

Statistical Analysis

Statistical methods: -

Data were collected processed analysed using SPSS PC + for windows version 6.0 Evaluation of the type of distribution of continuous variables was done using kolmogorov smirnov Smirnov test, the result of this study revealed preserved normality of the data distribution. So, mean and standard error of mean used to express the central tendency of data and degree of dispersion.

Analysis of difference between 2 groups as continuous normally distributes variables was performed using t-test, however for the analysis of difference between > 2 groups was assessed by one-way ANOVA (Acronym of Analysis of Variance).

Correlation between the continuous variables was done by spearman one product.

Fig.1:Distribution of patients in different groups

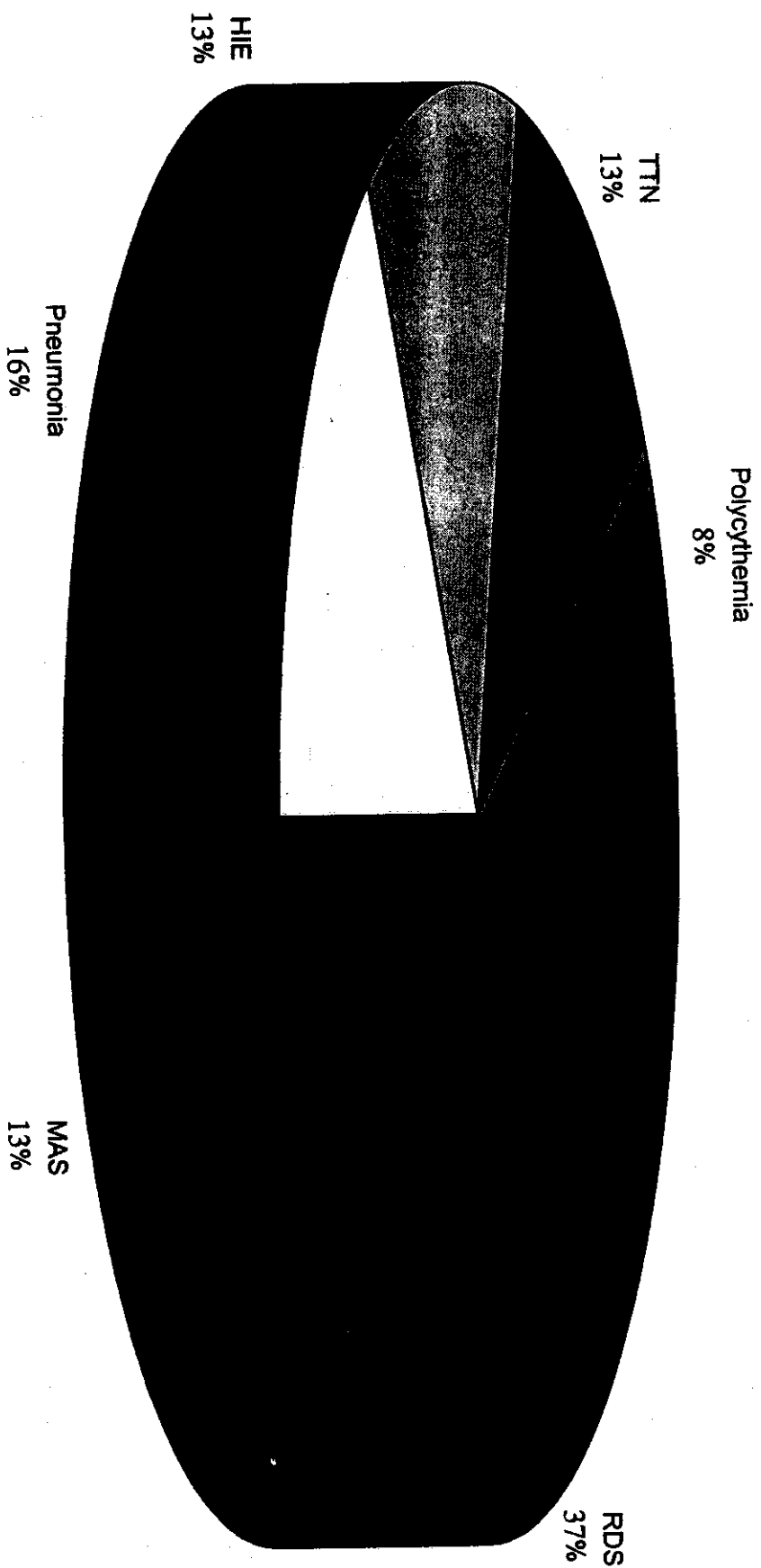


Table (1): Difference between patients (group A) and control (group B) as regards clinical parameters (t-test).

	Patients	Control	t-value	P
	Mean $\pm$ SEM	Mean $\pm$ SEM		
Gestational age (weeks)	42.2 $\pm$ 6.3	38.4 $\pm$ 0.32	0.59	0.56
Weight (gm)	2515 $\pm$ 115	3368 $\pm$ 37.9	7.05	< 0.0001***
Respiratory rate	66.9 $\pm$ 1.9	41.6 $\pm$ 0.77	12.6	< 0.0001**
Heart rate	142.8 $\pm$ 2.2	127.1 $\pm$ 2.6	4.53	< 0.0001**

** p < 0.05 $\rightarrow$ highly significant.

Table (2): Difference among the patients of the 6 groups of respiratory difficulty as regards clinical parameters (One – way ANOVA).

	RDS	MAS	Pneum	HIE	TTN	Polycyth	F ratio	P
Gestational age (Wks)	32 $\pm$ 0.7	41 $\pm$ 0.5	38 $\pm$ 0.6	37 $\pm$ 1.7	38 $\pm$ 1.2	37 $\pm$ 0.5	1.62	0.18
Weight (gm)	1776 $\pm$ 132	2966 $\pm$ 212	3012 $\pm$ 140	2925 $\pm$ 298	3066 $\pm$ 232	2725 $\pm$ 372	9.8	< 0.001**
Respiratory rate	67 $\pm$ 3	67 $\pm$ 3	71 $\pm$ 3	55 $\pm$ 9	70 $\pm$ 5	69 $\pm$ 4	104	0.26
Heart rate	140 $\pm$ 4	141 $\pm$ 5	151 $\pm$ 3	140 $\pm$ 9	145 $\pm$ 4	142 $\pm$ 6	0.69	0.63

** $p < 0.05 \rightarrow$ significant.

Fig.2: Gestational age in control group and different groups of patients .

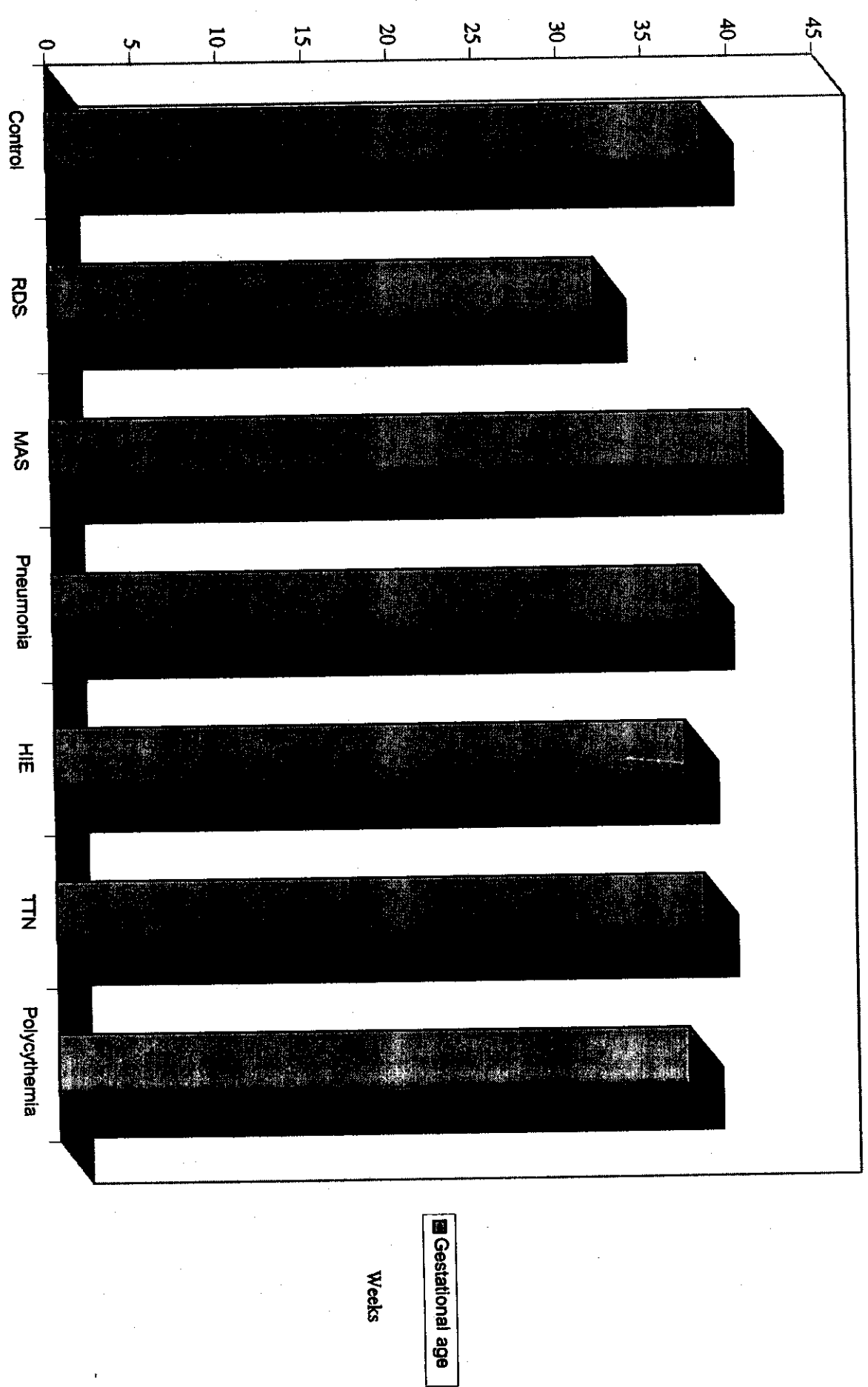


Fig. 3: Birth weight in control group and different groups of patients .

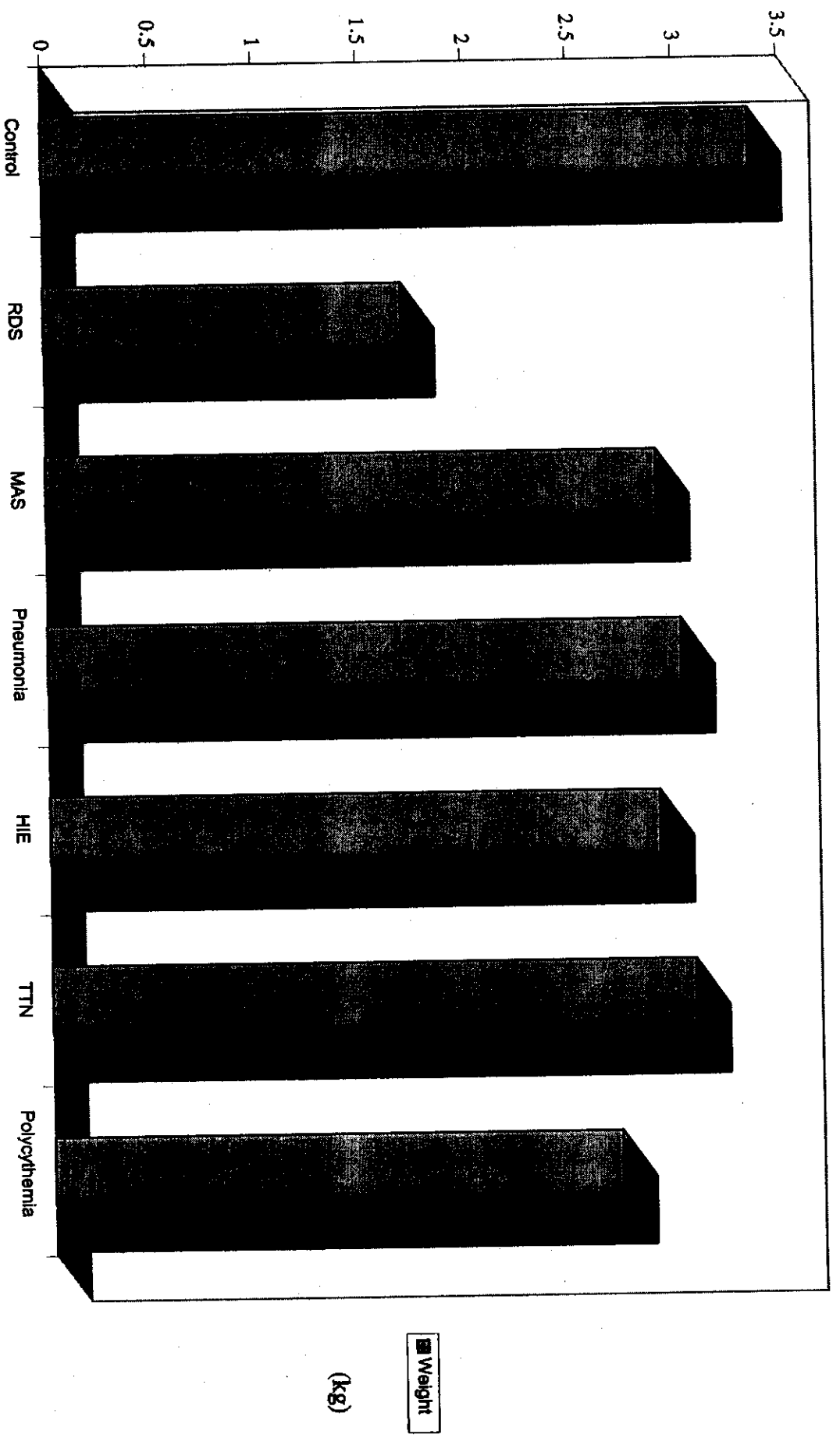


Fig. 4: Respiratory rate in control and different groups of patients .

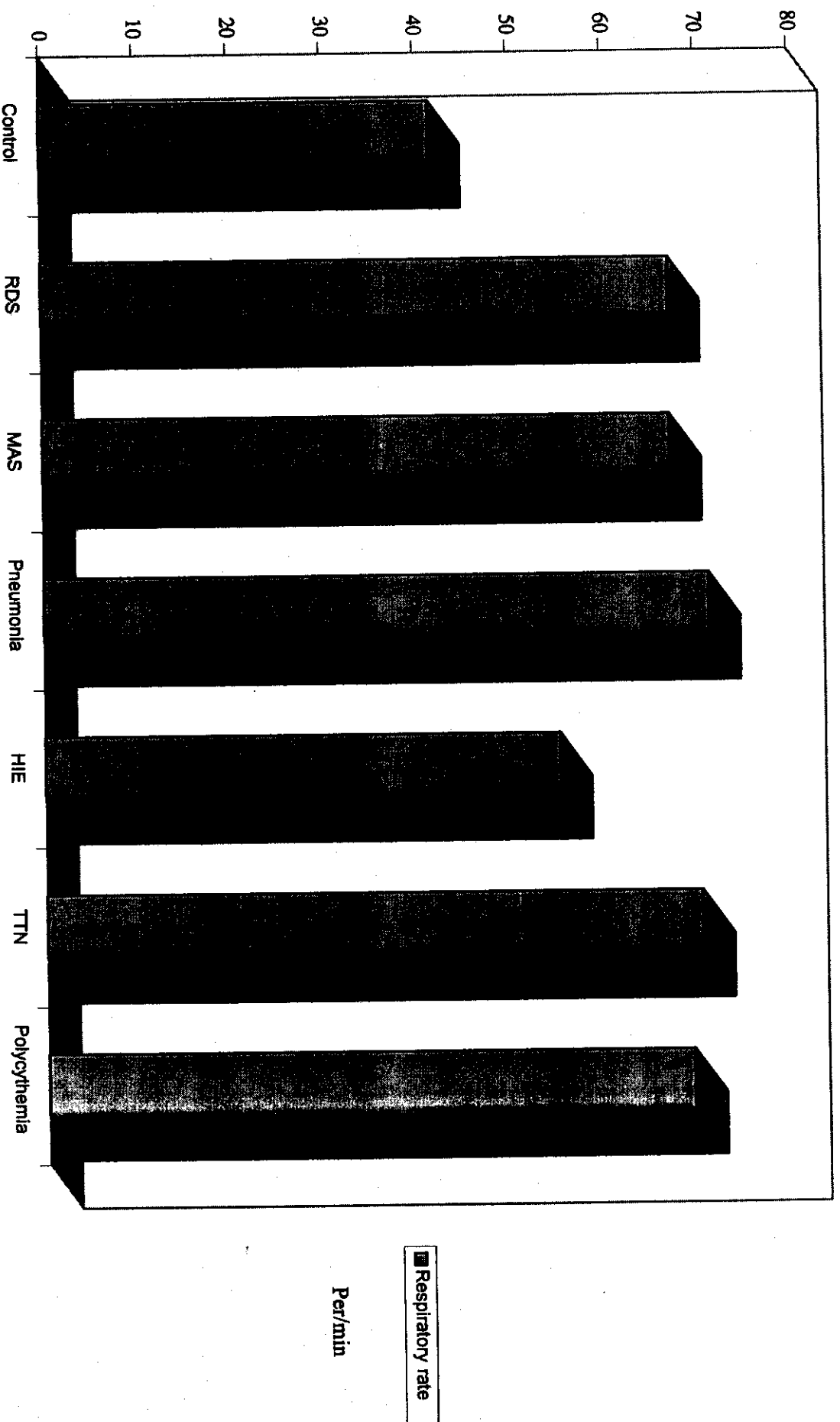


Table (3): Difference between patients and control groups as regards arterial blood gas parameters (t-test).

	Patients Mean $\pm$ SEM	Control Mean $\pm$ SEM	t-value	P
PH	7.28 $\pm$ 0.3	7.38 $\pm$ 0.02	2.87	0.006**
HCO ₃ level (m mol/L)	16.06 $\pm$ 0.95	21.73 $\pm$ 1.49	3.2	0.003**
PCO ₂ (m m Hg)	36.9 $\pm$ 2.6	35.1 $\pm$ 1.8	0.58	0.56
PO ₂ (m m Hg)	71.6 $\pm$ 4.8	78.6 $\pm$ 5.5	0.95	0.35
O ₂ Saturation	82.1 $\pm$ 2.4	94.3 $\pm$ 0.95	4.65	< 0.0001**
Base excess (m mol/L)	- 7.41 $\pm$ 1.2	- 1.13 $\pm$ 1.10	3.02	0.005**

** p < 0.05 $\rightarrow$ significant.

Table (4): Difference among the patient of the 6 sub groups of respiratory difficulty as regards arterial blood gas parameters (One – way ANOVA).

	RDS	MAS	Pneum	HIE	TTN	Polycyth	F ratio	P
PH	7.25± 0.02	7.29 ± 0.14	7.31 ± 0.09	7.30 ± 0.09	7.29 ± 0.11	7.39± 0.06	0.35	0.88
HCO ₃ (m mol/L)	18.2± 2.1	13.5± 3.04	14.3± 1.51	16.65± 1.15	13.96± 1.58	16.25± 1.24	0.77	0.58
PCO ₂ (m mHg)	46.8± 4.8	27.6± 5.7	32.7± 4.7	34.2± 9.5	33.01± 4.7	25.4± 2.2	2.03	0.09
PO ₂ (m mHg)	55.8± 3.8	85.6± 16.4	88.6± 18.9	61.9± 7.9	83.3± 16.6	84.4± 13.8	1.99	0.09
O ₂ Saturation	75± 5	85± 4	88±3	84±5	82±9	95	1.33	0.27

** p < 0.05 → significant.

Fig. 5: O₂ saturation in control and different groups of patients .

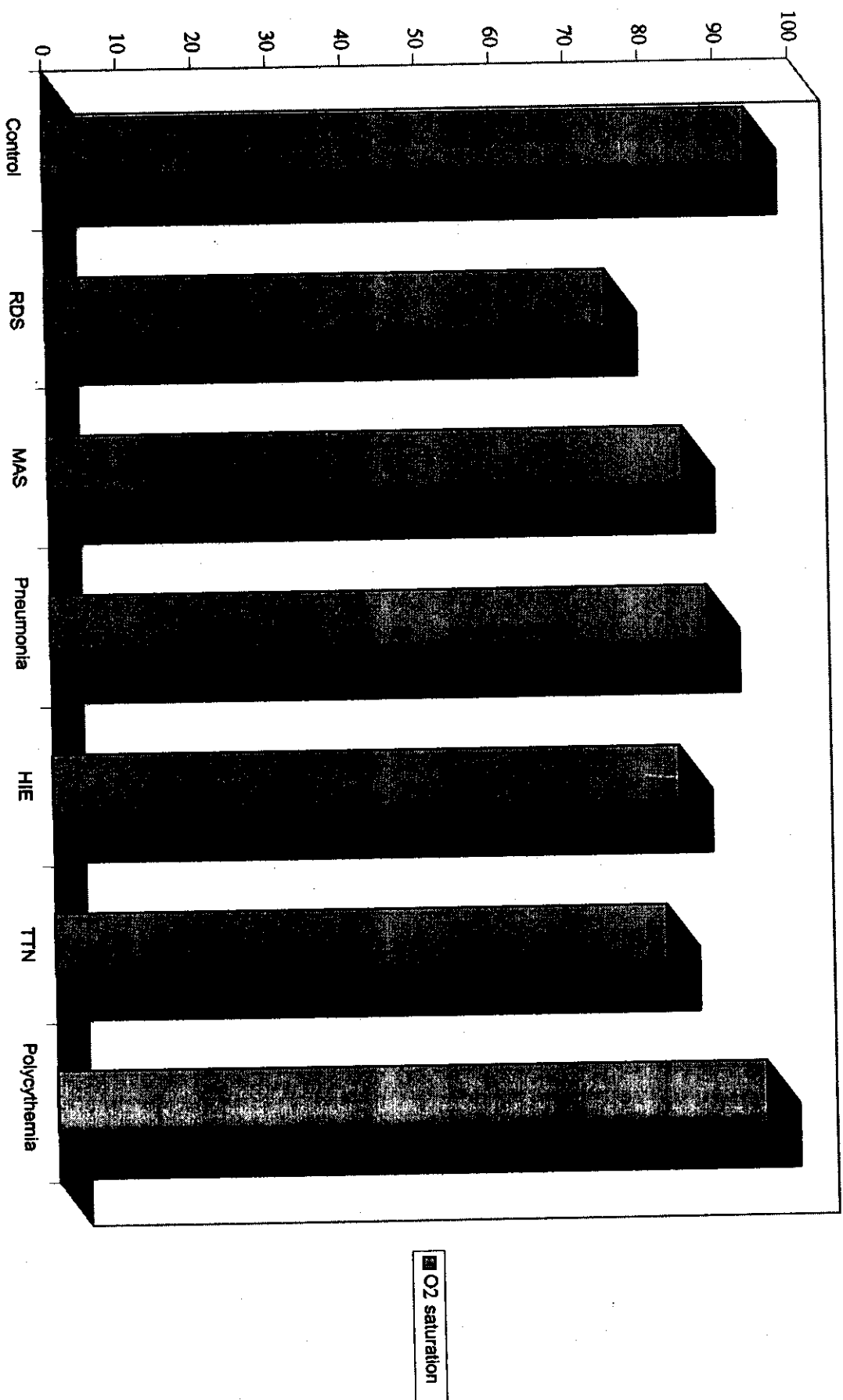


Fig.6: Blood pH in control and different groups of patients.

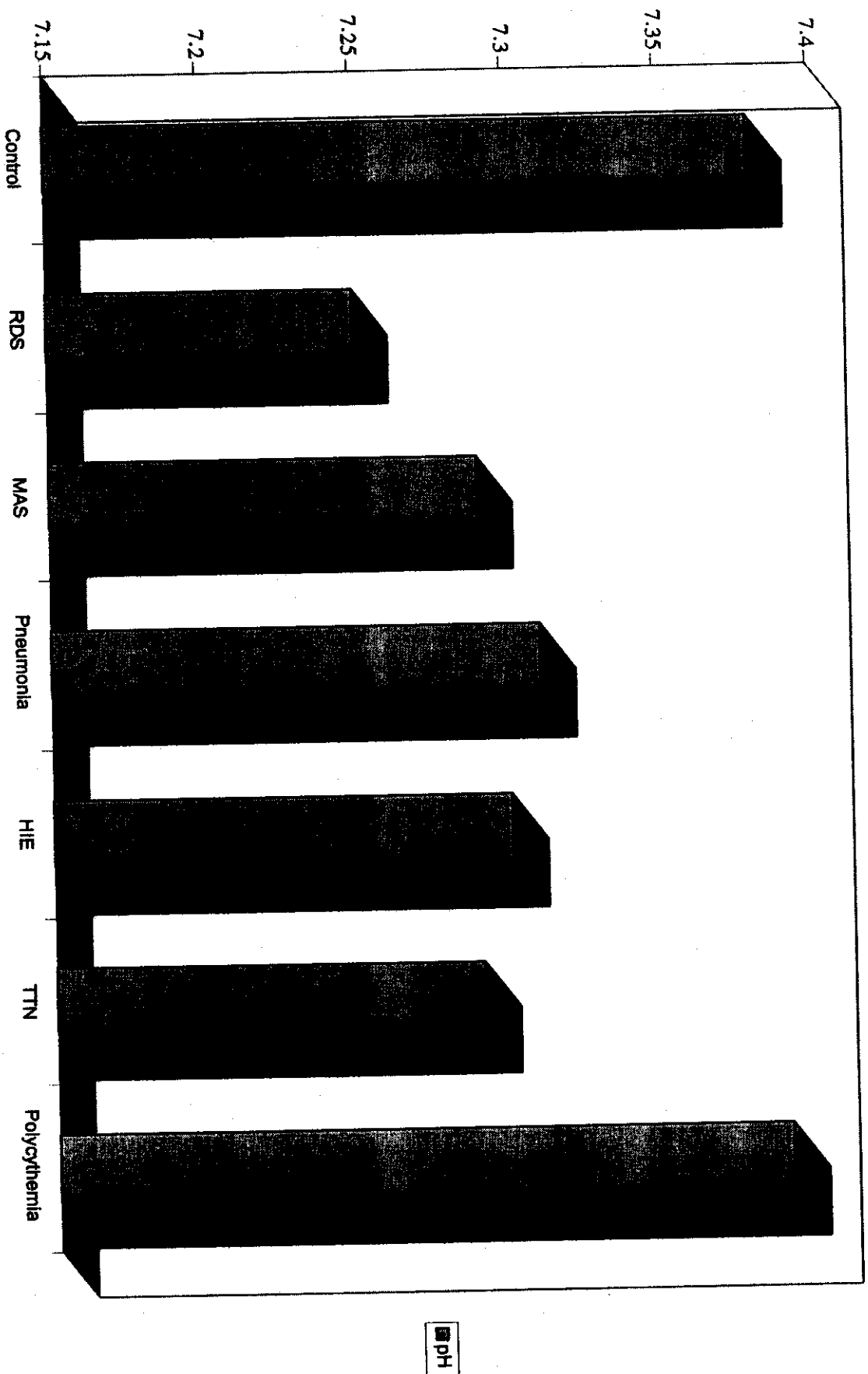


Table (5): Difference between patients and control group as regards hematological parameters (t-test).

	Patients Mean $\pm$ SEM	Control Mean $\pm$ SEM	t-value	P
HB (gm/dl)	16.2 $\pm$ 0.5	14.03 $\pm$ 0.5	3.23	0.002**
Hematocrite (%)	47.9 $\pm$ 1.5	42.9 $\pm$ 1.2	2.75	0.008**
RBCs (X 10 ⁶)	4.8 $\pm$ 0.15	3.9 $\pm$ 0.16	4.38	< 0.0001**
WBCs (X 10 ³)	12.9 $\pm$ 1.11	10.8 $\pm$ 0.5	1.71	0.09
Platelet (X 10 ³)	147.03 $\pm$ 9.4	204.5 $\pm$ 16.2	3.06	0.005**

** p < 0.5 $\rightarrow$ significant.

Table (6): Difference between each of the different 6 subgroups of patients versus control group as regards the hematological parameters of (t-test).

Group Vs. Control	HB		Hematocrite		RBCs	
	t-value	P	t-value	P	t-value	P
RDS	2.4	0.02*	1.5	0.14	2.6	0.01*
MAS	1.4	0.18	0.68	0.51	2.14	0.06
Pneumonia	0.47	0.65	0.81	0.43	2.21	0.06
HIE	2.31	0.03*	0.89	0.39	2.1	0.07
TTN	1.34	0.22	1.34	0.22	1.3	0.24
Polycythemia	6.70	0.002**	10.1	<0.001**	13.6	<0.001**

• Mean $\pm$ SEM of each parameter for each group reported in the above table.

P < 0.05 significant

Table (7): Difference among the patients of 6 groups of respiratory difficulty as regards Hematologic parameters (One – way ANOVA).

	RDS	MAS	Pneum	HIE	TTN	Polycyth	F ratio	P
HB level (gm/dL)	16.1± 0.74	15.2± 0.69	14.5± 0.82	15.8± 0.57	15.8± 1.2	22.2± 1.1	5.13	0.0009
Hematocrite	46.9± 2.32	44.4± 1.8	45± 2.3	44.8± 1.8	48.2±9. 2	68.8± 2.3	6.2	< 0.0001
RBCs (X10 ⁶)	4.6± 0.22	4.8± 0.32	4.8± 0.39	4.4± 0.19	4.7± 0.23	7.1± 0.18	6.4	0.0002
WBCs (X10 ³)	11.1± 0.75	17.8± 3.1	13.8± 6.7	13.1± 0.86	10.3± 1.5	15.4± 2.13	0.93	0.47
Platelet (X10 ³)	145± 13	153± 26	137± 14	146± 56	163± 23	146± 26	0.11	0.98

P < 0.05 Significant

Table (8): Difference between patients and control group as regards serum beta endorphin level.

	Patients	Control		
	Mean $\pm$ SEM	Mean $\pm$ SEM	t-value	P
β endorphin (pmol/L)	29.75 ± 1.6	10.32 ± 0.64	10.94	$< 0.0001^{**}$

P < 0.05 Significant

Table (9) Difference between patient subgroups & control group according to Beta Endorphin level:

Sub group	Mean $\pm$ SEM Pmol/L	Control Mean $\pm$ SEM	t	p
RDS	30.1 $\pm$ 2.5	10.32 $\pm$ 0.64	7.7	<0.001
MAS	30.3 $\pm$ 6.6	10.32 $\pm$ 0.64	3	0.003
Pneumon	30.5 $\pm$ 4.5	10.32 $\pm$ 0.64	4.5	0.003
HIE	35.7 $\pm$ 6.3	10.32 $\pm$ 0.64	4.02	0.01
TTN	24 $\pm$ 3.1	10.32 $\pm$ 0.64	6.2	0.001
Polycyth	25.5 $\pm$ 2.2	10.32 $\pm$ 0.64	6.6	0.004

P < 0.05 Significant.

Table (10): Difference among the patients of the 6 sub groups of respiratory difficulty as regards serum β endorphin level (One- way ANOVA).

	RDS	MAS	Pneum	HIE	TTN	Polycyth	F ratio	P
β endorphin (Pmol/L)	30.1 $\pm$ 2.5	30.3 $\pm$ 6.6	30.5 $\pm$ 4.5	35.7 $\pm$ 6.3	24 $\pm$ 2.1	25.5 $\pm$ 2.2	0.72	0.61

P < 0.05 Significant

Fig. 7: B endorphin levels in control group and different groups of patients(Pmol/L)

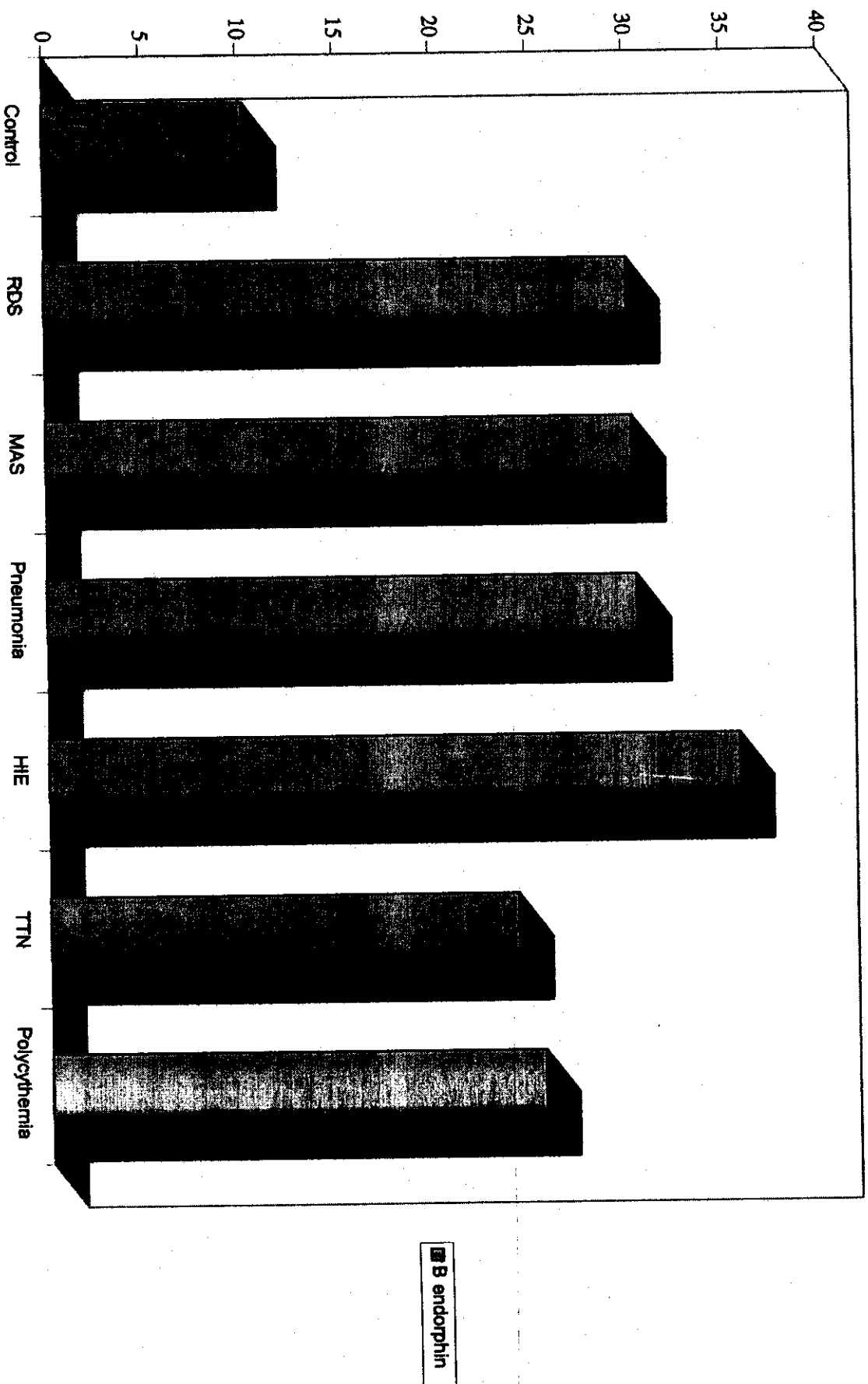


Table (11): Difference between patients (group A) and control group as regards cortisol levels (t-test).

	Patient	Control	t	p
Cortisol (ug/L)	Mean $\pm$ SEM 25.68 $\pm$ 1.02	Mean $\pm$ SEM 14.16 $\pm$ 0.93	8.37	< 0.0001**

** p < 0.05 $\rightarrow$ significant.

Table (12): Difference between patient subgroups & control group according to Serum cortisol level:

	Mean $\pm$ SEM ($\mu\text{g/L}$)	Control Mean $\pm$ SEM	t	p
RDS	26.4 $\pm$ 0.9	14.16 $\pm$ 0.93	7.7	0.0001
MAS	24.7 $\pm$ 3.2	14.16 $\pm$ 0.93	3.2	0.02
Pneumon	29.9 $\pm$ 3.2	14.16 $\pm$ 0.93	3.6	0.008
HIE	29.7 $\pm$ 2.9	14.16 $\pm$ 0.93	4.9	0.003
TTN	22.7 $\pm$ 1.2	14.16 $\pm$ 0.93	5.5	0.0001
Polycyth	22.3 $\pm$ 1.3	14.16 $\pm$ 0.93	5.4	0.001

P < 0.05 Significant

Table (13) Difference between the patients of 6 groups of respiratory distress as regards cortisol level (one- way ANOVA) .

	RDS	MAS	Pneum	HIE	TTN	Polycyth	F ratio	P
Cortisol ($\mu\text{g/L}$)	24.6 $\pm$ 0.9	24.7 $\pm$ 3.2	29.9 $\pm$ 4.3	29.7 $\pm$ 2.9	22.7 $\pm$ 1.2	22.3 $\pm$ 1.3	1.52	0.21

P < 0.05 Significant

Fig.8: Serum cortisol levels in control group and different groups of patients

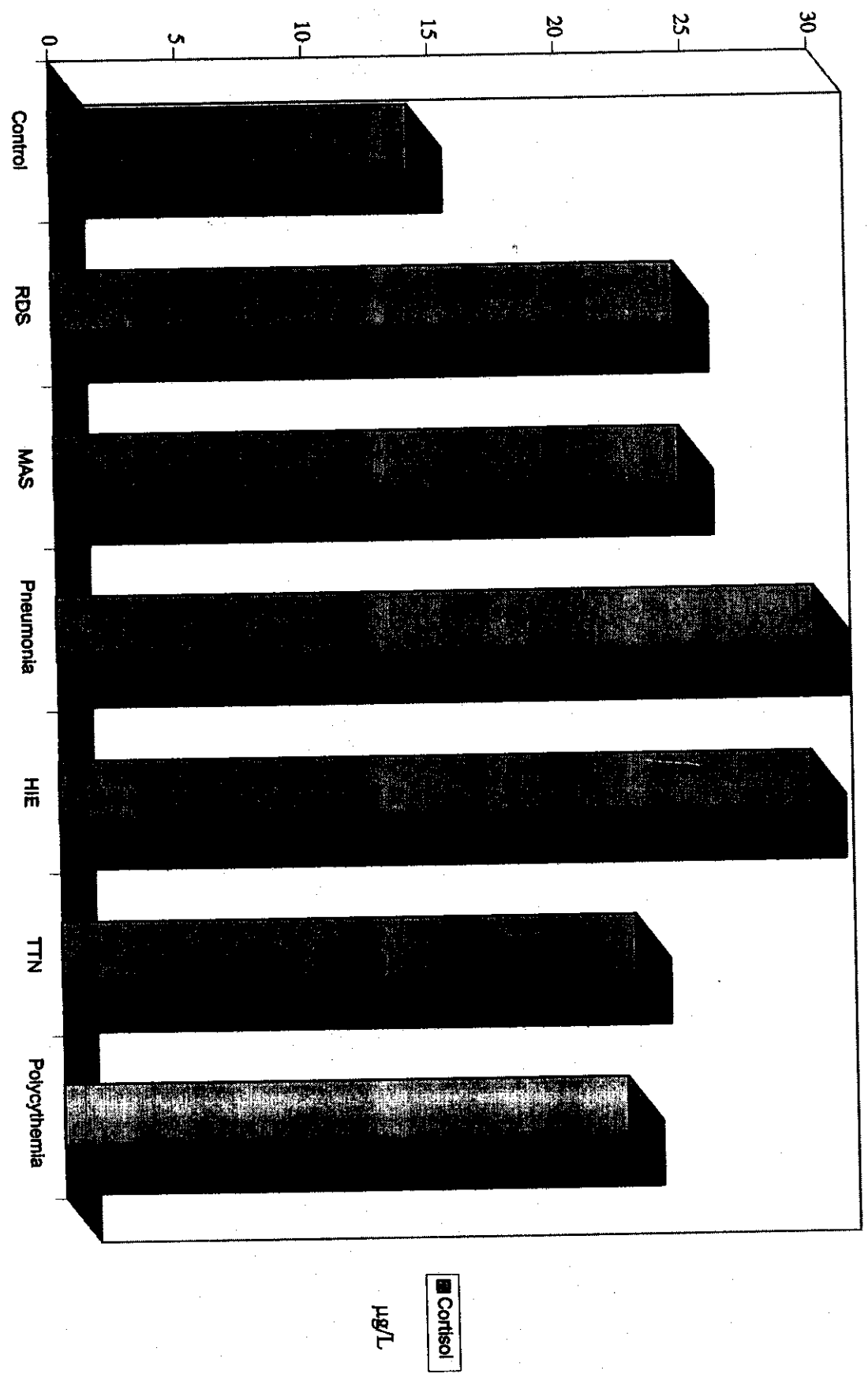


Table (14): Difference between patients and control group according to Bl.Glucose level:

	Patient gp	Control	t	p
Blood glucose	Mean $\pm$ SEM	Mean $\pm$ SEM	1.53	0.13
(gm/dL)	74.8 $\pm$ 2.8	53.2 $\pm$ 2.03		

P < 0.05 significant

Fig. 9: Blood glucose levels in control and different groups of patients .

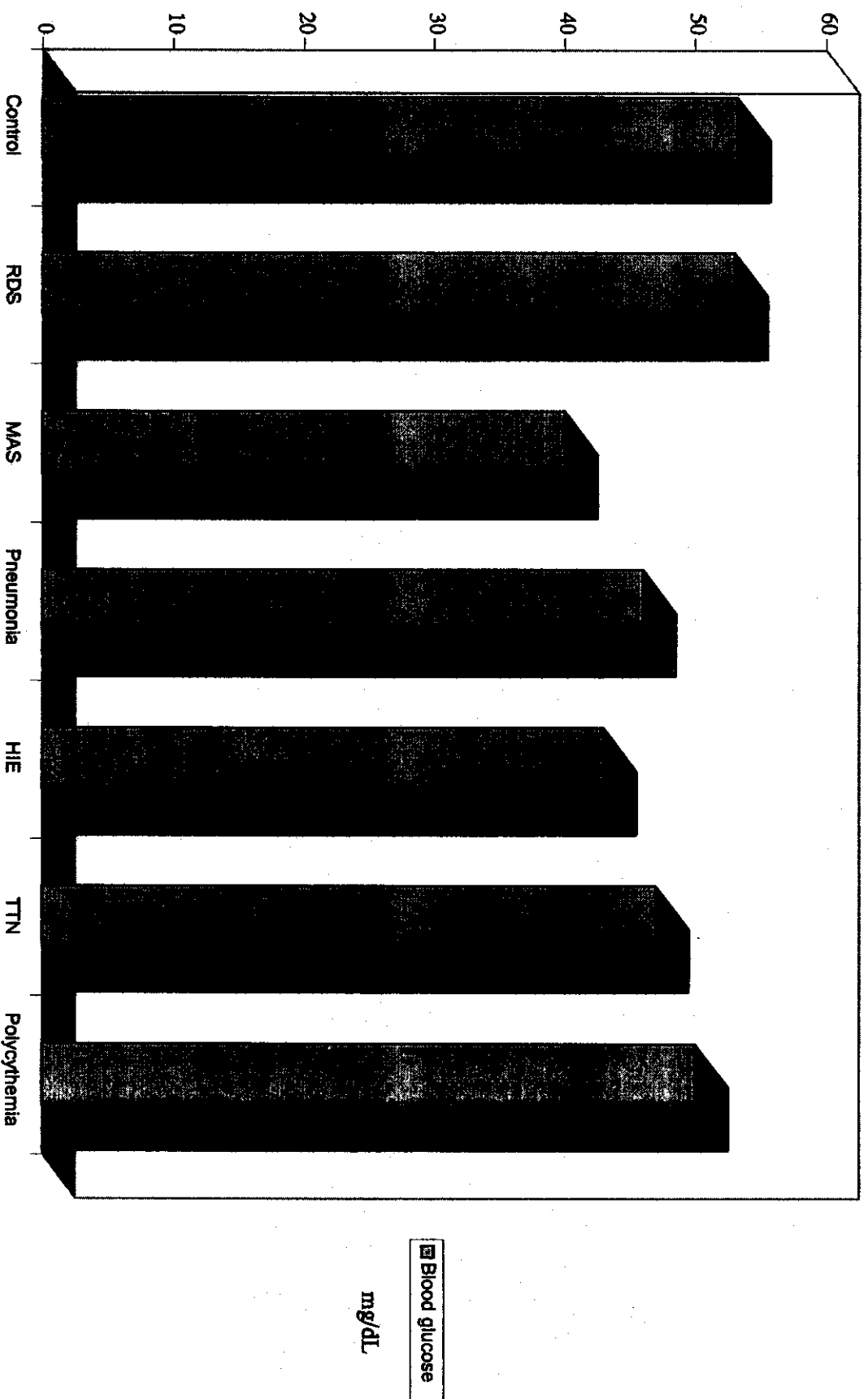


Table (15): Shows the difference between each subgroup of patients with RD versus control as regards blood glucose level.

	Patient gp	Control	t	p
R.D.S	Mean $\pm$ SEM 53.3 $\pm$ 3	Mean $\pm$ SEM 53.2 $\pm$ 2.03	1.56	0.21
M.A.S	40 $\pm$ 14	53.2 $\pm$ 2.03	2.4	0.15
Pneum	46 $\pm$ 8	53.2 $\pm$ 2.03	1.68	0.18
HIE	43 $\pm$ 12	53.2 $\pm$ 2.03	2.3	0.12
TTN	47 $\pm$ 5	53.2 $\pm$ 2.03	1.42	0.14
Polycyth	50 $\pm$ 5	53.2 $\pm$ 2.03	1.2	0.30

P < 0.05 significant

Table (16): Correlation between Plasma β endorphin with other parameters (Pearson).

	r	p
Cortisol	0.58	<0.0001*
Base excess	0.17	0.24
Blood glucose	0.04	0.79
HB	0.005	0.97
HCO ₃	0.07	0.62
Hematocrite	- 0.07	0.65
Heart rate	-0.04	0.78
O ₂ Saturation	- 0.04	0.76
PCO ₂	-0.02	0.86
PH	0.18	0.21
Platelet	0.11	0.46
PO ₂	-0.04	0.77
RBCs	0.03	0.83
WBCs	0.16	0.29
RR	-0.16	0.27

P < 0.05 significant

Table (17): Correlation between serum cortisol with other parameters (Pearson).

	r	p
Base excess	0.06	0.68
Blood glucose	0.25	0.09
HB	-0.15	0.29
HCO ₃	0.04	0.78
Hematocrite	-0.15	0.30
Heart rate	0.16	0.26
O ₂ saturation	0.02	0.90
PCO ₂	0.07	0.61
PH	0.12	0.42
Platelet	-0.15	0.30
PO ₂	-0.02	0.91
RBCs	-0.18	0.23
WBCs	0.21	0.14
RR	-0.11	0.45

P < 0.05 significant