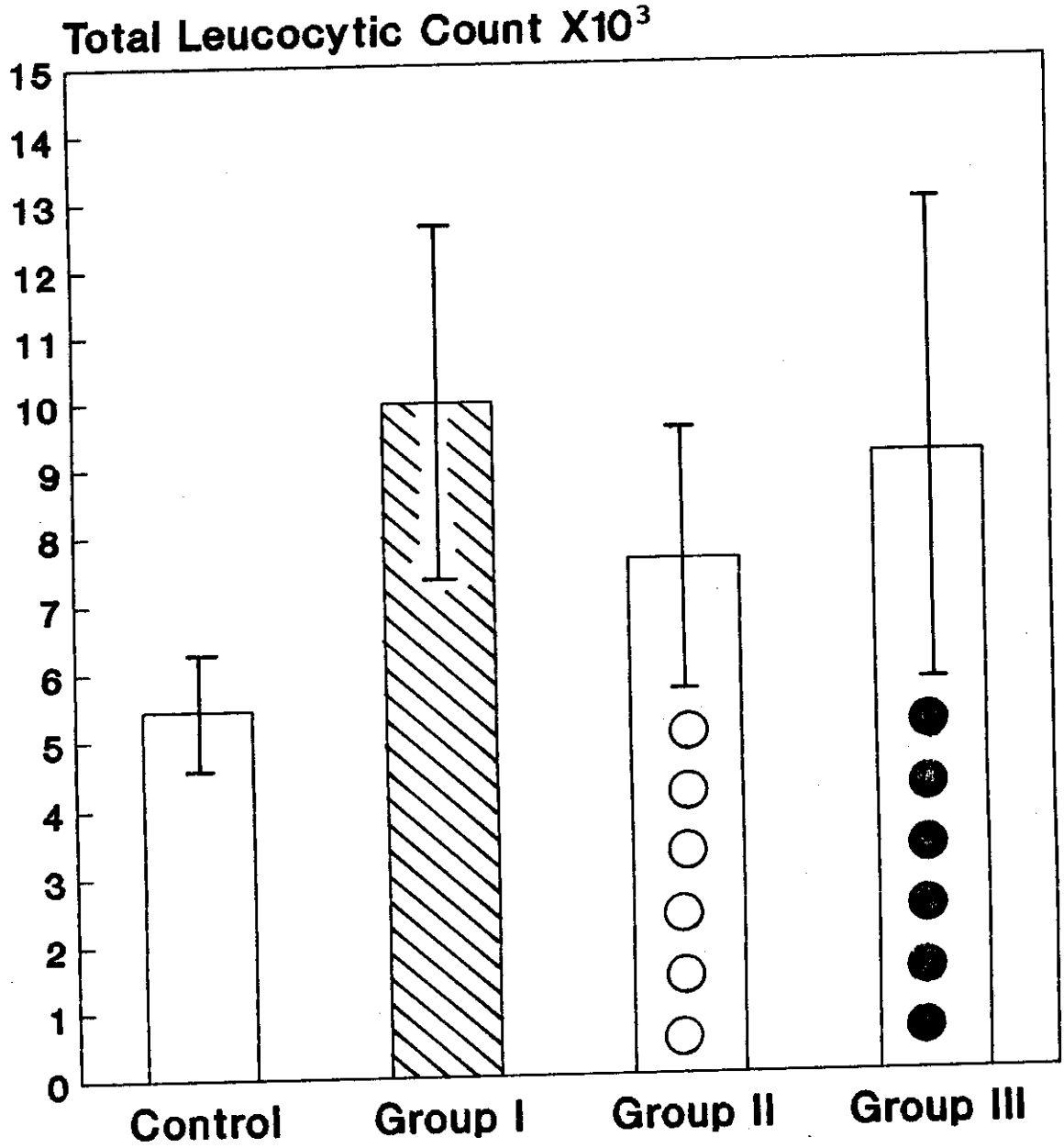


Fig. (3): Changes in Neutrophil Percentage in the Studied Groups and the Control Group.

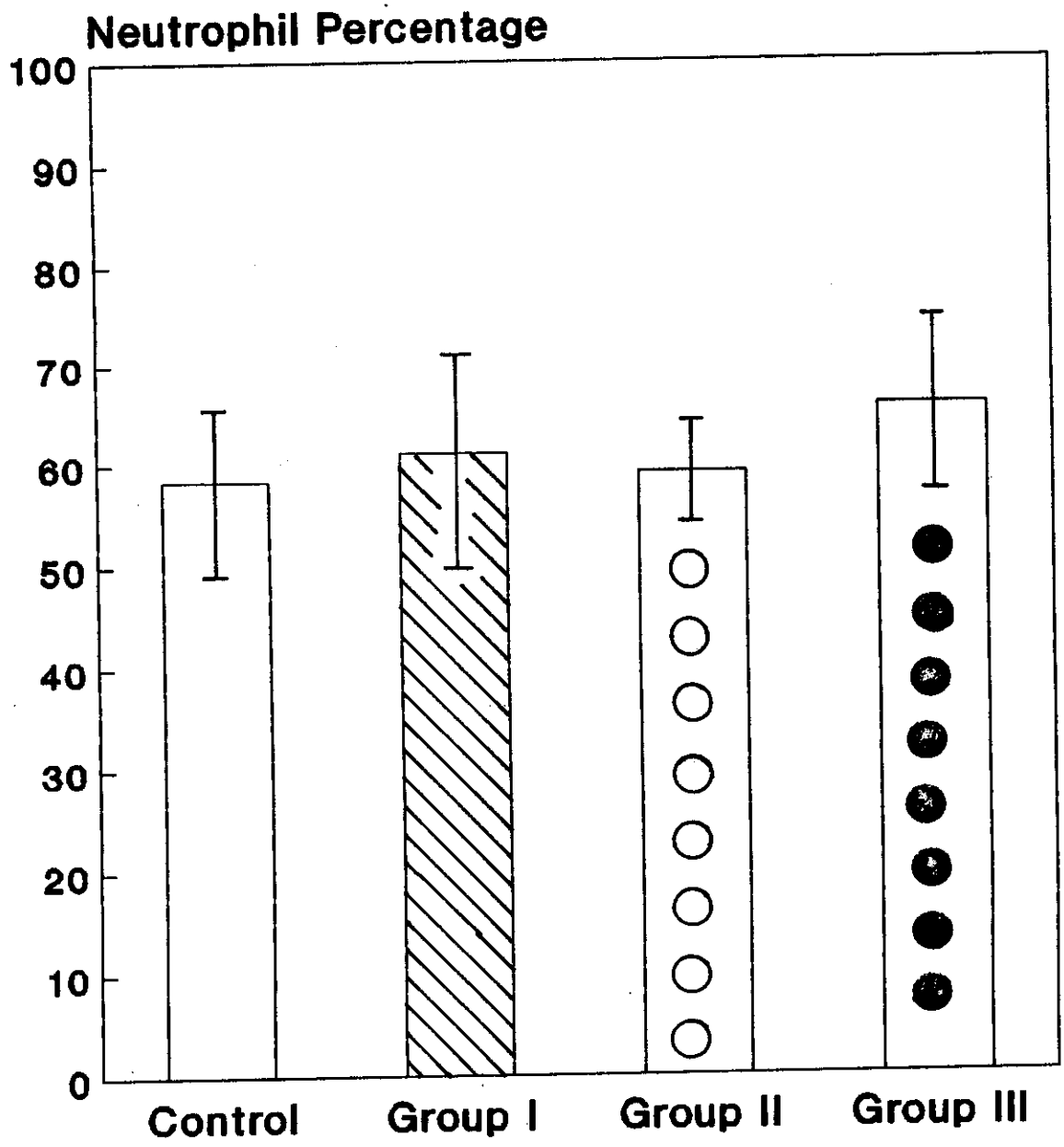
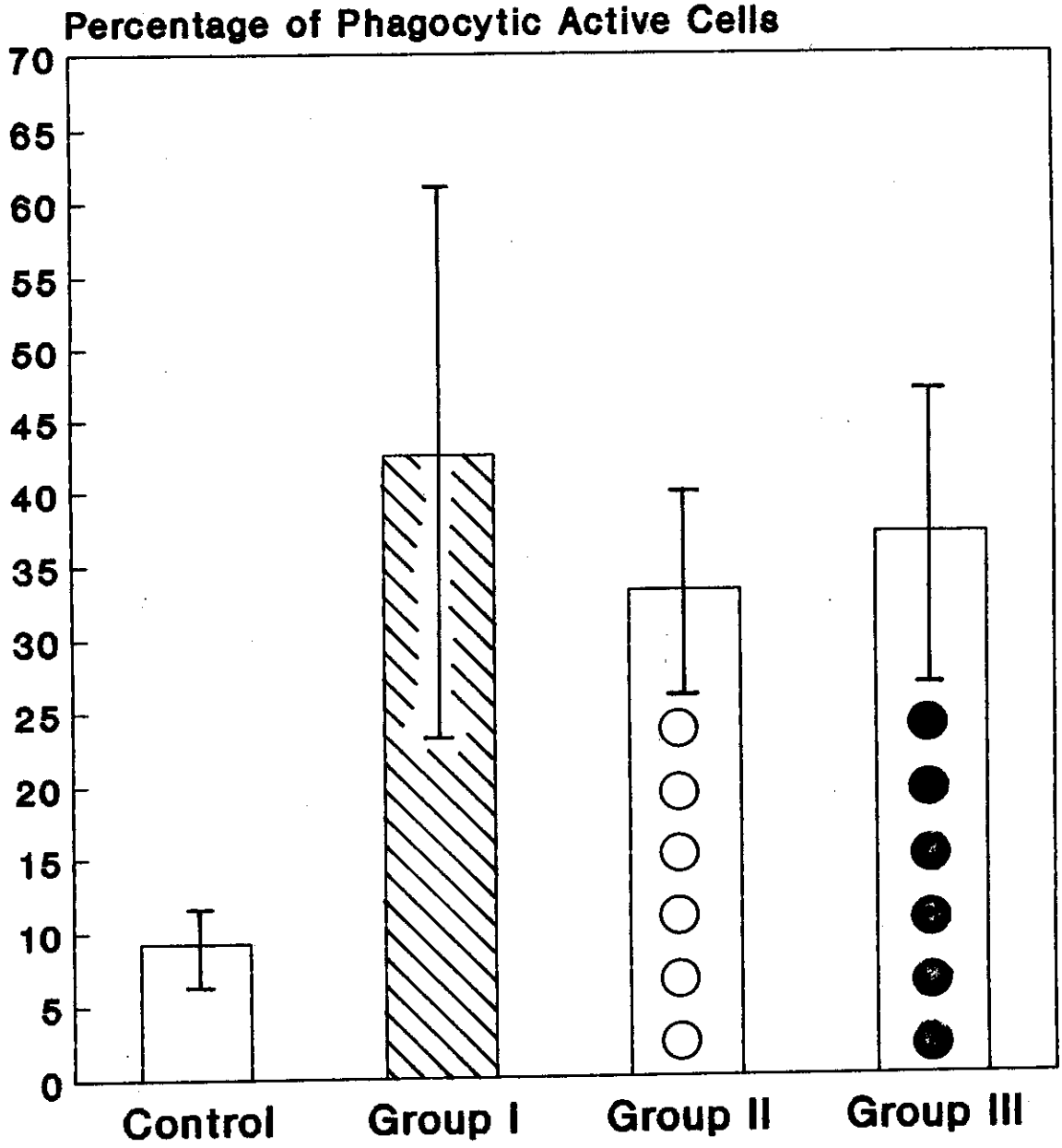


Fig. (4): Changes in the Percentage of Phagocytic Active Cells in the Studied Groups and the Control Group.



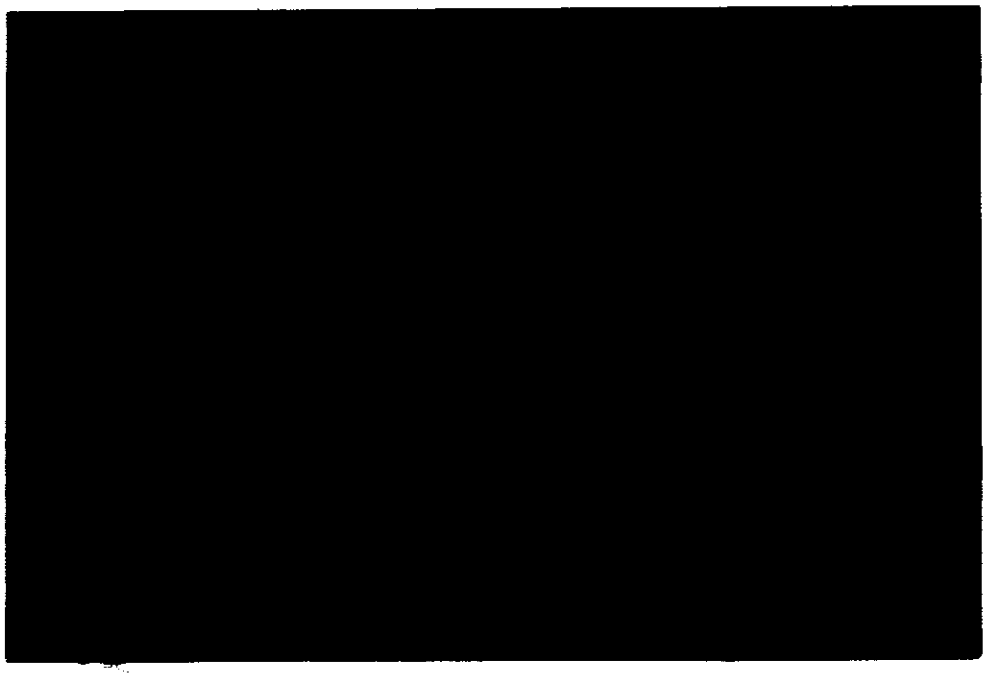


Fig. (5): Active phagocytic cell engulfing the nitroblue tetrazolium dye.