

RESULTS

The result of this study are summarized, statistically analyzed and presented in 17 tables and figures.

Table (1): Comparison between the two studied groups as regards age (years).

Age (years)	Rheumatoid arthritis group (n=50)	Control group (n=15)
Min	6	35.0
Max	70.0	51.0
Mean	40.74	43.6
SD	16.91	4.36
t-test	t = 0.645 p = 0.521	

P* is significant if <0.05

This table shows no significant difference between rheumatoid arthritis patients and control group as regards age ($P > 0.05$).

Table (2): Comparison between the two studies groups as regards sex.

Sex	Rheumatoid arthritis group (n=50)	Control group (n=15)
Males	8 (16.0%)	7 (46.7%)
Females	42 (84.0%)	8 (53.3%)
X ² -test	X ² = 6.110 P= 0.013*	

P* is significant if <0.05

This table shows that rheumatoid arthritis was more common in females than males (84%, 16% respectively).

Table (3): Duration of the disease (years) and duration of morning stiffness (min) in rheumatoid arthritis group.

	Duration of morning Stiffness (min)	Duration of the disease (years)
Min	5.0	0.5
Max	120.0	3.5
Mean	30.40	1.9
SD	31.73	0.76

This table shows that the mean duration of morning stiffness was 30.4 ± 31.73 min in rheumatoid arthritis group and the mean duration of the disease was 1.9 ± 0.76 years

Table (4): Comparison between the two studied groups as regards cathepsin K (pmol/L).

Cathepsin (pmol/L)	Rheumatoid arthritis group (n=50)	Control group (n=15)
Min	0.3	4.18
Max	453.8	35.16
Mean	155.35	11.74
SD	198.93	10.07
t-test	$t = 2.780$ $p = 0.007^*$	

P* is significant if <0.05

This table shows mean values of cathepsin K was significantly higher in rheumatoid arthritis group compared to control group ($P < 0.05$).

Table (5): Comparison between the two studied groups as regards ESR .

ESR (mm)	Rheumatoid arthritis group (n = 50)	Control group (n=15)
Min	16.0	8.0
Max	80.0	13.0
Mean	36.48	11.0
SD	20.36	1.77
t-test	t= 4.815 p = 0.000*	

P* is significant if <0.05

This table reveals that the mean ESR was significantly higher in rheumatoid arthritis group compared to control group ($P < 0.05$).

Table (6): Comparison between the two studied groups as regards haemoglobin concentration (g/dl).

Hb (g/dl)	Rheumatoid arthritis group (n= 50)	Control group (n=15)
Min	10.0	13.0
Max	15.0	14.8
Mean	13.08	13.73
SD	1.51	0.51
t-test	t= 1.635 p = 0.107	

P* is significant if <0.05

This table reveals no significant difference between rheumatoid arthritis group and control group as regards haemoglobin concentration ($P > 0.05$).

Table (7): Comparison between the two studied groups as regards CRP.

CRP	Rheumatoid arthritis group (n=50)	Control group (n=15)
Positive	18 (34.0%)	0 (0.0%)
Negative	32 (66.0%)	15 (100.0%)
X ² -test	X ² = 6.906 P = 0.006*	

P* is significant if <0.05

This table reports that the percentage of positive CRP was significantly higher in rheumatoid arthritis group (34.0%) compared to control group (0.0%), (P < 0.05). It is clear the CRP is positive in only 34% of cases of RA.

Table (8): Rheumatoid factor in the rheumatoid arthritis group.

RF	Rheumatoid arthritis group (n=50)
Positive	32 (62.0%)
Negative	18 (38.0%)

This table shows that 62.0% of rheumatoid arthritis group had positive rheumatoid factor while, the remaining 38.0% was negative (i.e. seronegative)

Table (9): Activity index, severity index and functional capacity in rheumatoid arthritis group.

	Activity index	Severity index	Functional capacity
I	11 (22.0%)	15 (30.0%)	26 (52.0%)
II	30 (60.0%)	19 (38.0%)	17 (34.0%)
III	9 (18.0%)	16 (32.0%)	7 (14.0%)

This table shows that 22.0% of rheumatoid arthritis group had activity index grade I, while 60.0% had grade II and 18.0% had grade III.

As regards severity index, 30.0% of rheumatoid arthritis group grade I, 38.0% had grade II and 32.0% had grade III.

As regards functional capacity, 52.0% of rheumatoid arthritis group grade, I 34.0% had grade II and 14.0% had grade III.

Table (10): Ritchie's score, and pain scale in rheumatoid arthritis group

	Ritchie's score	Pain scale
Min	0.0	1.0
Max	17.0	6.5
Mean	4.93	3.29
SD	4.04	1.63

This table shows that the mean Ritchie's score was 4.93 ± 4.04 in rheumatoid arthritis group, while the mean pain scale was 3.29 ± 1.63 .

Table (11): Correlations between cathepsin –K and the other parameters

		Cathepsin K
Age	r	0.419
	p	0.002*
Morning stiffness	r	0.576
	p	0.000*
Disease duration	r	0.337
	p	0.017*
ESR	r	0.658
	p	0.000*
Hb	r	-0.63
	p	0.000*
Ritchie's	r	0.401
	p	0.004*
Pain scale	r	0.629
	p	0.000*

This table shows significant direct correlation between cathepsin in one side and age ($r = 0.419$; $P = 0.002$), morning stiffness ($r = 0.576$; $P = 0.000$), disease duration ($r = 0.337$; $P = 0.017$), ESR ($r = 0.658$; $P = 0.000$), Ritchie's score ($r = 0.401$; $P = 0.004$) and pain scale ($r = 0.629$; $P = 0.000$) in the other side. While, it reveals a statistically significant inverse correlation between cathepsin K and haemoglobin concentration ($r = -0.613$; $P = 0.000$).

Table (12) : Comparison between cathepsin – K and sex in rheumatoid arthritis group

	SEX	N	Mean	SD	t-test
Cathepsin-K	Male	8	222.3	228.5	t=1.040
	Female	42	142.6	193.2	P=0.304

This table shows no significant difference as regards the mean cathepsin K between males and females in the rheumatoid arthritis group.

Table (13): Comparison between cathepsin-K and RF in rheumatoid arthritis group

	RF	N	Mean	SD	t-test
Cathepsin-K	No	19	29.6	102.9	t=3.908
	Yes	31	232.4	205.3	P= 0.000*

This table reports that the mean cathepsin K was significantly higher RF +ve patients compared to RF-ve patients in rheumatoid arthritis group ($P < 0.05$).

Table (14):Relation between cathepsin –K and CRP in rheumatoid arthritis group.

	CRP	N	Mean	SD	t-test
Cathepsin-K	No	33	81.8	156.8	t= 4.220
	Yes	17	298.1	198.0	p= 0.000*

This table reveals that the mean cathepsin K was significantly higher CRP+ve patients compared to CRP-ve patients in rheumatoid arthritis group ($P < 0.05$).

Table (15): Relation between cathepsin-K and activity index in reumatoid arthritis group.

Activity index	N	Mean	SD	F-test	LSD
I	11	84.8	180.0	F= 6.325 P = 0.04*	III vs I,II
II	30	124.0	176.6		
III	9	345.9	193.5		

P* is significant if < 0.05

This table reports that the mean cathepsin K was significantly higher inpatients with activity index grade III compared those with grades I and II ($P < 0.05$).

Table (16): Relation between cathepsin –K and severity index in rheumatoid arthritis group

Activity index	N	Mean	SD	F-test	LSD
I	15	63.1	156.6	F= 27.204 P = 0.000*	III vs I,II
II	19	51.2	95.4		
III	16	365.5	161.5		

P * is significant if < 0.05

This table reports that the mean cathepsin K was significantly higher in patients with severity index grade III compared those with grades I and II ($P < 0.05$).

Table (17): Relation between cathepsin-K and functional capacity in rheumatoid arthritis group.

Activity index	N	Mean	SD	F-test	LSD
I	26	61.6	141.7	F= 8.319 P = 0.001*	III vs I,II
II	17	233.9	203.0		
III	7	321.8	212.4		

P * is significant if < 0.05

This table reports that the mean cathepsin K was significantly lower in patients with functional capacity grade I compared those with grades II and III ($P < 0.05$).