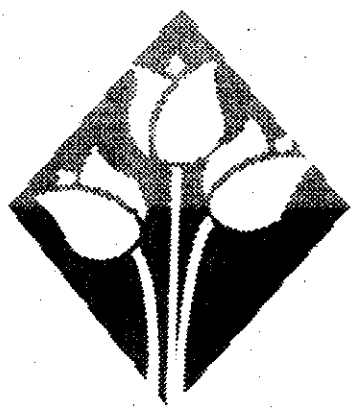
RESULTS



Results

The results of the present study were summarized, statistically analyzed and presented in (11) tables and (10) figures.

Table (12): Age distribution among the study population.

Age (Year)	Patients (N=21)	Control (N=20)
Mean ± SD	47.43 ± 10.67	49.2 ± 8.54
T value	0.588	
P value	0.560	

The mean age of the patient group was 47.43. ± 10.67 years while, the mean age of the control group was 49.22 ± 8.54 years. The analysis of difference between the age in patients and control groups was statistically non significant (P > 0.05).

Table (13): Sex distribution among the study population.

Sex	Patients (N=21)	Controls (N=20)
Males	17 (80.95%)	12 (60%)
Females	4 (19.05%)	8 (40%)

Pearson Chi - Square Value = 2.17

df= 1 P = 0.141

The patients group included 21 patients with chronic hepatitis C 17 males (80.95%) and 4 females (19.05%). The control group included 20 HCV - negative individual 12 males12 (60%) and 8 females 8 (40%). The analysis of difference between the sex among patients and control groups was statistically non significant (P > 0.05).

Table (14) Analysis of difference between surface markers of the peripheral blood lymphocytes (PBL) in patients and control group (unpaired t- test):

Surface marker (%)	Patients (N=21) Mean ± SD	Control (N=20) Mean ± SD	t value	P value
- T – cell				
$CD3^+$	65.6 ± 9.52	60.9 ± 4.8	2.046	0.051
$CD4^+$	44.1 ± 7.32	35.7 ± 3.34	4.664	0.001
$CD8^+$	22.1 ± 8.32	25.2 ± 3.7	-1.583	0.125
$CD4^+$/ $CD8^+$ ratio	2.39 ± 1.1	1.45 ± 0.27	3.776	0.001
- B – cell ($CD19^+$)	6.17 ± 3.14	5.97 ± 2.26	1.42	0.21
- NK ($CD56^+$)	14.02 ± 5.04	12.65 ± 3.59	1.07	0.316

This table shows the mean ± SD of the surface markers of the PBL in patients and control groups. There was a statistically significant difference between the proportion of the peripheral blood $CD4^+$ and $CD4^+$ / $CD8^+$ ratio among the patients and the control groups. There was no statistically significant difference between the proportion of $CD3^+$, $CD8^+$, $CD19^+$ and $CD56^+$ (NK) in patients and control groups.

Table (15) Analysis of difference between surface markers of the intrahepatic lymphocytes (IHL) in patients and control groups (unpaired t-test):

Surface marker (%)	Patients (N=21) Mean ± SD	Control (N=20) Mean ± SD	t value	P value
- T – cell				
$CD3^+$	61.23 ± 14.29	60.34 ± 12.16	0.218	0.828
$CD4^+$	18.07 ± 8.54	10.3 ± 3.53	3.923	0.001
$CD8^+$	43.19 ± 10.29	50.36 ± 10.36	-2.223	0.032
$CD4^+$/ $CD8^+$ ratio	0.43 ± 0.21	0.20 ± 0.06	4.020	0.001
-B– cells ($CD19^+$)	5.15 ± 2.7	3.78 ± 1.79	1.903	0.065
- NK cells	24.97 ± 7.38	18.27 ± 3.16	3.72	0.001

There was a statistically significant difference between the proportion of intrahepatic $CD4^+$, $CD8^+$, $CD4^+$ / $CD8^+$ ratio and NK lymphocytes in patients and control groups.

There was no statistically significant difference between the proportion of intrahepatic $CD3^+$ & $CDI9^+$ lymphocytes in both groups.

Table (16) Analysis of difference between surface markers of peripheral blood lymphocytes (PBL) and intrahepatic lymphocytes (IHL) in patients group (Paired t-test):

Patients (N=21)				
Surface marker (%)	**PBL Mean ± SD**	**IHL Mean ± SD**	**t value**	**P value**
- T – cell				
$CD3^+$	65.64 ± 9.5	61.2 ± 14.2	1.688	0.107
$CD4^+$	43.95 ± 7.3	18.06 ± 8.5	18.416	0.001
$CD8^+$	22.12 ± 8.3	43.19 ± 10.3	3.663	0.001
$CD4^+$/ $CD8^+$	2.38 ± 1.11	0.4 ± 0.22	8.33	0.001
-B– cells ($CD19^+$)	6.17 ± 4.1	5.15 ± 2.7	1.12	0.12
- NK ($CD56^+$)	14.02 ± 5.03	24.97 ± 7.38	5.08	0.001

There was a significant positive difference between intrahepatic (IHL) and peripheral blood (PBL) CD4+, CD8+, $CD4^+$ / $CD8^+$ ratio and NK cells proportions among the patients group ($P < 0.05$). There was no significant difference between (PB) & (IH) CD3+, CD19+ in patients group ($P > 0.05$).

Table (17) Correlation between surface markers of the peripheral blood lymphocytes (PBL) and histopathological activity of hepatitis C evaluated by Knodell's score:

Surface marker of (PBL)	Knodell's score	
	r	P
CD3	0.598	0.004*
CD4	0.763	0.000**
CD8	-0.002	0.993
CD4/ CD8 ratio	0.213	0.353
CD19	0.230	0.316
CD56	-0.250	0.275

There was a statistically significant positive correlation between the peripheral blood CD3, CD4 and Knodell's score in patients group (P <0.05). . There was no statistically significant correlation between knodell's score and blood CD8, CD19 and CD56 in patients group.

Table (18) Correlation between surface markers of intrahepatic lymphocytes (IHL) and histopathological activity of hepatitis C (HAI) evaluated by Knodell's score:

Surface marker (IHL)	Knodell's Score	
	r	P
CD3	0.577	0.006*
CD4	0.894	0.000**
CD8	0.056	0.809
CD4/ CD8 ratio	0.840	0.000**
CD19	-0.040	0.864
CD56	0.155	0.502

There was a statistically significant positive correlation between the intrahepatic CD4, CD4 / CD8 ratio and CD3 and the Knodell's score in patients group. There was no statistically significant positive correlation between intrahepatic CD8, CD19 and CD56 and Knodell's score in patients group.

Table (19) Correlation between ALT & AST levels and surface markers of the peripheral blood lymphocytes (PBL) in patients group:

Surface marker of (PBL)	ALT (U/L)		AST (U/L)	
	R	p	r	P
CD3	-0.245	-0.284	-0.773	0.096
CD4	-0.065	0.779	-0.278	0.223
CD8	-0.212	0.357	-0.129	0.576
CD4/ CD8 ratio	0.148	0.523	-0.042	0.857
CD19	-0.296	0.192	-0.516	0.067
CD56	-0.126	0.587	-0.046	0.843

No significant correlation was found between ALT & AST levels and the surface markers of the blood lymphocytes.

Table (20) Ccorrelation between ALT & AST levels and surface markers of intrahepatic lymphocytes in patients group:

Surface marker of (IHL)	ALT (U/L)		AST (U/L)	
	R	p	r	P
CD3	-0.107	0.643	-0.254	0.266
CD4	0.018	0.938	-0.233	0.309
CD8	-0.165	0.475	-0.161	0.487
CD4/ CD8 ratio	0.091	0.696	-0.138	0.551
CD19	-0.367	0.102	-0.493	0.063
CD56	-0.289	0.203	-0.124	0.593

No significant correlation was found between the levels of ALT & AST and the of intrahepatic lymphocytes in patient group.

Table (21):Descriptive data of the control group:

Parameter	Mean ± SD	Range		Unit
		Min	Max	
Age	49.2 ± 8.54	37	64	Year
S. Protein	7.53 ± 0.39	6.9	8.1	gm/dl
S. Albumin	4.43 ± 0.44	3.8	5.0	gm/dl
ALT	33.6 ± 8.56	22	45.0	u/l
AST	28.30 ± 6.96	20	40.0	u/l
Prothrombin time	13.3 ± 0.23	12.7	14.2	Seconds
WBcs	6.24 ± 1.76	4.1	10.0	Thousands/cmm
RBcs	4.98 ± 0.39	4.4	5.8	Million/cmm
Hb	13.5 ± 1.50	12.1	16.1	gm/dl
Platelets	203 ± 22.99	175	250	Thousands/cmm
Lymphocytes	1.6 ± 0.56	1.0	2.7	Thousands/cmm
CD3 (Blood)	60.86 ± 4.78	51.6	70.1	%
CD4 (Blood)	35.7 ± 3.34	31.5	41.1	%
CD8 (blood)	25.28 ± 3.69	19.8	30.5	%
CD4/CD8 ratio (Blood)	1.45 ± 0.27	1.7	2.1	%
CD19 (Blood)	5.97 ± 3.14	2.5	9.1	%
CD56 (Blood)	12.64 ± 3.59	7.2	20.1	%
CD3 (IH)	60.33 ± 12.16	40.3	77	%
CD4 (IH)	10.13 ± 3.53	4.5	17.1	%
CD8 (IH)	50.36 ± 10.36	35.1	63.5	%
CD4/CD8 ratio (IH)	0.200 ± 0.06	0.1	0.3	%
CD19 (IH)	3.78 ± 1.8	1	7.4	%
CD56 (IH)	18.27 ± 3.16	12.2	26.8	%

Table (22) Descriptive data of the patients group:

Parameter	Mean ± SD	Range		Unit
		Min	Max	
Age	47.4 ± 10.67	35	64	Year
S. Protein	7.77 ± 0.48	6.3	8.5	gm/dl
S. Albumin	4.7 ± 0.7	2.3	5.7	gm/dl
S. Bilirubin	0.91 ± 0.35	0.5	1.9	Mg/e
ALT	74.7 ± 17.4	40	109	u/e
AST	35.6 ± 20.5	20	48	u/l
Prothrombin time	13.1 ± 0.98	12	15	Seconds
Prothrombin Conc.	83.9 ± 13.3	61	100	%
Wbcs	6.5 ± 2.6	1.7	12.3	Thousands/cmm
Rbcs	3.9 ± 0.4	3.2	4.7	Million/cmm
Platelets	211.6 ± 69.1	85	329	Thousands/cmm
Hb	12.2 ± 2.4	6.7	16	gm/dl
Lymphocytes	1.5 ± 0.55	0.8	3	Thousands/cmm
CD3 (Blood)	65.65 ± 9.53	46.1	83	%
CD4 (Blood)	43.96 ± 7.33	26.1	56.7	%
CD8 (blood)	22.13 ± 8.32	10.2	36	%
CD4/CD8 ratio (Blood)	2.38 ±1.11	1	4	%
CD19 (Blood)	6.17 ± 3.14	4.4	10.8	%
CD56 (Blood)	14.02 ± 5.04	4.6	26.3	%
CD3 (IH)	61.24 ± 14.29	41	86	%
CD4 (IH)	18.06 ± 8.54	10.0	35.0	%
CD8 (IH)	43.19 ± 10.29	28	64	%
CD4/CD8 ratio (IH)	0.43 ± 0.22	0.2	0.96	%
CD19 (IH)	5.15 ± 2.73	1.5	10.5	%
CD56 (IH)	24.97 ± 7.38	18	33.4	%
Knodell score	4.7 + 3.4	1	13	%

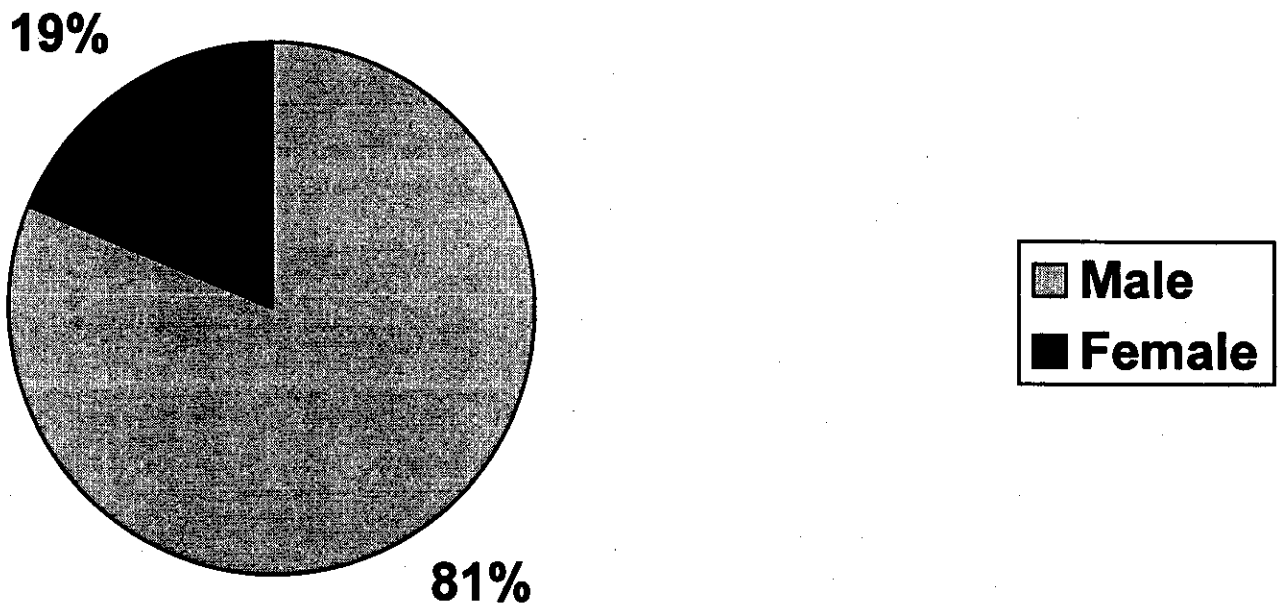
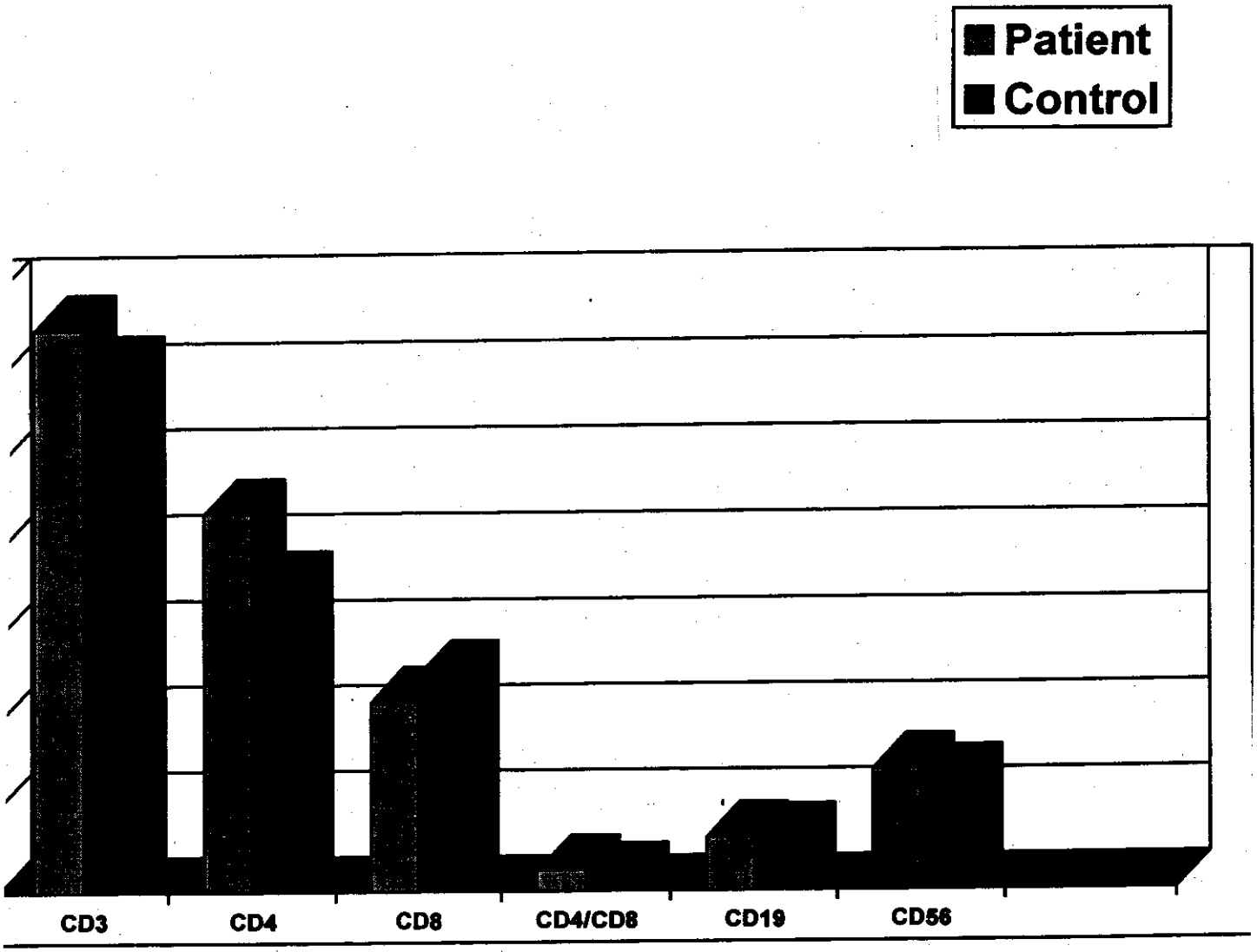
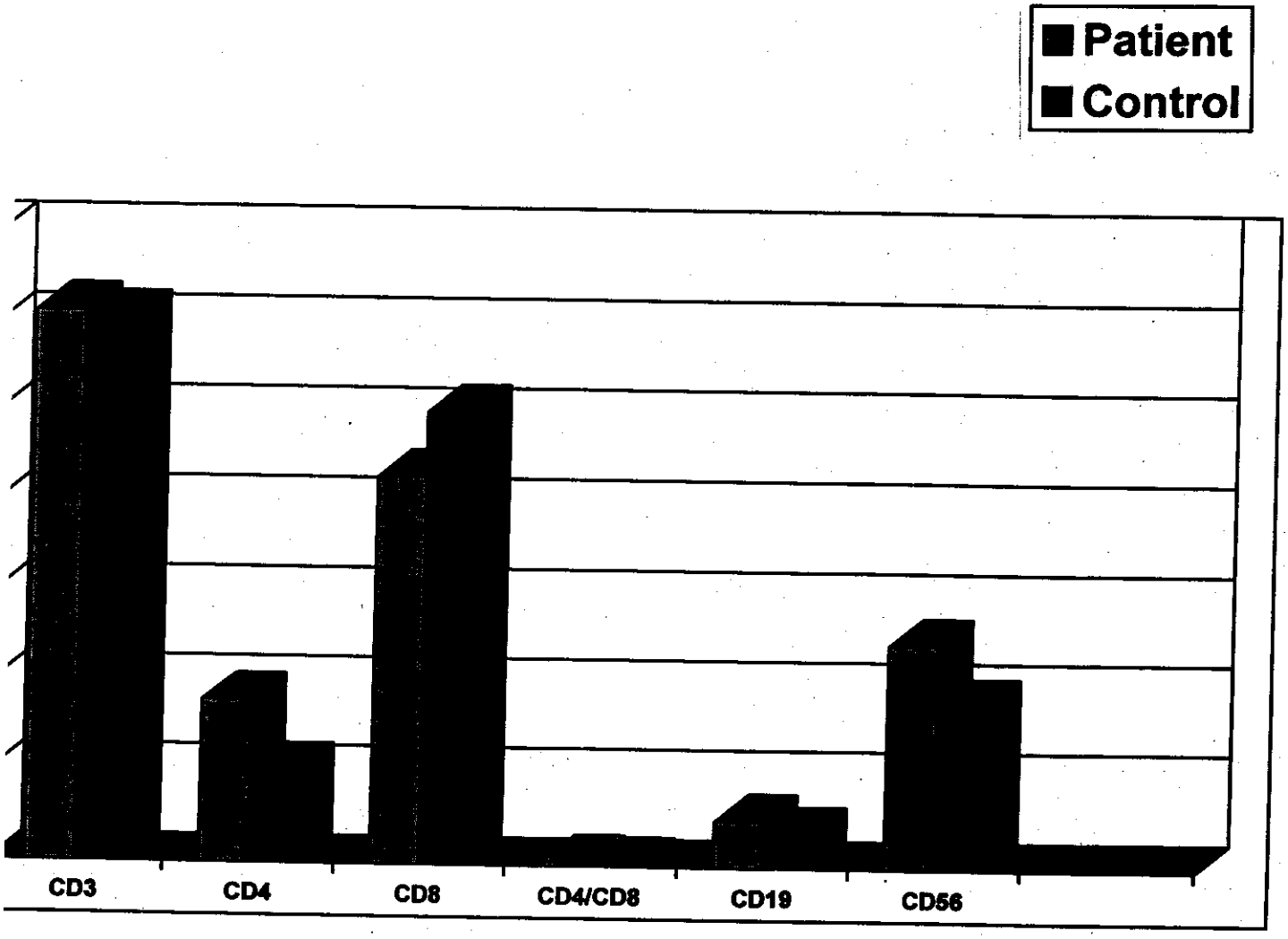


Fig. (25): Sex distribution in patient group.



Fig(26) Peripheral blood lymphocytes in patients and control groups.

There was a statistically significant difference between the proportion of PBL $CD4^+$ and $CD4^+/CD8^+$ in patients and control groups ($P < 0.05$). While, there was no statistically significant difference between the proportion of CD3+, $CD8^+$, $CDI9^+$ and CD 56^+ (NK) cells in patients and control groups ($P > 0.05$).



Fig(27) Intrahepatic lymphocytes in patients and control groups

There was a statistically significant difference between the proportion of intrahepatic CD4+, CD8+, CD4+/CD8+ ratio and NK lymphocytes in patients and control groups ($P < 0.05$). There was no statistically significant difference between the proportion of intrahepatic CD3+ and CD 19+ lymphocytes in patients and control group ($P. > 0.05$).

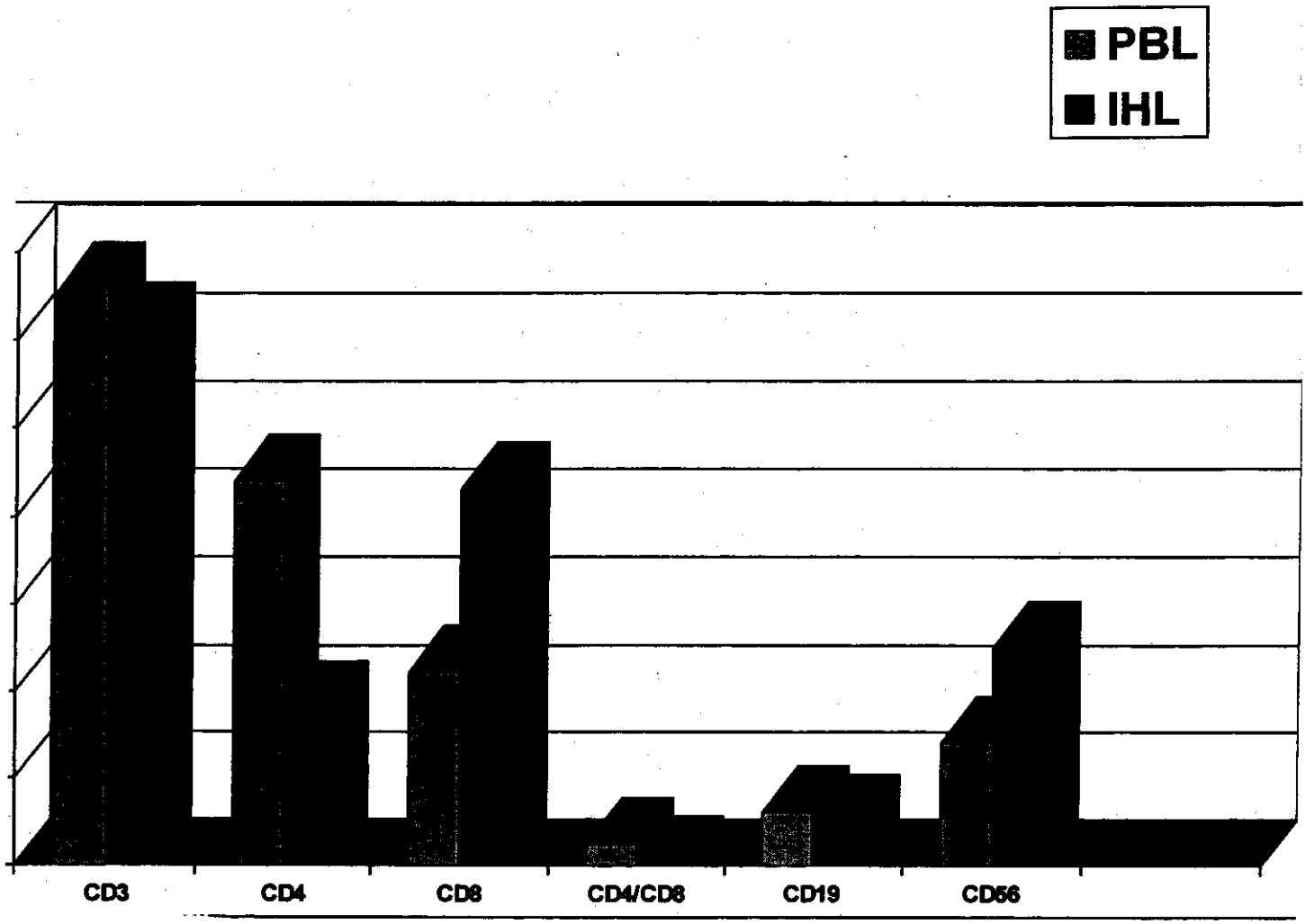


Fig. (28): Peripheral blood and intrahepatic lymphocytes in patients group.

There was a statistically significant difference between the intrahepatic and peripheral blood CD4+, CD8+ and NK cells among patients group ($P < 0.05$) . There was no statistically significant difference between the peripheral blood and intrahepatic CD3+, CDI9+ among patients group ($P.> 0.05$) .

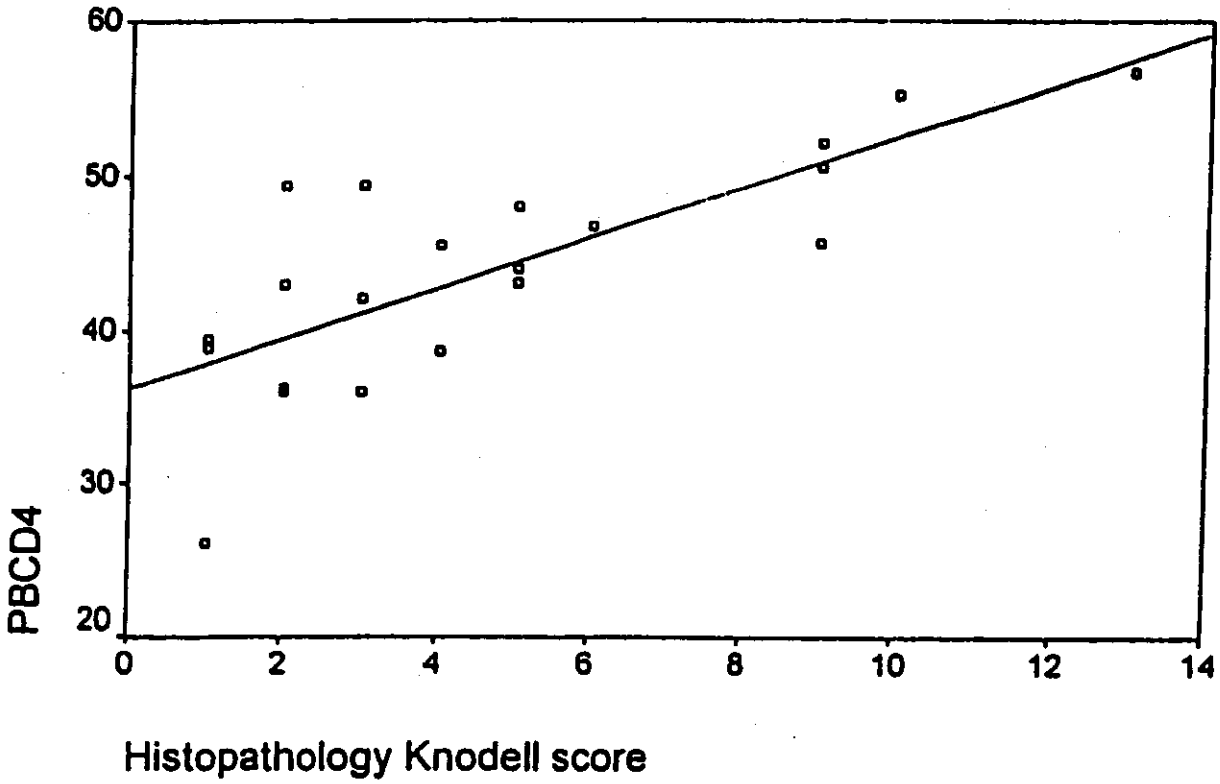


Fig. (29): Correlation between peripheral blood CD4 lymphocytes and Knodell's score in patients group.

There was a statistically significant positive correlation between Knodell's score & CD4+ in patients group ($P < 0.05$). There was no statistically significant correlation between Knodell's score and CD8+ CD19+, CD56+ (PBL) in patients group.

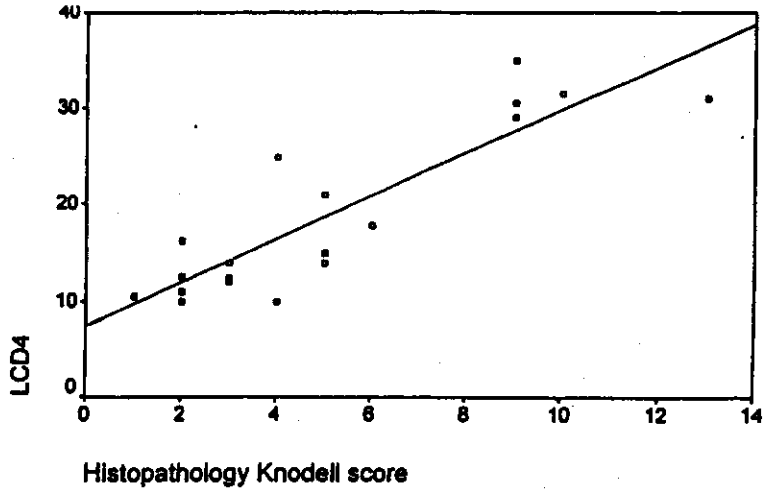


Fig. (30): Correlation between intrahepatic CD4+ lymphocytes and Knodell's score in patients group.

There was a statistically significant positive correlation between Knodell's score & IH CD4, in patients group ($P < 0.05$). There was no significant correlation between Knodell's score and CD8+ CD19+, CD56+ (IHL) in patients group.

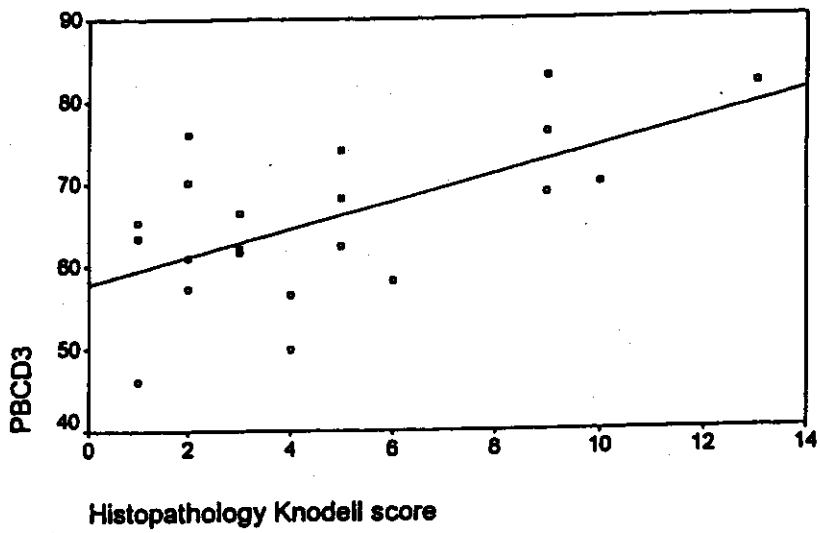


Fig. (31): Correlation between peripheral blood CD3 lymphocytes and knodell's score in patients group.

There was a statistically significant positive correlation between Knodell's score & CD3+ PBL in patients group ($P < 0.05$).

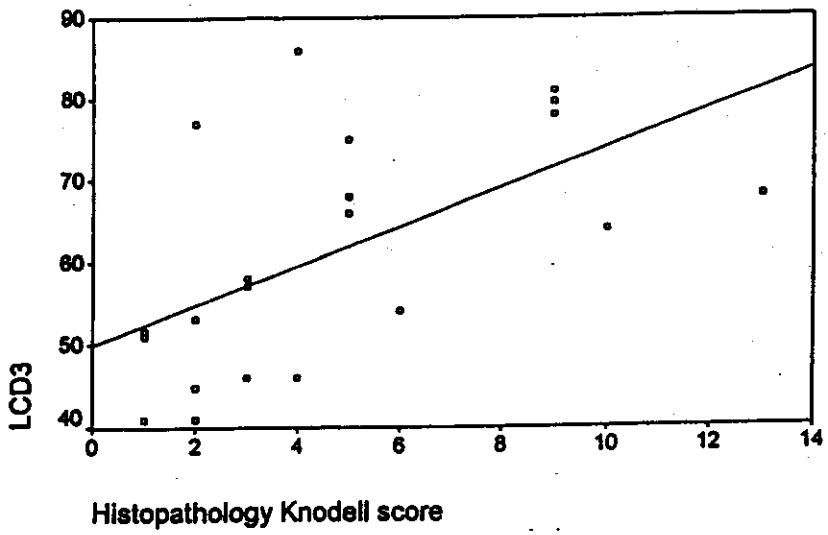


Fig. (32): Correlation between intrahepatic CD3 lymphocytes and Knodell's score in patients group.

There was a statistically significant positive correlation between Knodell's score & CD3+ IHL in patients group ($P < 0.05$).

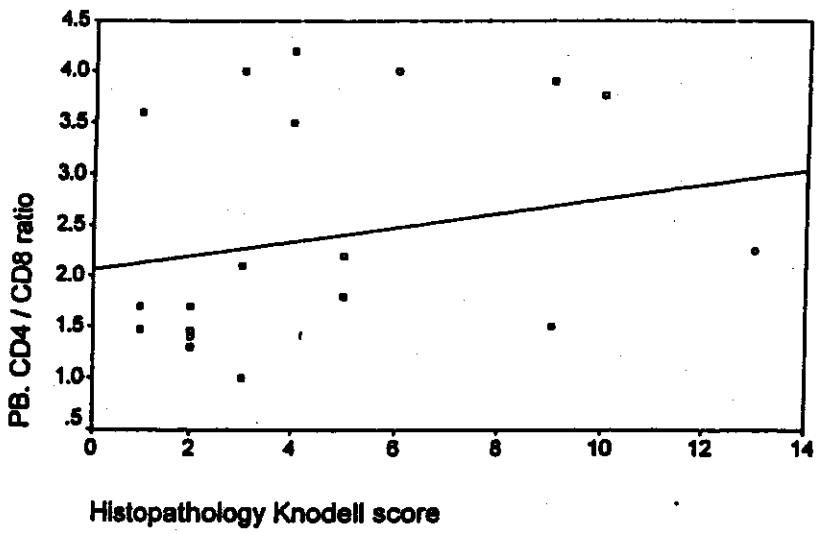


Fig. (33): Correlation between peripheral blood $CD4^+/CD8^+$ lymphocytes and Knodell's score in patients group.

No statistically positive correlation was found between peripheral blood $CD4^+/CD8^+$ ratio and Knodell's score in patients.

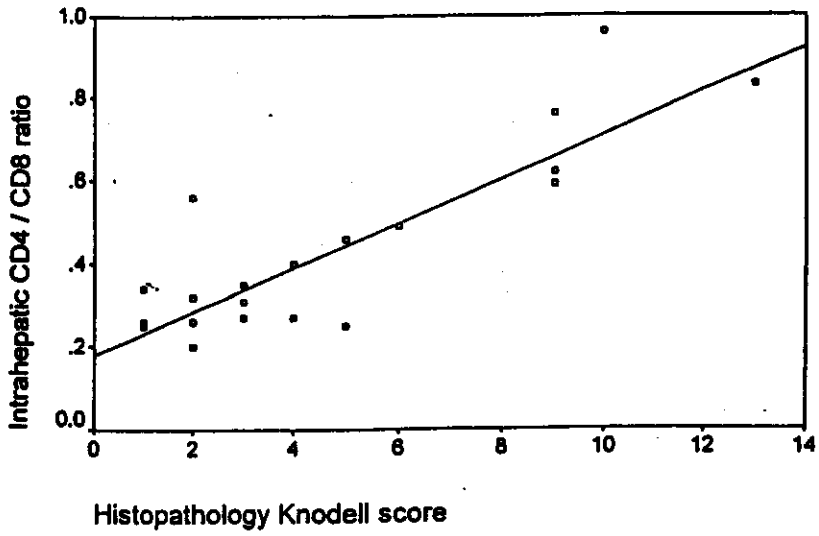


Fig. (34): Correlation between intrahepatic $CD4^+/CD8^+$ lymphocytes and Knodell's score in patients group.

There was statistically positive correlation between IH $CD4^+/CD8^+$ ratio and Knodell's score in patients.