RESULTS

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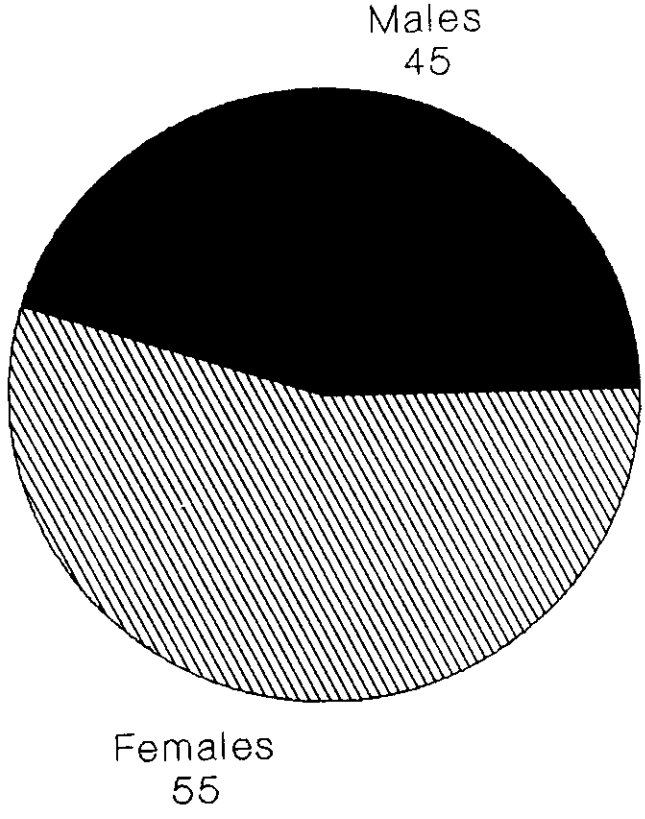
Table (6): Sex distribution of the studied groups.

Studied group	Rheumatic patients		Control		Total	
Sex	No.	%	No.	%	No.	%
Males	41	41.0	26	52.0	67	44.7
Females	59	59.0	24	48.0	83	55.3
Total	100	100.0	50	100.0	150	100.0

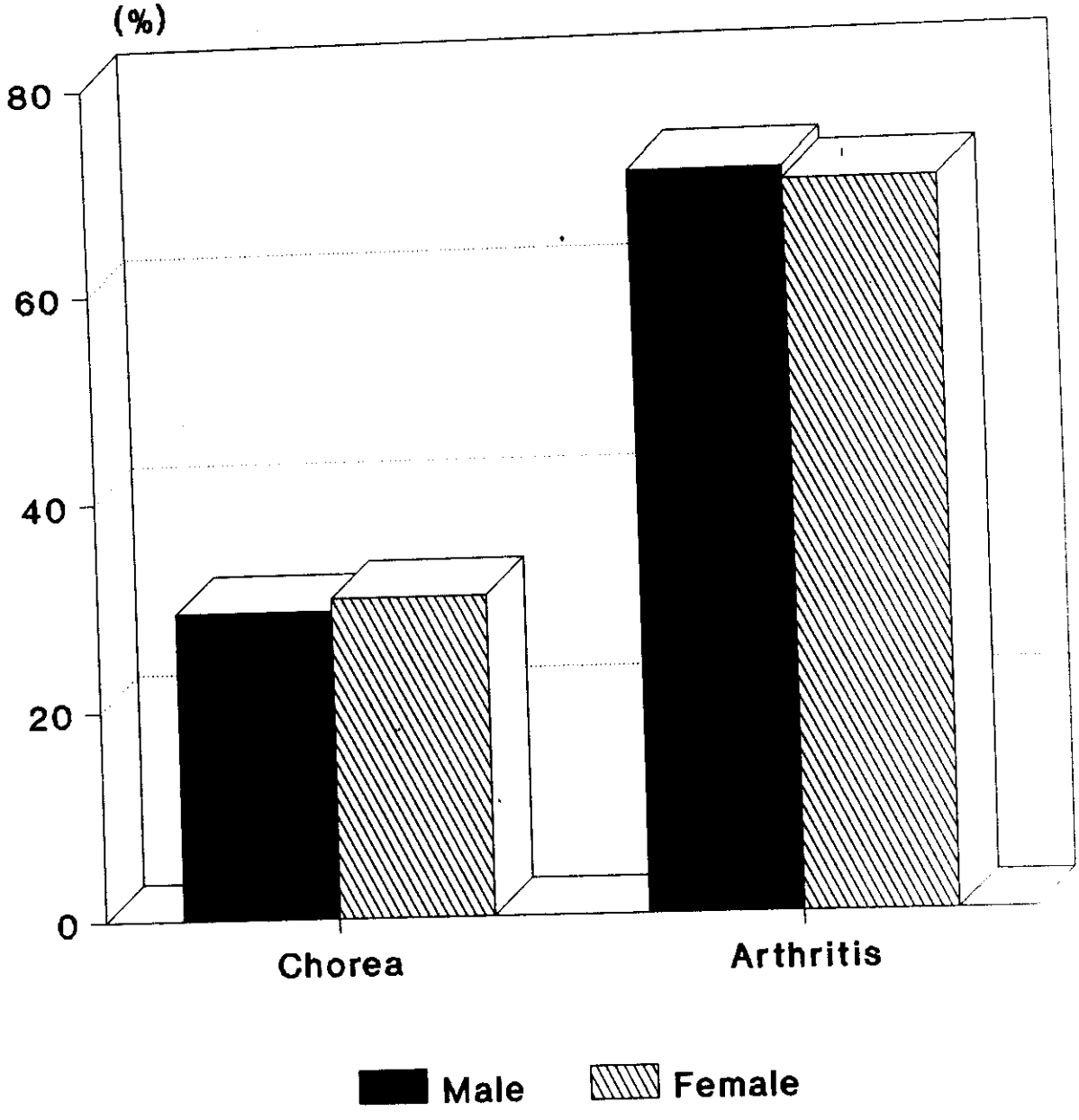
$X^2 = 1.63$ $P > 0.05$

Table (7): Sex distribution among cases of chorea and arthritis.

Sex	Males		Females		Total		Z	P
Clinical Presentation	No.	%	No.	%	No.	%		
Chorea	12	29.3	18	30.5	30	30.0	0.296	> 0.05
Arthritis	29	70.7	41	69.5	70	70.0	0.0613	> 0.05
Total	41	100.0	59	100.0	100	100.0		



Sex distribution of the studied groups.



Sex distribution among cases of chorea and arthritis.

Table (8): Age distribution of the studied groups.

Studied group	Rheumatic patients		Control		Total	
Age (years)	No.	%	No.	%	No.	%
< 5	3	3.0	2	4.0	5	3.3
5-	43	43.0	25	50.0	68	45.3
10+	54	54.0	23	46.0	77	51.4
Total	100	100.0	50	100.0	150	100.0

Adjusted $X^2 = 0.876$ $P > 0.05$

Table (9): Statistical distribution of age, weight, length and BMI among the studied groups.

Studied group	Rheumatic patients	Control	t	p
Parameter	X ± S.D	X ± S.D		
Age (years)	9.32 ± 2.44	8.68 ± 2.61	1.48	> 0.05
Weight (Kilo)	23.11 ± 5.86	26.03 ± 5.5	2.99	< 0.01
Height (cm)	122.72±23.32	132.23±14.52	3.07	< 0.01
BMI	14.70± 1.90	14.98± 2.73	0.69	> 0.05

$$BMI = \frac{\text{weight (in kg)}}{[\text{Height (in cm)}]^2}$$

Table (10): Clinical presentations among the rheumatic patients.

Studied group / Clinical presentations	Rheumatic patients	
	No.	%
1- Group I (patients with follow up)	69	69.0
a- Past arthritis	57	57.0
b- Past chorea	12	12.0
2- Group II (patients with active rheumatic fever)	31	31.0
a- Present arthritis	13	13.0
b- Present chorea	18	18.0
Total	100	100.0

Cases with acute attack of rheumatic fever were 31 cases.
- 11 cases were recurrent active rheumatic fever.
- 20 cases were acute first attack rheumatic fever.

Table (11): Statistical analysis of the duration since the first and the last (months) attacks among rheumatic patients.

Duration	Rheumatic patients	Range	
	X ± S.D	Minimum	Maximum
1st attack (since)	19.82 ± 17.21	0.5	72
last attack (since)	13.78 ± 15.73	0.13	72

Table (12-a): Statistical analysis of laboratory investigations among the studied groups.

Laboratory investigations	Rheumatic cases n = 100 X ± S.D	Control n = 50 X ± S.D	t	P
HB	11.5 ± 0.58	12.15 ± 11.52	0.398	> 0.05
ESR (1st hour)	48.33 ± 30.06	10.1 ± 3.03	8.95	< 0.01
ESR (2nd hour)	76.5 ± 36.94	15.84± 4.45	11.55	< 0.01
ASOT	556.84±267.61	212.66±52.69	8.99	< 0.01

Table (12-b): Statistical analysis of CRP in rheumatic group.

Rheumatic patients CRP	No.	%
-ve	32	32.0
+ve	42	42.0
++ve	21	21.0
+++ve	5	5.0
Total	100	100.0

Table (13): Statistical study of echo measurements among the studied groups.

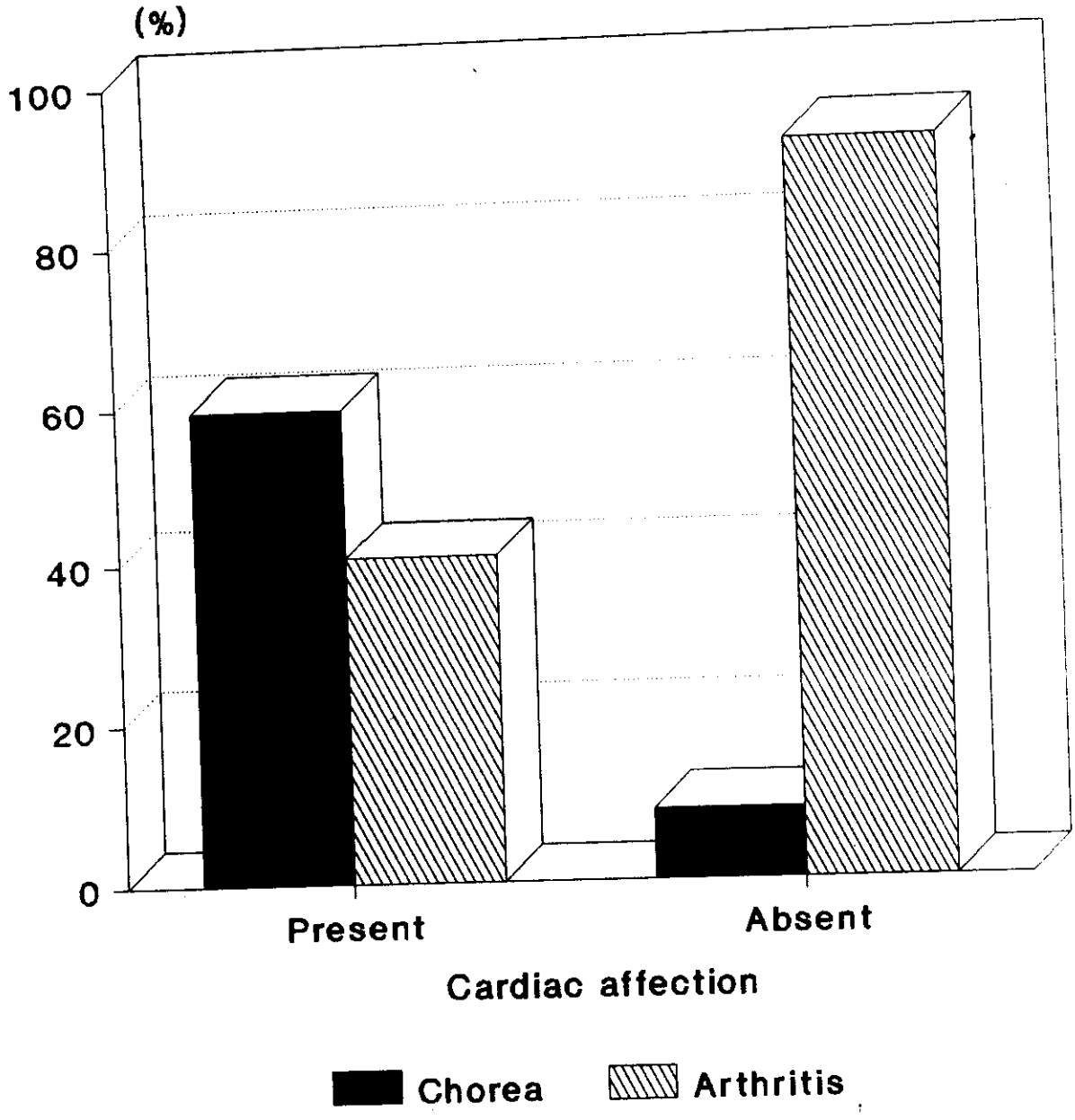
studied group / Echo measurements	Rheumatic patients X ± S.D	Control X ± S.D	t	p
LA	3.27 ± 6.74	2.88 ± 4.36	0.37	> 0.05
Ao	2.75 ± 6.39	3.52 ± 9.71	0.58	> 0.05
Rv	1.41 ± 0.32	1.39 ± 0.32	1.2	> 0.05
Lvpw	0.66 ± 0.45	0.61 ± 0.13	0.87	> 0.05
IVS	0.69 ± 0.39	0.65 ± 0.13	0.64	> 0.05
LVEDD	4.45 ± 4.13	5.08 ± 6.79	0.70	> 0.05
LVESD	2.69 ± 0.39	2.41 ± 0.45	3.89	< 0.05
PA	2.91 ± 6.74	2.36 ± 3.15	0.54	> 0.05
SV	46.79 ± 16.66	35.76 ± 15	3.95	< 0.05
FS	34.22 ± 7.26	36.46 ± 8.96	1.65	< 0.05
EF	67.19 ± 11.33	72.92 ± 6.49	3.31	< 0.05

Table (16): Statistical analysis of regurgitation fraction (RF) according to the degree of mitral regurgitation.

RF %	Mitral regurgitation				Total	
	MRI		MRII		No	%
< 10	11	35.48	0	0.0	11	32.35
10 - < 20	17	54.83	2	66.66	19	55.88
20- < 30	3	9.67	0	0.0	3	8.82
30 - < 40	0	0.0	1	33.33	1	2.94
Total	31	100.0	3	100.0	34	100.0

Table (17): Statistical analysis of clinical presentations according to cardiac affection.

Cardiac affection	With cardiac affection		Without cardiac affection		Total		Z	P
Clinical presentation	No.	%	No.	%	No.	%		
* Chorea	25	59.52	5	8.62	30	30.0	2.52	< 0.05
* Arthritis	17	40.47	53	91.37	70	70.0	2.526	< 0.05
	42	100.0	58	100.0	100	100.0		



Statistical analysis of clinical presentations according to cardiac affection.

Table (18): Statistical analysis of active and quiescent cases according to cardiac affection.

Activity of the disease	Active rheumatic fever		Quiescent rheumatic fever		Total		Z	P
Cardiac affection	No.	%	No.	%	No.	%		
With cardiac affection	21	50.0	21	50.0	42	100.0	0.0	> 0.05
Without cardiac affection	10	17.2	48	82.8	58	100.0	3.55	< 0.05
Total	31	31.0	69	69.0	100	100.0		

Table (19): Type of echo diagnosis among rheumatic patients with cardiac affection according to activity of the rheumatic fever.

Activity of rheumatic fever	Active rheumatic fever		Quiescent rheumatic fever		Total	
Type of cardiac affection	No.	%	No.	%	No.	%
No abnormalities	10	32.3	48	69.6	58	58.0
MRI	12	38.7	13	18.8	25	25.0
MRI + PRI	0	0.0	2	2.9	2	2.0
MRI + TRI	3	9.7	1	1.4	4	4.0
MRII	0	0.0	3	4.3	3	3.0
ARI	0	0.0	1	1.4	1	1.0
MRI + ARI	2	6.45	0	0.0	2	2.0
MRII + ARII	2	6.45	1	1.45	3	3.0
MRI + ARII	2	6.45	0	0.0	2	2.0
Total	31	100.0	69	100.0	100	100.0

Table (20): Statistical distribution of rheumatic patients according to the prophylaxis.

Studied group	Rheumatic patients	
Prophylaxis	No.	%
No prophylaxis	5	6.0
Irregular prophylaxis	15	17.8
Regular prophylaxis	64	76.2
Total	84*	100.0

* The total number was 84 as there were 16 cases with acute first attack rheumatic fever, did not given prophylaxis yet.

Table (21): Statistical analysis of rheumatic patients according to both prophylaxis and recurrence.

Recurrence	Recurrence		No recurrence		Total			
Prophylaxis	No.	%	No.	%	No.	%	Z	P
No prophylaxis	3	60.0	2	40.0	5	100.0	0.317	> 0.05
Irregular prophylaxis	7	46.7	8	53.3	15	100.0	0.181	> 0.05
Regular prophylaxis	14	21.87	50	78.12	64	100.0	3.19	< 0.05
Total	24	27.68	60	71.4	84*	100.0		

* Total number was 84, as there were 16 cases with acute first attack rheumatic fever who did not given prophylaxis yet.

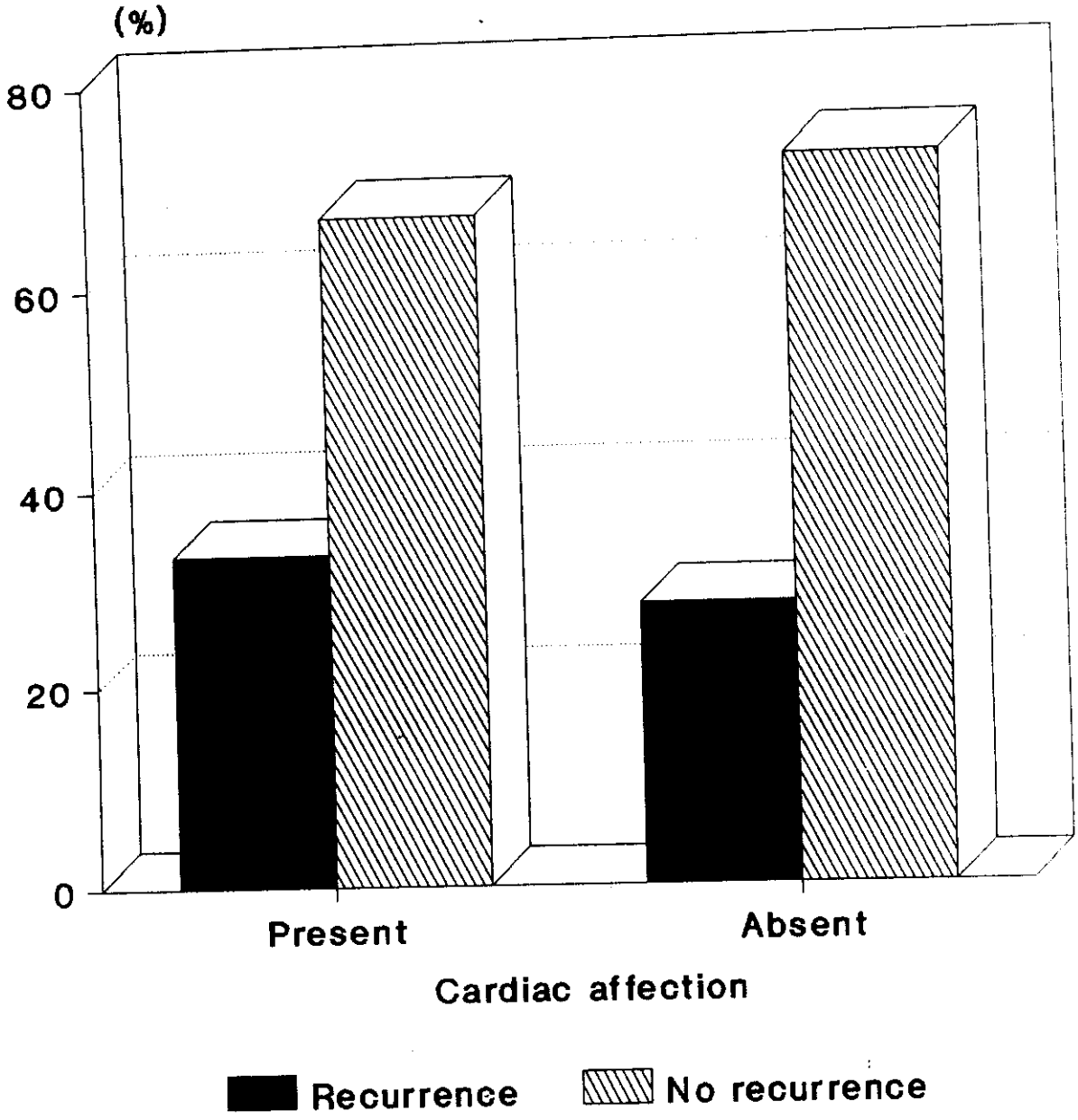
Table (24): Statistical study of recurrence and cardiac affection.

Cardiac affection	With cardiac affection		Without cardiac affection		Total		Z	P
Recurrence	No.	%	No.	%	No.	%		
* No recurrence	20	66.7	36	72.0	56	70.0	0.695	> 0.05
* Recurrence	10	33.3	14	28.0	24	30.0	0.174	> 0.05
Total	30	100.0	50	100.0	80*	100.0		

* Total number was 80 as there were 20 cases presented with acute first attack rheumatic fever, so no recurrence had occurred.

Table (25): Correlation of variables related to cardiac affection.

Parameter	r	p
* Recurrence	0.15987	< 0.05
* Prophylaxis	- 0.14527	< 0.05
* BMI	0.05077	> 0.05



Statistical study of recurrence and cardiac affection.

Table (26): Statistical analysis of cardiac lesions among active rheumatic patients.

Active rheumatic patients	Acute first attack		Active recurrent attack		Total		Z	P
Cardiac affection	No.	%	No.	%	No.	%		
* With cardiac affection	13	65.0	8	72.3	21	67.7	0.20	> 0.05
* Without cardiac affection	7	35.0	3	27.7	10	32.3	0.194	> 0.05
Total	20	100.0	11	100.0	31	100.0		

The mean height among rheumatic patients was 122.72 cm ± 23.32 and was 132.23 cm ± 14.52 among control, and the difference between both groups was statistically significant ($p < 0.05$).

The mean BMI was 14.70 ± 1.90 among rheumatic patients and was 14.98 ± 2.73 among control group and the difference was statistically insignificant ($p > 0.05$).

Table (10): Shows clinical presentation among the rheumatic patients. There were 57 cases presenting with past history of rheumatic arthritis and 12 cases were presenting with past history of rheumatic chorea. There were 13 cases presenting with active rheumatic arthritis and 18 cases were presenting with active rheumatic chorea.

Table (11): Shows X and ± S.D of duration since the first and last rheumatic attack (months) among the rheumatic patients. The mean duration since first attack was 19.82 ± 17.21 months and the mean duration since last attack was 13.78 ± 15.73 months.

Table (12-a) : Shows statistical analysis of laboratory investigations among the studied groups.

The mean HB was 11.5 ± 0.58 gm% in rheumatic patients and was 12.15 ± 11.52 gm% in control group and the difference between both groups was statistically insignificant ($p > 0.05$). Erythrocyte sedimentation rate, the mean of 1st hour was 48.33 ± 30.06 in rheumatic patients and was 10.1 ± 3.03 in control and the difference between both groups was statistically significant ($p < 0.01$). The mean of second hour was 76.5 ± 36.94 in rheumatic group and was 15.84 ± 4.45 in control and the difference between both groups was statistically significant ($p < 0.01$).

The mean of antistreptolysin O titer was 556.84 ± 267.61 units in rheumatics and was 212.66 ± 52.69 units in control and the difference between both groups was statistically significant ($p < 0.01$).

Table (12-b): Shows statistical analysis of C-reactive protein of rheumatic patients as it measured as^{+++}

Table (13): Shows statistical study of echo measurements among the studied groups. The mean of left atrium (LA) dimension was 3.27 ± 6.74 cm among rheumatic patients and 2.88 ± 4.36cm among control and the difference between both groups was statistically insignificant ($p > 0.05$). The mean dimension of aorta (Ao) was 2.75 cm ± 6.39 among rheumatic patients and was 3.52 cm ± 9.71 among control and the difference between both groups was statistically insignificant ($p > 0.05$). The mean of right ventricle (Rv) dimension was 1.41cm ± 0.32 among rheumatic patients and was 1.39 cm ± 0.32 among control and the difference between both groups was statistically insignificant ($p > 0.05$). The mean of left ventricular posterior wall thickness (Lvpw) was 0.66 cm ± 0.45 among rheumatic patients and was 0.61 cm ± 0.13 among control and the difference between both groups was statistically insignificant ($p > 0.05$).

The mean of interventricular septum thickness was 0.69 cm ± 0.39 among rheumatic patients and was 0.65 cm ± 0.13 among control and the difference between both groups was statistically insignificant ($p > 0.05$). The mean of left ventricular end diastolic dimension (LVEDD) was 4.45 cm ± 4.13 among rheumatic patients and was 5.08 cm ± 6.79 among control and the difference between both groups was statistically insignificant ($p > 0.05$). The mean of left ventricular end systolic

dimension (LVESD) was 2.69 cm ± 0.39 among rheumatic patients and was 2.41 cm ± 0.45 among control and the difference between both groups was statistically significant ($p < 0.05$). The mean of pulmonary artery diameter was 2.91 cm ± 6.74 among rheumatic patients and was 2.36 cm ± 3.15 among control and the difference between both groups was statistically insignificant ($p > 0.05$). The mean of stroke volume (S.V.) was 46.79 ml/minute ± 16.66 among rheumatic patients and was 35.76 ± 15 among control and the difference between both groups was statistically significant ($p < 0.05$). The mean of fraction shortening (FS) % was 34.22 ± 7.26 among rheumatic patients and was 36.46 ± 8.96 among control and the difference between both groups was statistically significant ($p < 0.05$). The mean of ejection fraction (EF)% was 67.19 ± 11.33 among rheumatic patients and was 72.92 ± 6.49 among control and the difference between both groups was statistically significant ($p < 0.05$).

Table (14): Shows statistical study of echo measurements among active and quiescent rheumatic patients. The mean of left atrium dimension among quiescent cases was 3.21 ± 7.32 cm and was 2.42 ± 0.33 cm among active patients and the difference between both groups was statistically insignificant ($p > 0.05$). The mean dimension of aorta was 2.09 ± 0.31 cm among quiescent patients and was 2.14 ± 0.24 cm among active patients and the difference between both groups was statistically insignificant ($p > 0.05$). The mean dimension of RV was 1.50 ± 0.33 cm among quiescent cases and was 1.55 ± 0.33 cm among active rheumatic patients and the difference between both groups was statistically insignificant ($p > 0.05$). The mean thickness of LVPW among quiescent patients was 0.78 ± 0.78 cm and was 0.60 ± 0.11 cm among active rheumatic patients and the difference between both groups was statistically significant ($p < 0.05$). The mean thickness of IVS was 0.68± 0.45 cm

among quiescent patients and was 0.68 ± 0.12 cm among active patients and the difference between both groups was statistically insignificant ($p > 0.05$).

The mean of LVEDD was 4.58 ± 4.89 cm among quiescent cases, and was 4.07 ± 0.45 cm among active cases, and the difference between both groups was statistically insignificant ($p > 0.05$). The mean of LVESD was 2.62 ± 0.42 cm among quiescent cases and was 2.76 ± 0.34 cm among active rheumatic patients and the difference between both groups was statistically insignificant ($p > 0.05$). The mean of PA was 3.22 ± 7.99 cm among quiescent cases and was 2.11 ± 0.31 cm among active cases, and the difference between both groups was statistically insignificant ($p > 0.05$). The mean of SV was 45.85 ± 17.34 ml/minute among quiescent cases and was 47.67 ± 15.37 ml/minute among active cases and the difference between both groups was statistically insignificant ($p > 0.05$). The mean of FS was 35.15 ± 8.01 among quiescent cases and was 32.58 ± 4.50 among active patient, and the difference between both groups was statistically significant ($p < 0.05$) the mean of EF was 66.91 ± 12.98 among quiescent cases and was 68.87 ± 6.05 among active cases and the difference between both groups was statistically insignificant ($p > 0.05$).

Table (15): Shows statistical distribution of rheumatic patients according to cardiac affection. There were 58 cases with no cardiac abnormalities. There were 25 cases with mitral regurgitation grad I (MRI), 2 cases with mitral regurgitation grade I and pulmonary regurgitation grade I (MRI + PRI), there were 4 cases with mitral regurgitation grade I and tricuspid regurgitation grade I (MRI + TRI), there were 3 cases with mitral regurgitation grade II (MRII), there was one case with aortic regurgitation grade I (ARI), and there was no cases with aortic regurgitation grade II,

there were 2 cases with mitral regurgitation grade I and aortic regurgitation grade I (MRI + ARI), there were 3 cases with mitral regurgitation grade II aortic regurgitation grade II (MRII + ARII) and there were 2 cases with (MRI + ARII).

Table (16): Shows statistical analysis of regurgitation fraction (RF) according to the degree of mitral regurgitation. Cases with (RF) less than 10% were 11 cases they all were mitral regurgitation grade I (MRI). Cases with RF from 10%-20% were 19 cases, 17 cases of them were MRI while 2 cases were MRII. Cases with RF from 20%-30% were 3 cases there were all MRI there was one case with RF from 30-40%, it was MRII.

Table (17): Shows statistical analysis of clinical presentations according to the cardiac affection. There were 25 cases with cardiac affection among patients presenting with chorea while 5 cases only without cardiac affection and the difference between both groups was statistically significant ($p < 0.05$). There were 17 cases with cardiac affection among the patients presenting with arthritis while 53 cases were without cardiac affection and the difference between both groups was statistically significant ($p < 0.05$).

Table (18): Shows statistical analysis of active and quiescent cases according to cardiac affection. There were 42 cases with cardiac affection, 21 cases of them were active rheumatic fever while 21 cases of them were quiescent cases and the difference between both groups was statistically insignificant ($p > 0.05$).

There were 58 cases without cardiac affection 10, cases of them were active rheumatic fever while 48 cases were quiescent and the difference between both groups was statistically significant ($p < 0.05$).

Table (19): Shows type of echo diagnosis among rheumatic patients with cardiac affection according to the activity of the disease. There was no cardiac affection in 58 patients, 10 cases were active rheumatic fever and 48 cases were quiescent rheumatic fever. There was mitral regurgitation grade I (MRI) in 25 cases 13 cases were quiescent and 12 cases were active rheumatic fever in these active patients 7 cases were acute first attack. There was mitral regurgitation grade II (MRII) in 3 cases, they were quiescent rheumatic fever. There were mitral regurgitation grade I and tricuspid regurgitation grade I in 4 cases. One case only was quiescent and 3 cases were active rheumatic fever, 2 cases of these active patient were acute first attack of rheumatic fever. There were mitral regurgitation grade I and pulmonary regurgitation grade I (MRI + PRI) in 2 cases they were quiescent rheumatic fever. There was one case only with aortic regurgitation grade I, it was quiescent rheumatic fever. Mitral regurgitation grade I and aortic regurgitation grade I (MRI + ARI) were 2 cases they were active rheumatic fever MRII + ARII were 3 cases, 2 cases were active while only one was quiescent case. MRI + ARII were 2 active rheumatic cases.

Table (20) : Shows statistical distribution of rheumatic patients according to prophylaxis. There was no prophylaxis in 5 cases, irregular prophylaxis in 15 cases and there was regular prophylaxis in 64 cases. The remaining 16 cases were presenting with acute first attack of rheumatic fever and did not given prophylaxis yet.

Table (21): Shows statistical analysis of rheumatic patients according to both prophylaxis and recurrence. There were 5 cases with no prophylaxis, 3 cases of them had recurrence of rheumatic fever while 2 cases had no recurrence and the difference between both groups was statistically insignificant ($p > 0.05$). There were 15 cases with irregular prophylaxis, 7 cases of them had recurrence of rheumatic fever while 8 cases had no recurrence and the difference between both groups was statistically insignificant ($p > 0.05$).

There were 64 cases with regular prophylaxis, 14 cases of them had recurrence while 50 cases had no recurrence of rheumatic fever and the difference between both groups was statistically significant ($p < 0.05$).

* The total number of this table were 84 patients as there were 16 cases with acute first attack of rheumatic fever who did not given prophylaxis yet.

Table (22): Shows statistical distribution of rheumatic patients according to prophylaxis and cardiac affection. There were 5 cases with no prophylaxis, 3 cases of them had cardiac affection while 2 cases had no cardiac affection. The difference between both groups was statistically insignificant ($p > 0.05$). There were 15 cases with irregular prophylaxis, 6 cases of them had cardiac affection while 9 cases had no cardiac affection and the difference between both groups was statistically insignificant ($p > 0.05$).

There were 64 cases with regular prophylaxis, 23 cases of them had cardiac affection while 41 cases of them had no cardiac affection and the difference between both groups was statistically insignificant ($p>0.05$).

* Total number were 84 cases as there were 16 cases were acute first attack, of rheumatic fever who did not given proplylaxis yet.

Table (23): Shows statistical study of recurrence among rheumatic patients. No recurrence in 58 cases (72.5%). Recurrence for only one time in 16 cases (20%), recurrence for more than one time in 6 cases (7.5%). The total number was 80 cases as there were 20 cases presented with acute first attack of rheumatic fever and no recurrence occurs in them.

Table (24): Shows statistical study of recurrence and cardiac affection. There were 56 cases with no recurrence, 20 cases of them had cardiac affection while 36 cases of them had no cardiac affection. The difference between both groups was statistically insignificant ($p > 0.05$). There were 24 cases with no recurrence, 10 cases of them had cardiac affection, while 14 cases of them had no cardiac affection. The difference between both groups was statistically insignificant ($p > 0.05$).
* Total number were 80 cases as there were 20 cases with acute first attack, so no recurrence had occurred yet.

Table (25): Shows correlation of the variables related to cardiac affection. Recurrence was positively correlated to cardiac affection, prophylaxis showed negative correlation to cardiac affection while BMI showed no correlation to cardiac affection.

Table (26): Shows statistical analysis of cardiac lesions among active rheumatic patients. there were 21 cases with cardiac affection, 13 cases of them were acute first attack of rheumatic fever while 8 cases were active recurrent attack of rheumatic fever and the difference between both groups was statistically insignificant ($p > 0.05$). There were 10 cases

without cardiac affection, 7 cases of them were acute first attack of rheumatic fever while 3 cases were active recurrent attack of rheumatic fever and the difference between both groups was statistically insignificant ($p > 0.05$).