RESULTS

This study included 40 subjects who were divided into 3 groups:

Group I: Included 20 patients suffering from RA, all of them had bilateral knee effusion. They were 12 females (60%) and 8 males (40%). Their ages ranged between 40 and 50 years, with a mean of 49.3 ± 4.97 years their disease duration ranged between 1 – 5 years, with a mean of 3.2 ± 0.58 years.

Group II: Included 10 patients suffering from OA, all of them had knee effusion. They were 7 females (70%) and 3 males (30%) their ages ranged between 50 and 60 years with a mean of 52.1 ± 7.65 years. Their disease duration ranged between 1-11 years, with a mean of 5.4 ± 1.45 years.

Group III: Included 10 apparently healthy subjects they were 6 females (60%) and 4 males (40%). Their ages ranged between 45 and 55 years with a mean of 49.9 ± 5.26 years.

Results of clinical and some laboratory data:

Group 1:

- The duration of morning stiffness ranged between 20 and 80 minutes, with a mean of (40.33 ± 8.1 minutes)
- The functional capacity according to ***Steinbroker (1949)*** classification, was grade I in 6 patients (4%) and grade II in 10 patients (50%) and grade III in 4 patients (5%).
- On calculating, the articular index for the patients according to the modified articular index ***(Ritchie et al., 1968)***, it ranged between 6 and 45, with a mean of (22.46 ± 4.88).
- The grip strength of the both hands ranged between 70 and 150 mmHg, with a mean of (96.6 ± 11.7 mmHg)

- The erythrocyte sedimentation rate (ESR) in the 1st hour ranged between 21 and 130mm, with a mean of (68.6 ± 14.2 mm/hour).
- The haemogobin concentration of the patients ranged between 8 and 10gm/dl, with a mean of (9.16 ± 0.27gm/dl).
- The latex fixation test for rheumatoid factor was positive in 15 patients (15%) with a mean titre value of 67.6 ± 14.2 and was negative in 5 patients. (5%) with a mean titre value of 22.47 ± 4.88

Table (1&2) shows age and sex distribution in RA, OA and control groups.

All three groups had statistically insignificant differences as regards age ($P > 0.05$) and sex ($P > 0.05$), $F = 0.15$ and $X^2 = 0.32$ respectively.

In RA group: They were 12 females (60%) and 8 males (40%) their ages ranged between 40 and 50 years, with a mean of 49.3 ± 4.97 years.

In OA group: They were 7 females (70%) and 3 males (30%). Their ages ranged between 50 and 60 years with a mean of 52.1± 7.65 years.

In control group, they were 6 females (60%) and 4 males (40%). Their ages ranged between 45 and 55 years with a mean of 49.9 ± 5.24 years.

Table (1): Age distribution in the studied groups

Group	R.A.		OA		Control	
Age/years	Min	Max	Min	Max	Min	Max
Range	40	50	50	60	45	55
N	20		10		10	
$\bar{X}$	49.3		52.1		49.9	
± SD	± 4.97		± 7.65		± 5.24	
F	0.15					
P	> 0.0 5 Non significant					

Table (2): Sex distribution in the studied groups

Group	R.A.		OA		Control	
Sex	N.	%	N	%	N	%
Females	12	60	7	70	6	60
Males	8	40	3	30	4	40
X^2	0.32					
P	> 0.05 non significant					

N (number)

$\bar{X}$ (mean/years)

± SD (standard deviation)

P probability of error

(X^2 = chi square)

Table (3) shows comparison between mean AT III concentration in plasma and synovial fluid of RA and OA groups.

There was a highly statically significant increase in the mean AT III concentration in the plasma of RA patients being 0.65 ± 0.13 mg/ml and ranged between 0.39 mg/ml and 0.74 mg/ml in comparison to 0.47 ± 0.06mg/ml in the synovial fluid of the same patients and ranged between 0.13 mg/ml and 0.57 mg/ml, where T = 5. 76 and P < 0.001.

There was a statically significant increase in the mean AT III concentration in the plasma of OA patients being 0.28 ± 0.06 and ranged between 0.22mg/ml and 0.36 mg/ml in comparison to 0.21 ± 0.07 mg/ml in the synovial fluid of the same patients and ranged between 0.12 mg/ml and 0.27 mg/ml, where T = 2.46 and P < 0.05.

Table (3): Comparison between the mean of AT III concentration in the plasma and synovial fluid of RA and OA groups:

Group	Synovial			Plasma			T	P
	N	$\bar{X}$	± SD	N	$\bar{X}$	± SD		
RA	20	0.47	0.06	20	0.65	0.13	5.76	*<0.001
OA	10	0.21	0.07	10	0.28	0.06	2.47	**<0.05

* = High statistically significant difference

** = Statistically Significant difference.

N = Number of patients ± SD = standard deviation

$\bar{X}$ = mean T = t- student test

P = Probability of error

Table (4) shows comparison between means plasma AT III concentration in RA, OA groups.

There was a highly statistically significant increase in the mean of AT III concentration in the plasma of RA patients being (0.65 ± 0.13mg/ml) in comparison to the mean of AT III concentration in the plasma of OA patients being (0.28 ± 0.06 mg/ml), where T = 10.8 and P< 0.001.

Table (4): Comparison between the mean of plasma AT III concentration in RA and OA groups:

Studied gps / AT III conc. (mg/ml)	RA	OA
	(n=20)	(n = 10)
$\bar{X}$	0.65	0.28
± SD	± 0.13	± 0.060
T	10.83	
P	*<0.001	

* = High statistically significant difference

Table (5) shows comparison between mean synovial AT III concentration RA, OA groups.

There was a highly statistically significant increase in the mean of AT III concentration in the synovial fluid of RA patients being (0.47 ± 0.06 mg/ml) in comparison to the mean of AT III concentration in the synovial fluid of OA patients being (0.21 ± 0.07 mg/ml), where T = 10.7 and P < 0.001.

Table (5): Comparison between the mean of synovial AT III concentration in RA, OA groups

Studied gps / AT III conc. (mg/ml)	RA (n=20)	OA (n = 10)
$\bar{X}$	0.47	0.21
± SD	± 0.06	± 0.07
T	10.7	
P	*< 0.001	

* = High statistically significant difference

Table (6) shows comparison of mean plasma AT III concentration among RA, OA and control groups.

The mean plasma of AT III concentration of the control group was ranged between 0.24 and 0.42 mg/ml with a mean 0.32 $\pm$ 0.07 mg/ml.

There was a statistical significant difference between the mean plasma AT III concentration in the studied groups, where F = 59.8 and

$P < 0.05$

Table (6): Comparison between the mean plasma AT III concentration among RA, OA and control groups.

Group	RA	OA	Control
N	20	10	10
$\bar{X}$	0.65	0.28	0.32
$\pm$ SD	0.13	0.06	0.07
F	59.8		
P	**< 0.05		

** = statistically significant difference

Table (7) shows comparison between the mean antithrombin III (AT III) activity in the plasma and synovial fluid among RA and OA groups.

There was a highly statistically significant increase in the mean AT III activity in the plasma of RA patients being 1.41 ± 0.49 Iu/ml and ranged between 1.03 and 1.94 in comparison to 0.87 ± 0.13 Iu/ml and ranged between 0.35 Iu/ml and 1.14 Iu/ml of the same patients, where $T = 14.5$ and $P < 0.001$.

There was a highly statistically significant increase in the mean ATIII activity in the plasma of OA patients being 1.01 ± 0.08 Iu/ml and ranged between 0.97 Iu/ml and 1.16 Iu/ml in comparison to 0.51 ± 0.27Iu/ml and ranged between 0.39 Iu/ml and 0.94 Iu/ml of the same patients, where $T = 6.7$ and $P < 0.001$.

Table (7): Comparison between the mean of AT III activity in the plasma and synovial fluid of RA, OA groups:

Group	Synovial			Plasma			T	P
	N	$\bar{X}$	± SD	N	$\bar{X}$	± SD		
RA	20	0.87	0.13	20	1.41	0.49	14.5	*<0.001
OA	10	0.51	0.27	10	1.01	0.08	6.7	*<0.001

* = Highly statistically significant difference.

Table (8) shows comparison between the mean AT III activity in synovial fluid of RA and OA groups.

There was a statistically significant increase in the mean of AT III activity in the synovial fluid of RA patients being (0.87 ± 0.13 Iu/ml) in comparison to the mean of AT III activity in the synovial fluid of OA patients being (0.51 ± 0.27 Iu/ml) where T = 4.0 and P < 0.05.

Table (8): Comparison between the mean of AT III activity in the synovial fluid of RA and OA groups.

Studied gps / AT III activity (Iu/ml)	RA (n=20)	OA (n = 10)
$\bar{X}$	0.87	0.51
± SD	± 0.13	± 0.27
T	4.0	
P	**<0.05 significant	

** = Statistical significant difference.

Table (9) shows comparison between mean plasma AT III activity in RA and OA groups.

There was a statistically significant increase in the mean of AT III activity in the plasma of RA patients being (1.41 $\pm$ 0.49 Iu/ml) in comparison to the mean of AT III activity in the plasma of OA patients being (1.01 $\pm$ 0.08 Iu/ml), where T = 2.7 and P < 0.05.

Table (9): Comparison between the mean of plasma AT III activity in with RA and OA groups

Plasma / AT III activity (Iu/ml)	RA (n=20)	OA (n = 10)
$\bar{X}$	1.41	1.01
$\pm$ SD	$\pm$ 0.49	$\pm$ 0.08
T	2.7	
P	**<0.05	

** = Statistically significant difference.

Table (10) shows comparison of mean plasma AT III activity in the among RA, OA and control groups.

The mean plasma AT III activity of the control group was ranged between 0.70 Iu/ml and 1.00 Iu/ml with mean 0.87 $\pm$ 0.09 Iu/ml.

There was a statistically significant difference between the mean plasma AT III activity in the studied groups, where F = 6.29 and P < 0.05.

Table (10): Comparison of mean AT III activity in patients of RA, OA and control groups.

Group	RA	OA	Control
N	20	10	10
$\bar{X}$	1.41	1.10	0.87
$\pm$ SD	0.49	0.08	0.09
F	6.29		
P	**< 0.05		

** = Statistically significant difference.

Table (11) shows comparison between the mean of TIC in plasma and synovial fluid in RA and OA groups.

There was a highly statistically significant increase in the mean plasma TIC of RA patients being 4.99 ± 0.74 Iu/mg and ranged between 2.88 Iu/mg and 6.51 Iu/mg in comparison to 3.42 ± 0.82 in the synovial fluid of the same patients, where T = 6.41 and P < 0.001.

There was a stastically significant increase in the mean plasma TIC of OA patients being 4.17 ± 1.08 Iu/mg and ranged between 2.99 Iu/mg and 5.61 Iu/mg in comparison to 2.52 ± 0.89 Iu/mg in the synoival fluid of the same patients and ranged between 1.33 Iu/mg and 3.91 Iu/mg, where T = 5.72 P < 0.05.

Table (11): Comparison between the mean of TIC concentration in the plasma and synovial fluid in RA and OA groups

Group	Synovial			Plasma			T	P
	N	$\bar{X}$	± SD	N	$\bar{X}$	± SD		
RA	20	3.42	0.82	20	4.99	0.74	6.41	*<0.001
OA	10	2.52	0.89	10	4.17	1.08	5.72	**<0.05

* = Highly statistically significant difference.

** = Statistically significant difference.

Table (12) shows comparison between mean synovial TIC in RA and OA studied groups.

There was a statistically significant increase in the mean of TIC concentration in the synovial fluid of RA patients being (3.42 ± 0.82 Iu/mg) in comparison to the mean of TIC concentration in the synovial fluid of OA patients being (2.52 ± 0.89 Iu/mg) where T = 2.7 and P<0.05.

Table (13) shows comparison between mean plasma TIC in RA and OA studied groups.

There was a statistically significant increase in the mean of TIC concentration in the plasma of RA patients being (4.99 ± 0.74 Iu/mg) in comparison to the mean of TIC concentration in the plasma of OA patients being (4.17 ± 1.08 Iu/mg) where T = 2.2 and P < 0.05.

Table (12): Comparison between the mean synovial TIC concentration in RA and OA groups.

Synovial TIC concentration (Iu/mg)	RA (n=20)	OA (n = 10)
$\bar{X}$	3.42	2.52
± SD	± 0.82	± 0.89
T	2.7	
P	**<0.05	

** = Statistically significant difference

Table (13): Comparison between the mean plasma of TIC concentration with RA and OA groups.

Synovial TIC concentration (Iu/mg)	RA (n=20)	OA (n = 10)
$\bar{X}$	4.99	4.17
± SD	± 0.74	± 1.08
T	2.2	
P	**<0.05	

** = Statistically significant difference

Table (14) shows comparison between the mean of plasma TIC among RA, OA and control groups.

The mean plasma TIC was ranged between 2.05 and 3.73 Iu/mg and with a mean 2.79 ± 0.54 Iu/mg.

There was a statistically significant difference between the mean plasma TIC concentration in the studied groups, where F = 25.8 and P<0.05.

Table (14): Comparison between the mean of plasma TIC concentration in RA, OA and control groups

Group	RA	OA	Control
N	20	10	10
$\bar{X}$	4.99	4.17	2.79
± SD	0.74	1.08	0.54
F	25.8		
P	**< 0.05		

** = Statistically significant difference

Table (15) Shows correlation coefficients (r) between both plasma and synovial AT III concentrations, AT III activities and TIC concentrations with some laboratory data in RA group.

There was a positive significant correlation ($P < 0.05$) between plasma AT III concentration and ESR.

There was a negative significant correlation ($P < 0.05$) between plasma AT III concentration and HB%.

There was a positive significant correlation ($P < 0.05$) between synovial AT III concentration and ESR

There was a negative significant correlation ($P < 0.05$) between synovial AT III concentration and HB %

Table (15): Shows correlation coefficients (r) between both plasma and synovial AT III concentrations, AT III activities and TIC concentrations with some laboratory data in RA group.

Variable	Plasma AT III conc.	Plasma AT III activity	Plasma TIC conc.	Synovial AT III conc.	Synovial AT III	Synovial TIC con.
Rh. factor	0.084	0.0005	0.325	0.116	0.042	0.193
HB%	-0.358*	-0.237	-0.185	-0.413*	0.221	0.115
ESR	0.432*	-0.342	0.248	0.462*	0.122	0.263

- Critical value = 0.35
- *Significant < 0.05

Table (16) Shows correlation coefficients (r) between both plasma and synovial AT III concentrations, AT III activities and TIC concentrations with some clinical data in RA group.

There were insignificant correlation ($P > 0.05$) between plasma and synovial AT III concentrations, AT III activities and TIC concentrations with age, duration of disease, morning stiffness, Ritchie articular index and grip strength.

Table (16): Shows correlation coefficients (r) between plasma and synovial AT III concentrations, AT III activities and TIC concentrations with some clinical data in RA group.

Variable	Plasma AT III conc.	Plasma AT III activity	Plasma TIC conc.	Synovial AT III conc	Synovial AT III	Synovial TIC con.
Age (years)	0.0014	0.148	-0.072	0.040	0.222	0.140
Disease duration (years)	0.064	0.288	-0.170	-0.311	0.327	0.340
Morning stiffness (minutes)	-0.309	-0.339	0.319	-0.121	0.142	0.171
Ritche articular	-0.159	0.288	-0.170	0.150	0.221	0.132
Grip strength (mm/Hg)	0.121	-0.060	0.154	0.241	0.191	0.230

- Critical value = 0.35
- *Significant < 0.05

Table (17) Shows correlation coefficients (r) between both plasma and synovial parameters AT III concentrations, AT III activities and TIC concentrations.

There was a negative significant correlation ($P < 0.05$) between synovial TIC concentration and plasma TIC concentration

Table (17): Shows correlation coefficients (r) between both plasma and synovial parameters AT III concentrations, AT III activities and TIC concentrations.

Variable	Synovial AT III conc.	Synovial AT III activity	Synovial TIC conc.
Plasma AT III conc.	-0.201	-0.222	-0.009
Plasma AT III activity	-0.075	-0.173	-0.124
Plasma TIC conc.	-0.218	-0.030	-0.490*

- Critical value = 0.35
- *Significant < 0.05

Table (18), Shows correlation coefficients (r) between plasma AT III concentration and plasma TIC concentration with plasma AT III activity.

There was a positive significant correlation ($P < 0.05$) between plasma AT III concentration and AT III activity.

Table (18): Shows correlation coefficients (r) between plasma AT III concentration and plasma TIC concentration with plasma AT III activity.

Variable	Plasma AT III conc.	Plasma TIC conc.
Plasma AT III activity	*0.600	0.040

- Critical value = 0.35
- *Significant < 0.05

Table (19), Shows correlation coefficients (r) between plasma AT III activity and synovial AT III activity and both plasma and synovial AT III concentration and TIC concentration.

There was a positive significant correlation ($P<0.05$) between plasma. AT III concentration and plasma AT III activity.

Table (19): Shows correlation coefficients (r) between plasma AT III activity and synovial AT III activity and both plasma and synovial AT III concentration and TIC concentration.

Variable	**Plasma AT III activity**	**Synovial AT III activity**
Plasma AT III conc.	0.600*	0.222
Synovial AT III conc.	-.0.075	0.070
Plasma TIC conc.	0.040	- 0.030
Synovial TIC conc.	-0.009	0.114

- Critical value = 0.35
- *Significant < 0.05

FIGURE 6 : MEAN PLASMA AT III CONC. AMONG THE STUDIED GROUPS

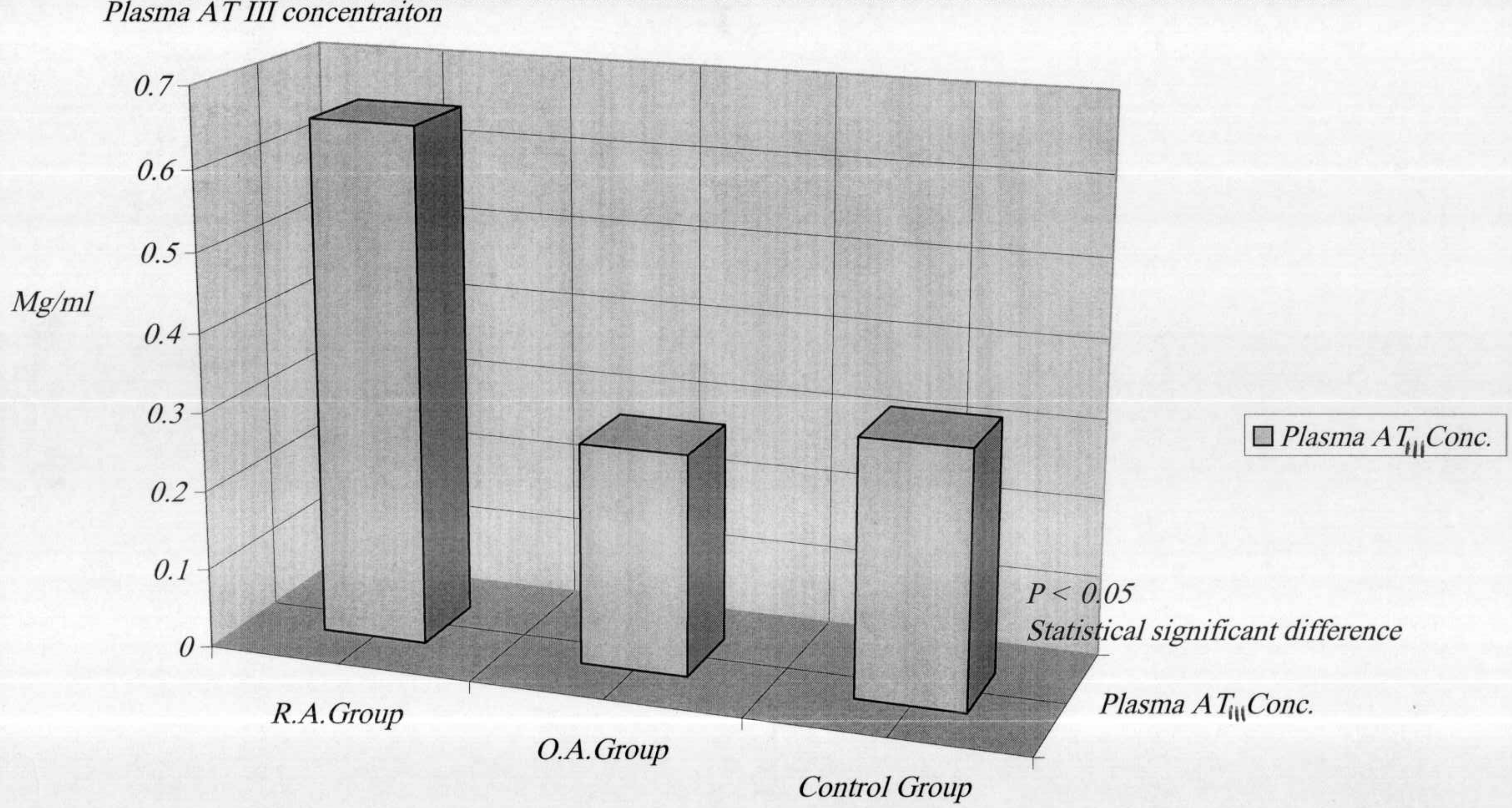


FIGURE 7 : MEAN PLASMA AT III ACTIVITY AMONG THE STUDIED GROUPS .

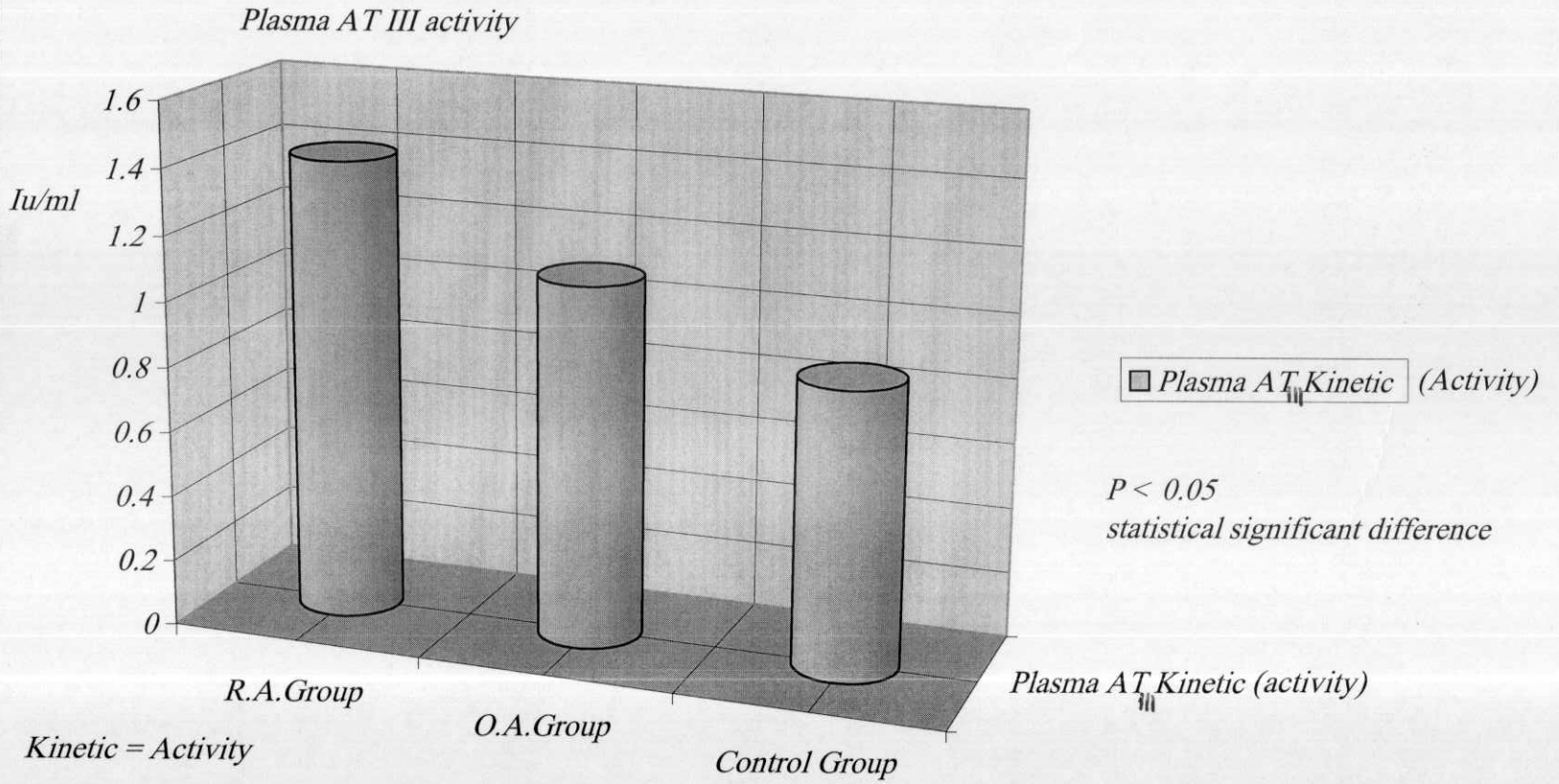
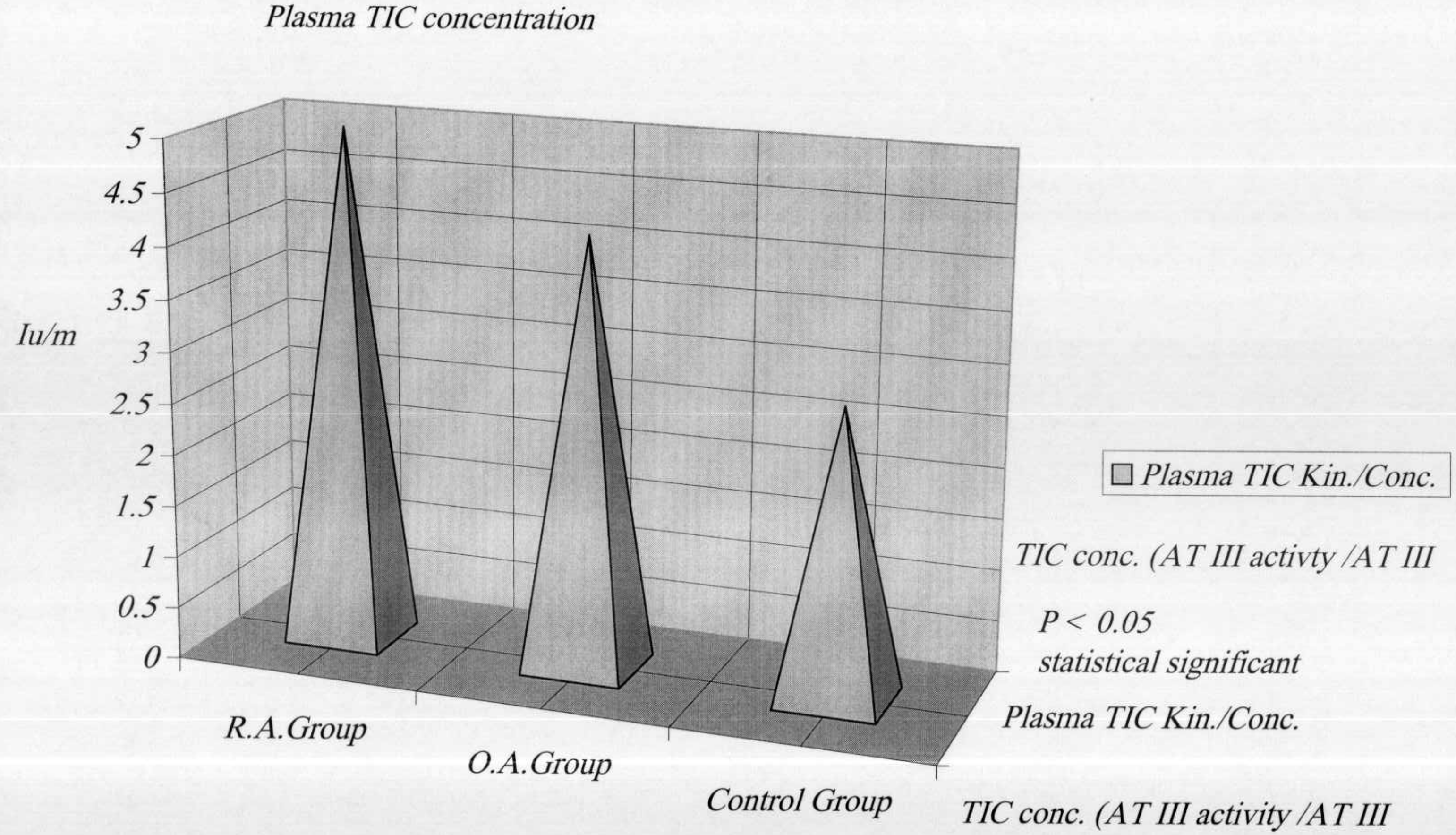
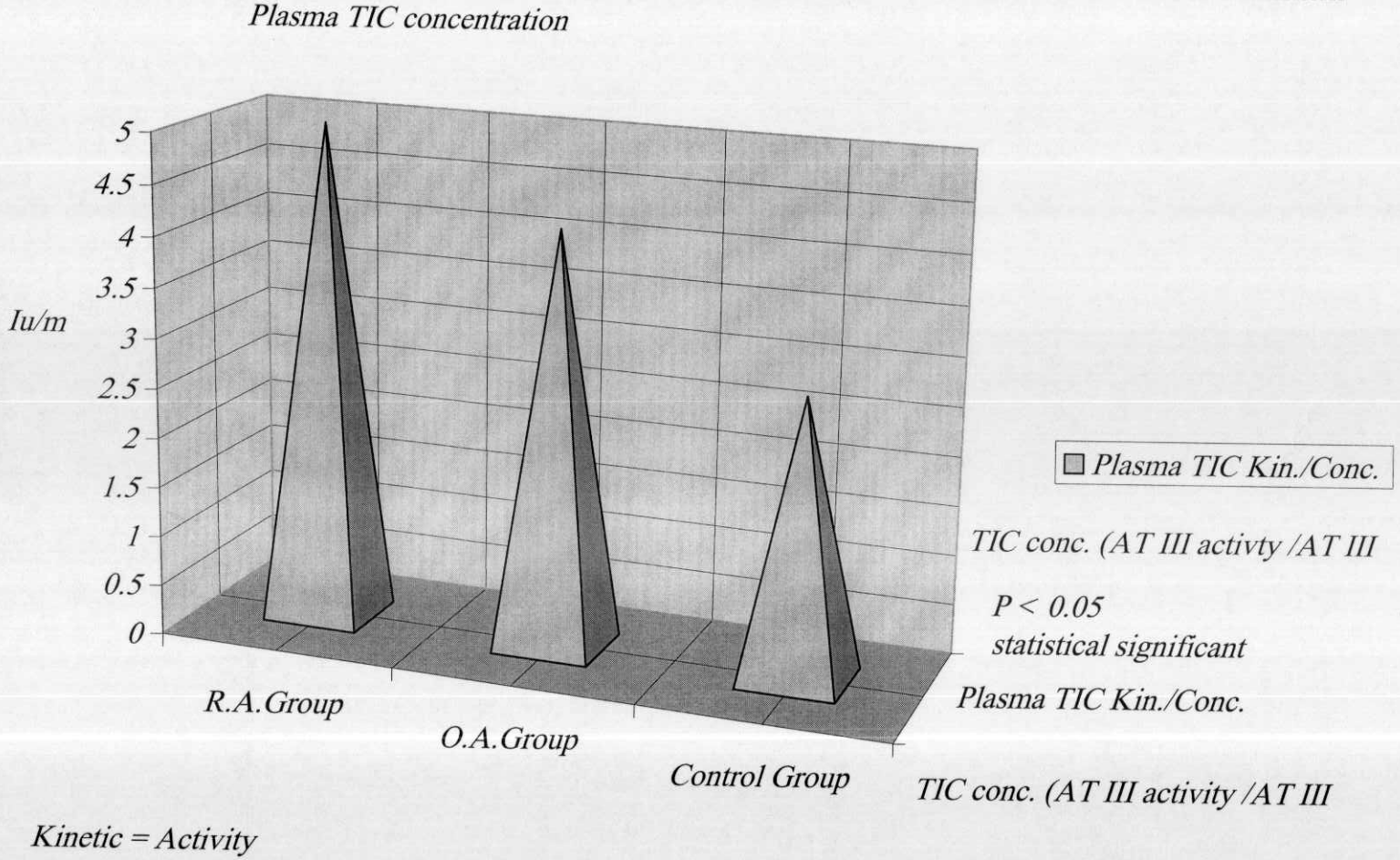


FIGURE 8 : MEAN PLASMA TIC CONCENTRATION (AT III ACTIVITY / AT III CONC). AMONG THE STUDIED GROUPS ..



Kinetic = Activity

FIGURE 8 : MEAN PLASMA TIC CONCENTRATION (AT III ACTIVITY / AT III CONC). AMONG THE STUDIED GROUPS ..



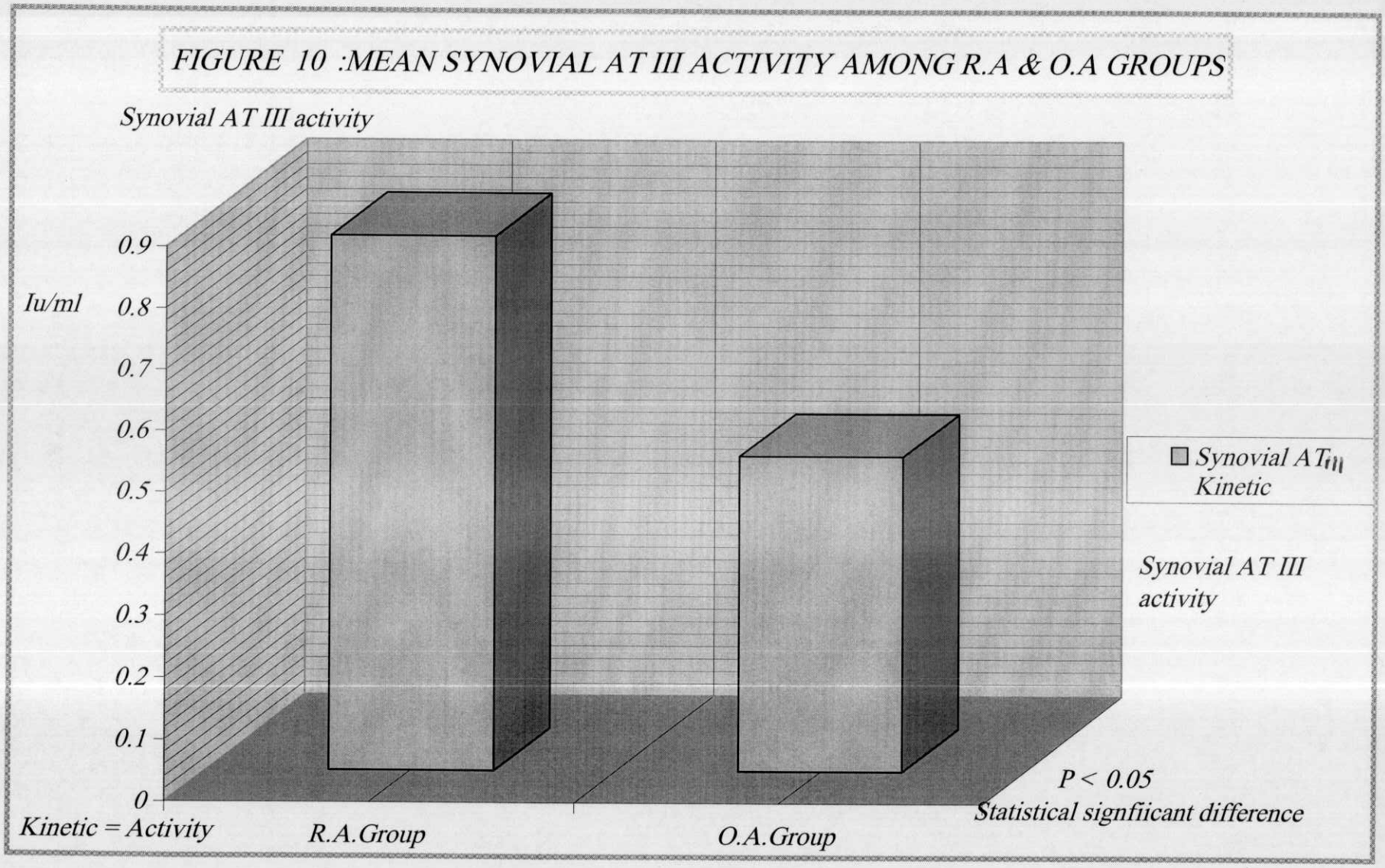
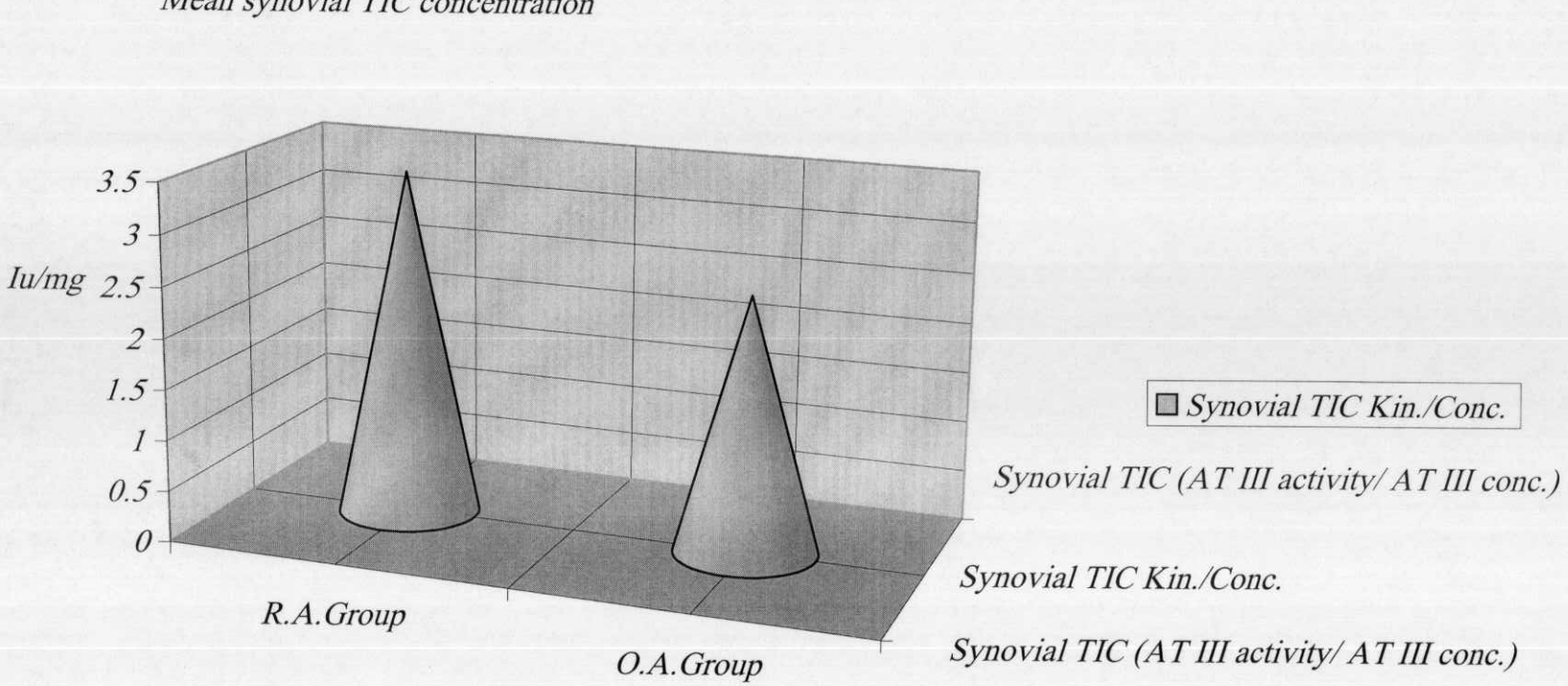


FIGURE 10 :MEAN SYNOVIAL AT III ACTIVITY AMONG R.A & O.A GROUPS
Synovial AT III activity
Iu/ml
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Kinetic = Activity
R.A.Group
O.A.Group
Synovial AT III Kinetic
Synovial AT III activity
P < 0.05
Statistical signfiicant difference

FIGURE 11 : MEAN SYNOVIAL TIC (AT III ACTIVITY/ AT III CONC). AMONG R.A & O.A GROUPS.



Kinetic = Activity

P < 0.05
Statistical signfiicant difference