RESULTS

RESULTS

The present study was conducted on 20 RA patients, they were 15 females and 5 males with the mean age was 48.2 ± 10.28 years for men and 38.4 ± 6.49 years for women. Another 20 normal persons as a control group were also included in the study.

Table (1) showed the most important personal data of the studies cases as age (y), duration of disease (y), weight (kg) and height (cm).

Table (2) showed the anthropometric measurements of the studied patients as females and males, there were significant values between the 2 sexes when comparing total weight, arm muscle area, FFM and FFMI.

Table (3) showed the laboratory results of female and male patients it was found that females had higher ESR, CRP and AAT with significant ESR and AAT values while males had lower albumin level.

Table (4) showed the outcome of the DI components when comparing female and male patients it was found that the outcome in females for most of the components increased in comparison to males which means poorer outcome.

Table (5) showed the anthropometric measurements compared between the studied patients and the control group, there were significant relations between the patients and the controls as regards, weight, B.M.I, triceps skin fold thickness, upper arm muscle size, FFM and FFMI.

Table (6) showed the laboratory results comparison of studied patients and the control group it was found that only the AAT gave insignificant value despite being higher in patients, while there were significances with ESR, CRP and albumin.

In table (7) the female patients were divided into 2 groups according to weight changes 11 of the group had weight loss and 4 had weight gain when compared to the initial body weight values. There were significances for both BMI and DI while there were differences in the APRs values, only the AAT showed significant value.

Then after, the 11 female patients who lost weight subdivided into 2 groups, as shown in table (8), those who had lost more than 15% of the initial weight & those with less than 15% weight loss. It was found that 7 female were at the former group and 4 at the later group. This table showed that in between the 2 groups there was valuable significance between both groups irrespective the duration of the disease. All the values of this table showed more affection of the 1st group than the 2nd when comparing the results obtained.

Similarly, the male group patients were subdivided in the same way as shown in table (9) which found that there was no similar marked differences as females.

Table (10) showed the patient values of BMI in relation to the desirable values according to age. This found that the highly significant decrease was in the middle age patients ranging from 35-44 and a significant decrease in patients in the age group 45-54 while no significance was found on the extremities of age group.

Where the change in body weight showed significance in women more than men, further study showed in table (11) by taking the changes in BMI gain and loss only in women, each group was subdivided once again into >15% and ≤ 15% of the desirable values for age. It also showed that there were values difference when comparing the loss and the gain.

Table (12) and table (13) divided the patients into 2 groups according to the standard percentile values for both triceps skin fold thickness and muscle size. The 1st group for patients who were at or below the 50th percentile and the 2nd group for those falled in the more than 50th percentile. This found that the difference values were more on comparing the muscle percentile while the differences values were insignificant as regards the difference in skin fold thickness values.

In more details, table (13) showed significant values in BMI and DI. Meanwhile the APRs values were affected directly with those below the 50th percentile muscle size value.

Tables from (14) to (16) had studied correlation coefficient between some variables. Table (14): studied the correlation coefficient between DI and weight of the male and female patients it found that there was significance in women but not in men.

On the other side, tables (15) and (16) exhibited the correlation coefficient between FFMI and some variables. It found that, in females there was significant value with APRs (except with CRP) while no significance with DI. In men no significance was found with either APRs or DI.

Table (1): Some personal and clinical data of the studied patients.

	Males (n = 5)		Females (n = 15)	
	Range	$\overline{X}$	Range	$\overline{X}$
Age (y)	38-60	48.2	28-45	38.4
Duration of disease (y)	5-20	10.7	1-20	6.9
Weight (kg)	52-80	64.17	45-80	57.26
Height (cm)	162-178	163	140-178	154.26

. n : Number of cases

$\overline{X}$: Mean

Table (2): Anthrompometric measurements of the studied patients.

Anthropometric measurements	Males (n= 5)		Females (n=15)		t-test	P-value	Sig.
	$\overline{X}$	SD	$\overline{X}$	SD			
Weight (Kg)	64.17	10.7	57.26	13.23	3.77	< 0.05	Sig.
Height (cm)	163	12.71	154.26	7.5	5.98	< 0.05	Sig.
BMI (kg/cm^2)	24.19	3.19	23.84	4.8	0.33	> 0.05	N.S
Knee height (cm)	50.5	4.67	47.1	2.58	3.85	< 0.05	Sig.
Triceps skin fold	0.95	0.37	0.93	0.42	0.06	> 0.05	N.S
Upper arm circumference (cm)	25.19	3.9	26.5	4.72	1.23	> 0.05	N.S
Upper arm muscle (mm^2)	6.06	0.92	4.5	0.61	6.17	< 0.05	Sig.
Waist circumference (cm)	80.4	10.45	85.64	11.2	1.23	> 0.05	N.S
FFM (Kg)	59.6	7.7	42.1	5.7	4.04	< 0.05	Sig.
FFMI (kg/cm)	1.2	0.13	0.8	0.06	3.19	< 0.05	Sig.

n : Number of cases

$\overline{X}$: Mean

± SD : Standard deviation

Sig. : significant i.e $P \leq 0.05$

N.S : Non- significant i.e $P > 0.05$

FFM : Fat-free mass

FFMI : Fat-free mass index

Table (3): Laboratory measurements of the studied patients.

Laboratory measurements	Male (n= 5)		Female (n=15)		t-test	P-value	Sig.
	$\overline{X}$	SD	$\overline{X}$	SD			
ESR (mm/h)	27.6	9.6	45.2	20.6	3.63	< 0.05	Sig.
CRP (mg/l)	33.6	11.4	40.5	13.1	2.84	> 0.05	N.S
α-1-Antitrypsin (mg/l)	124.3	30.4	156.5	55.5	4.78	< 0.05	Sig.
Albumin ((g/l)	4.7	0.91	5.2	0.98	0.79	> 0.05	N.S.

n : Number of cases

$\overline{X}$: Mean

± SD : Standard deviation

Sig. : significant i.e $P \leq 0.05$

N.S : Non- significant i.e $P > 0.05$

Table (4): Disability index (DI) components of the studied patients.

DI	Females (n= 15)		Males (n =5)		t-test	P-value
	$\bar{X}$	SD	$\bar{X}$	SD		
Q1	1.2	0.54	1.34	0.67	0.2	> 0.05
Q2	1.43	0.65	1.33	0.52	0.27	> 0.05
Q3	1.11	0.45	0.67	0.41	1.35	> 0.05
Q4	1.21	0.43	1.33	0.52	0.34	> 0.05
Q5	1.75	0.37	1.46	0.51	0.92	> 0.05
Q6	2.14	0.66	1.67	0.52	1.26	> 0.05
Q7	1.83	0.64	1.22	0.58	1.58	> 0.05
Q8	1.61	0.75	1.33	0.71	0.66	> 0.05

n : Number of cases

$\bar{X}$: Mean

$\pm$ SD : Standard deviation

Q 1 : Q8 : components of DI as shown in table (9) page (59).

Table (5): Anthropometric measurements of the studied patients and control group.

Anthropometic measurments	Studied (n= 20)		Control (n = 20)		t-test	P-value	Sig.
	$\overline{X}$	SD	$\overline{X}$	SD			
Weight (Kg)	59.75	13.3	81.25	18.25	5.66	<0 .05	Sig.
Height (cm)	157.6	9.26	159.9	5.67	0.84	> 0.05	N.S
BMI (kg/cm^2)	23.94	4.32	32.2	4.47	4.89	< 0.05	Sig.
Knee height (cm)	48.11	3.59	49.33	1.87	0.89	> 0.05	N.S
Skin fold thick (cm)	0.94	0.4	2.89	0.5	1.3	< 0.05	Sig.
Upper arm circumference (cm)	26.1	4.44	33.0	4.21	3.93	< 0.05	Sig.
Upper arm muscle (mm^2)	5.37	0.99	9.61	1.14	3.58	< 0.05	Sig.
Waist circumference (cm)	80.85	10.88	99.78	11.18	4.30	< 0.05	Sig.
FFM (Kg)	50.85	6.75	70.02	10.37	3.81	< 0.05	Sig.
FFMI (kg/cm)	1.05	0.11	1.42	0.29	5.88	< 0.05	Sig.

n : Number of cases

$\overline{X}$: Mean

± SD : Standard deviation

Sig. : significant i.e $P \leq 0.05$

N.S : Non- significant i.e $P > 0.05$

FFM : Fat-free mass

FFMI : Fat-free mass index

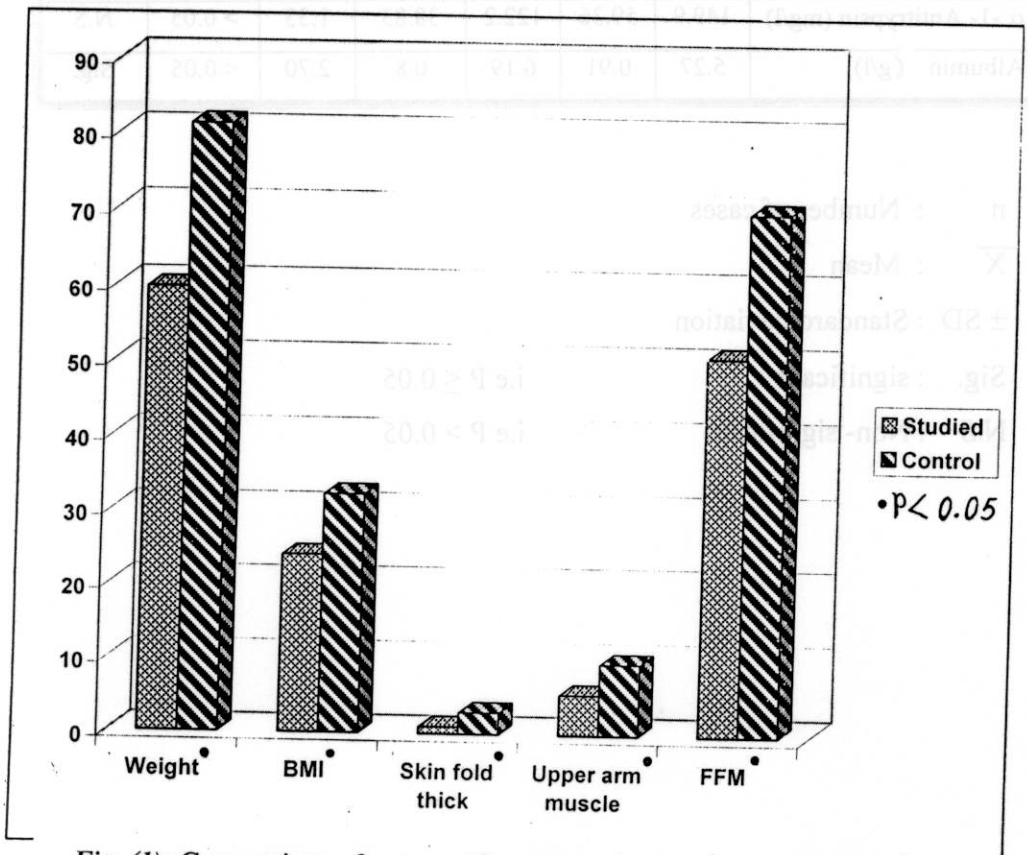

Fig. (1): **Comparison of some anthropometric measurements between the studied patients and the control groups.**

Table (6): Laboratory measurements of the studied patients and control group.

Laboratory measurements	Studied (n= 20)		Control (n = 20)		t-test	P-value	Sig.
	$\overline{X}$	SD	$\overline{X}$	SD			
ESR. (mm/h)	41.35	13.95	15.1	3.28	4.72	< 0.05	Sig.
CRP. (mg/l)	36.11	14.16	8	3.46	2.67	< 0.05	Sig.
α -1- Antitrypsin (mg/l)	149.9	59.36	122.2	38.83	1.33	> 0.05	N.S
Albumin (g/l)	5.27	0.91	6.19	0.8	2.70	< 0.05	Sig.

n : Number of cases

$\overline{X}$: Mean

± SD : Standard deviation

Sig. : significant i.e $P \leq 0.05$

N.S : Non- significant i.e $P > 0.05$

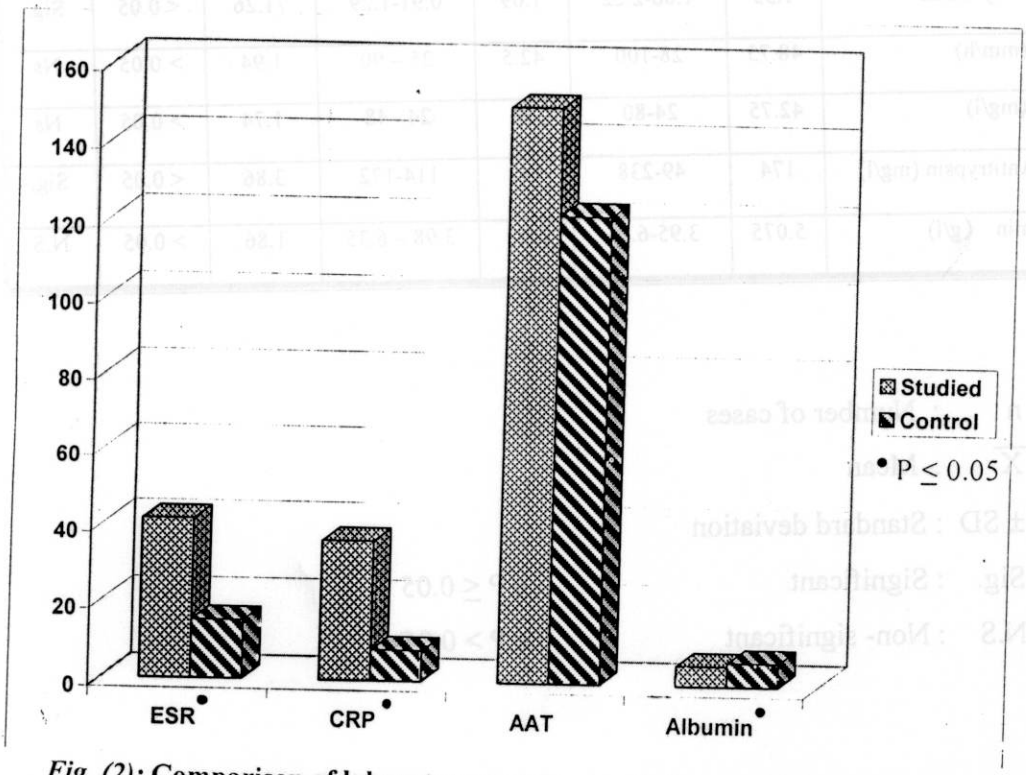

Fig. (2): **Comparison of laboratory measurements between the studied patients and the control group.**

Table (7): Body weight changes in female patients in relation to some variables.

Weight change / Variable	Weight loss (n= 11)		Weight gain (n =4)		t-test	P-value	Sig.
	$\bar{X}$	Range	$\bar{X}$	Range			
Age (y)	38	26-45	44	42-45	1.27	> 0.05	NS.
Duration of diseases (y)	5.37	1-15	9	2-20	3.8	= 0.05	Sig.
BMI (kg/cm^2)	22.62	16.88-26.84	29.73	26.57-32.46	61.52	< 0.05	Sig.
Disability index	1.53	1.06-2.22	1.09	0.91-1.29	71.26	< 0.05	Sig.
ESR (mm/h)	48.75	28-100	42.5	25 – 90	1.94	> 0.05	Ns
CRP (mg/l)	42.75	24-80	36	24 –48	1.74	> 0.05	Ns
α-1-Antitrypsin (mg/l)	174	49-238	142	114-172	3.86	< 0.05	Sig.
Albumin (g/l)	5.075	3.95-6.65	5.63	3.98 – 6.35	1.86	> 0.05	N.S

n : Number of cases

$\bar{X}$: Mean

± SD : Standard deviation

Sig. : Significant i.e $P \leq 0.05$

N.S : Non- significant i.e $P > 0.05$

Table (8): Weight loss changes in female patients in relation to some variables.

Variables \ Weight loss	> 15% (n= 7)		< 15% (n=4)		t-test	P-value	Sig.
	$\bar{X}$	SD	$\bar{X}$	SD			
Age (y)	37.5	6.32	39	6.3	1.01	> 0.05	N.S.
Duration of disease (y)	5.5	3.16	3.75	2.93	2.12	> 0.05	N.S
BMI (kg/cm^2)	26.27	3.17	19.98	3.16	5.9	= 0.05	Sig.
Disability index	1.96	0.51	1.02	0.02	3.01	< 0.05	Sig.
ESR (mm/h)	55	7.9	42.5	3.16	4.16	< 0.05	Sig.
CRP (mg/l)	48	3.16	37.5	1.89	2.5	> 0.05	N.S.
α-1-Antitrypsin (mg/l)	176	2.86	174	3.16	1.77	> 0.05	N.S.
Albumin (g/l)	4.71	0.031	5.44	0.028	6.9	< 0.05	Sig.

n : Number of cases

$\bar{X}$: Mean

± SD : Standard deviation

Sig. : Significant i.e $P \leq 0.05$

N.S : Non- significant i.e $P > 0.05$

Table (9): Body weight changes in male patients in relation to some variables.

Variables \ Weight loss	> 15% (n= 2)		< 15% (n=2)		t-test	P-value	Sig.
	$\overline{X}$	SD	$\overline{X}$	SD			
Age (y)	60	1.41	46.5	0.35	16.9	< 0.05	Sig.
Duration of disease (y)	17.5	0.35	5.5	0.7	2.8	< 0.05	Sig.
BMI (kg/cm^2)	20.28	0.007	26.13	0.014	3.88	< 0.05	Sig.
Disability index	1.12	1.13	0.9	0.02	2.7	> 0.05	N.S.
ESR (mm/h)	37.5	1.4	13.5	0.7	7.7	< 0.05	Sig.
CRP (mg/l)	32.4	1.14	32.6	0.7	1.8	> 0.05	N.S.
α-1-Antitrypsin (mg/l)	125	1.41	124	1.40	3.1	> 0.05	N.S.
Albumin (g/l)	4.3	0.212	5.32	0.74	2.67	> 0.05	N.S

n : Number of cases

$\overline{X}$: Mean

± SD : Standard deviation

Sig. : Significant i.e $P \leq 0.05$

N.S : Non- significant i.e $P > 0.05$

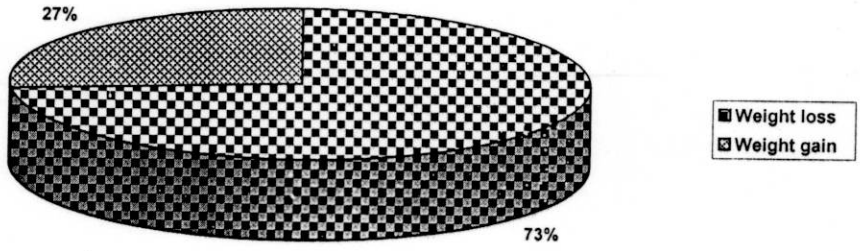

Fig. (3): **Percentage comparison of weight changes in female patients.**

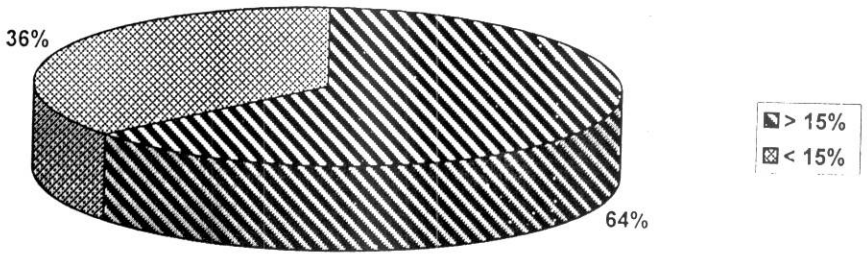

Fig. (4): **Percentage comparison of weight loss in female patients.**

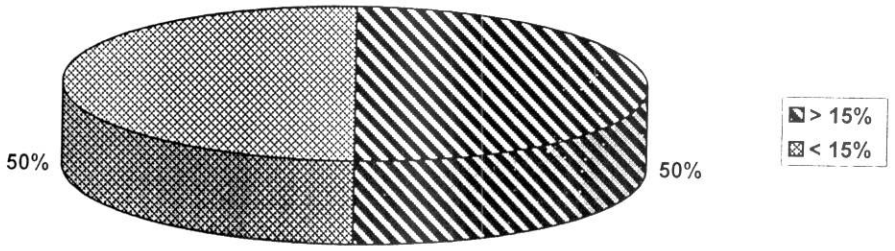

Fig. (5): **Percentage comparison of weight loss in male patients.**

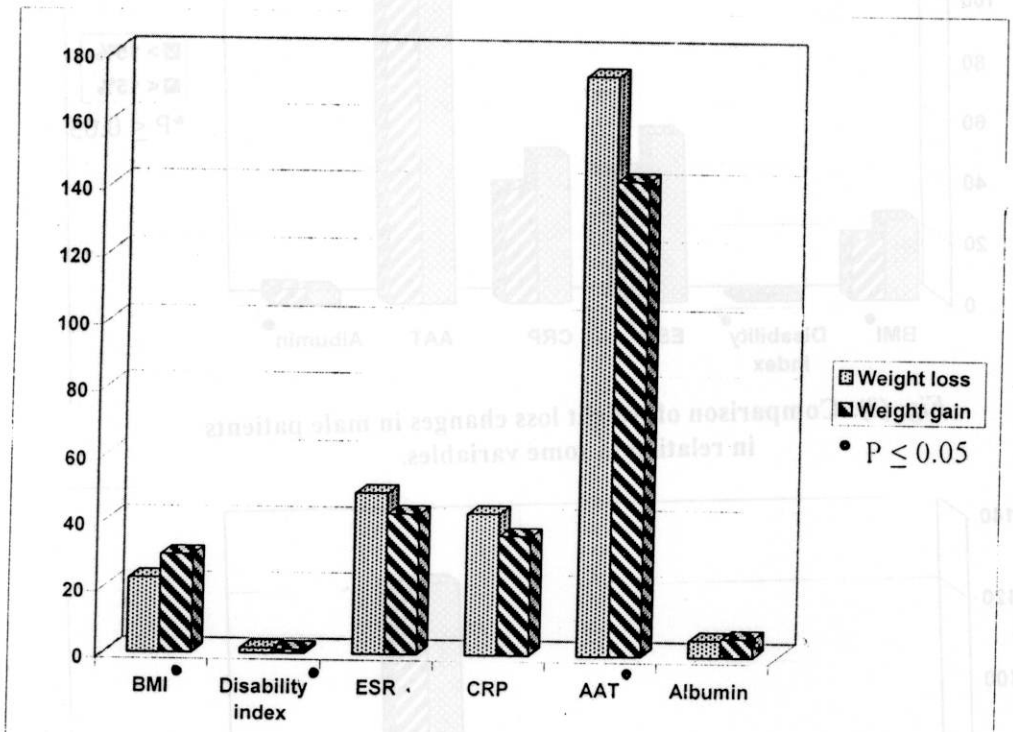

Fig. (6): **Comparison of body weight changes in female patients in relation to some variables.**

Fig. (7): Comparison of weight loss changes in female patients in relation to some variables.

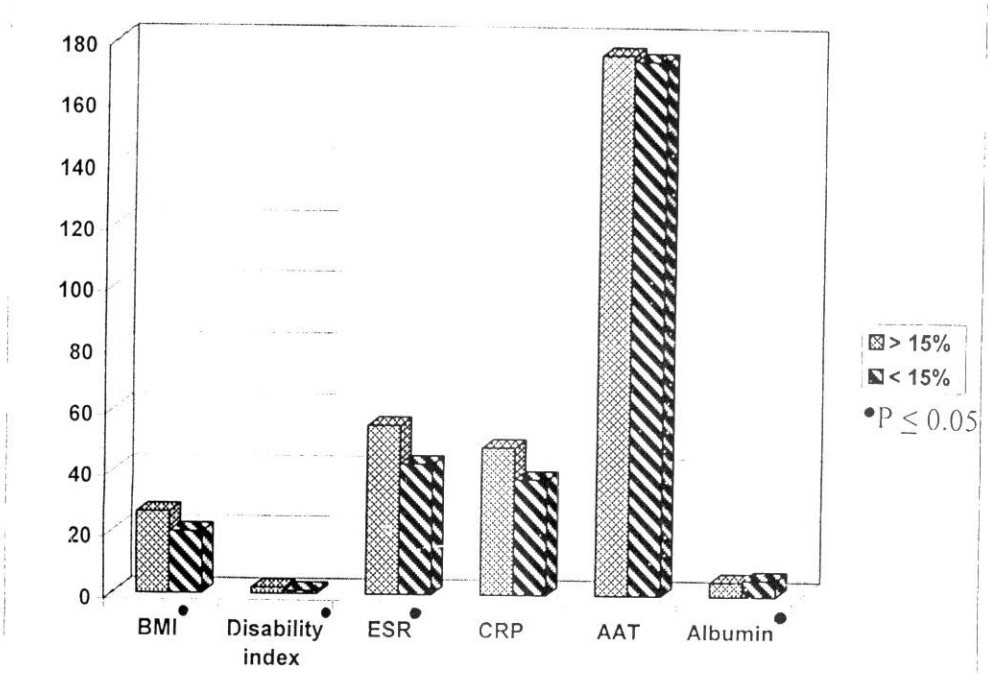

Fig. (8): Comparison of weight loss changes in male patients in relation to some variables.

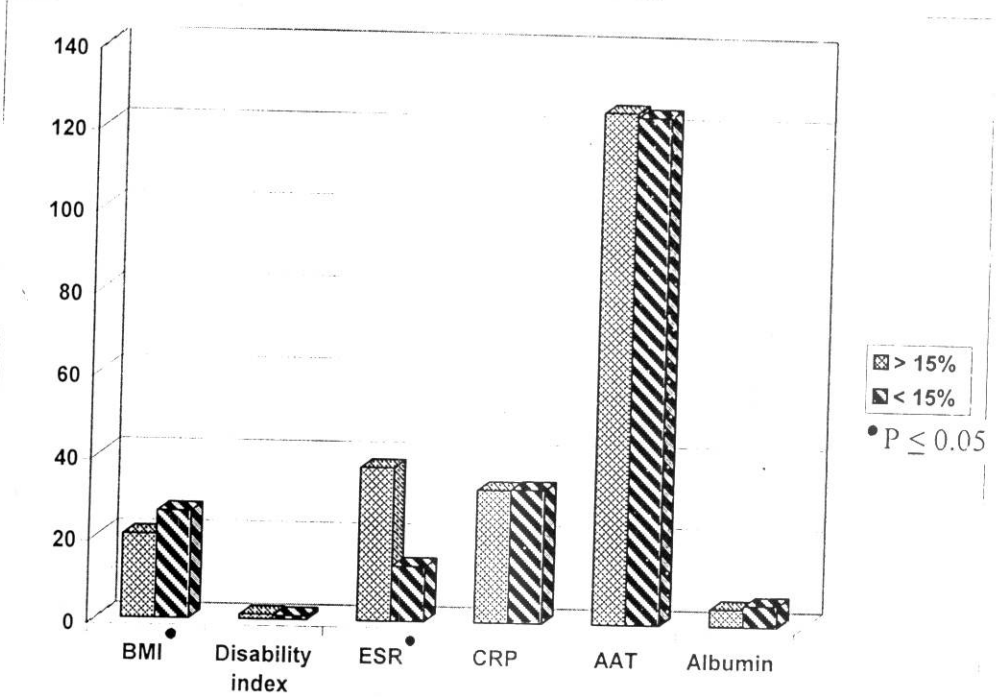

Table (10): BMI values of the studied patients in relation to the desirable vaiues for age.

Age (y)	Studied (n= 20)		Desirable values	t-test	P-value	Sig.
	$\bar{X}$	SD				
25 – 34	24.26	2.14	20-25	0.14	> 0.05	N.S
35 – 44	18.02	1.08	21-26	3.41	< 0.05	Sig.
45 – 54	20.15	2.05	22-27	4.05	< 0.05	Sig.
55 – 64	26.05	3.29	23-28	1.45	> 0.05	N.S

n : Number of cases

$\bar{X}$: Mean

± SD : Standard deviation

Sig. : Significant i.e $P \leq 0.05$

N.S : Non- significant i.e $P > 0.05$

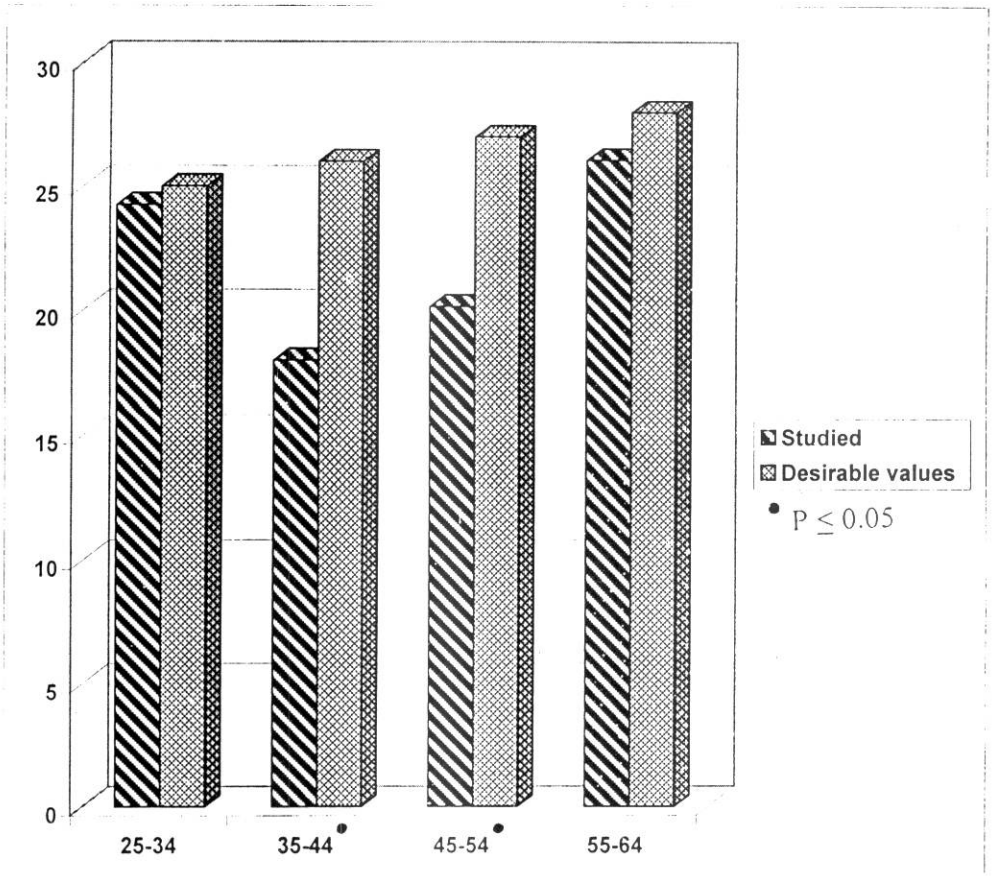

Fig. (9): Comparison of BMI values of the studied patients in relation to the desirable values for age.

Table (11): BMI changes in female patients in relation to some variables.

BMI change / Variables	BMI loss			BMI gain.			t-test	P-value	Sig.
	>15 % (n=1)	<or =15% (n =8)		>15% (n=1)	≤ 15% (n=5)				
	X	X	Range	X	X	Range			
Age (y)	37	35.0	26-45	45	43	40-45	22.66	< 0.05	Sig.
Duration of disease (y)	15	5.0	1-15	3	7	2-20	5.12	< 0.05	Sig.
Disability index	2.22	1.89	1.27-2.09	1.09	1.08	0.91-2	2.17	> 0.05	N.S.
ESR (mm/h)	36.0	57.5	35-100	45	40	25-90	5.04	< 0.05	Sig.
CRP (mg/l)	24.0	44.0	24-80	48	25	24-90	2.88	> 0.05	N.S.
α-1-Antitrypsin (mg/l)	172	172	49-238	142	142	114-172	11.11	< 0.05	Sig.
Albumin (g/l)	5.13	5.25	3.95-6.24	4.47	5.63	3.98-6.65	2.68	> 0.05	N.S.

n : Number of cases

$\bar{X}$ = Mean

Sig. : Significant i.e ≤ 0.05

N.S : Non- significant i.e > 0.05

Table (12): Triceps skin fold thickness percentile values in studied patients in relation to some variables.

Fat percentile / Variables	<50th (n= 9)		> 50th (n=11)		t-test	P-value	Sig.
	$\overline{X}$	SD	$\overline{X}$	SD			
Age (y)	40.95	8.73	41.35	8.97	0.37	> 0.05	N.S
Duration of disease (y)	8.82	6.28	7.16	5.89	1.54	> 0.05	N.S
BMI (kg/cm^2)	23.85	4.42	24.59	5.01	2.21	> 0.05	N.S
Disability index	1.49	0.46	0.91	0.29	2.18	> 0.05	N.S
ESR (mm/h)	42.58	13.95	40.08	11.98	1.2	> 0.05	N.S
CRP (mg/l)	37.18	14.47	35.11	12.87	0.98	> 0.05	N.S
α-1-Antritrypsin (mg/l)	151	60.36	144	49.97	2.35	> 0.05	N.S
Albumin (g/l)	4.24	0.93	5.83	1.02	1.37	> 0.05	N.S.

n : Number of cases

$\overline{X}$: Mean

± SD : Standard deviation

Sig. : Significant i.e $P \leq 0.05$

N.S : Non- significant i.e $P > 0.05$

Table (13): Arm muscle area percentile values in studied patients in relation to some variables.

Muscle percentile / Variables	<50th (n= 15)		> 50th (n=5)		t-test	P-value	Sig.
	$\overline{X}$	SD	$\overline{X}$	SD			
Age (y)	40.93	10.43	43.8	1.3	0.6	> 0.05	N.S
Duration of disease (y)	8.5	5.77	9	8.03	0.15	> 0.05	N.S
BMI (kg/cm^2)	22.23	3.33	29.07	2.44	4.19	< 0.05	Sig.
Disability index	1.6	0.47	1.09	0.14	3.35	< 0.05	Sig.
ESR (mm/h)	42.13	14.63	39	13.34	0.25	> 0.05	N.S
CRP (mg/l)	36.93	13.3	35.75	12.89	0.06	> 0.05	N.S
α-1-Antitrypsin (mg/l)	154.2	67.33	136.8	24.25	3.56	< 0.05	Sig.
Albumin (g/l)	4.27	0.86	5.85	1.17	0.02	> 0.05	N.S

n : Number of cases

$\overline{X}$: Mean

± SD : Standard deviation

Sig. : Significant i.e $P \leq 0.05$

N.S : Non- significant i.e $P > 0.05$

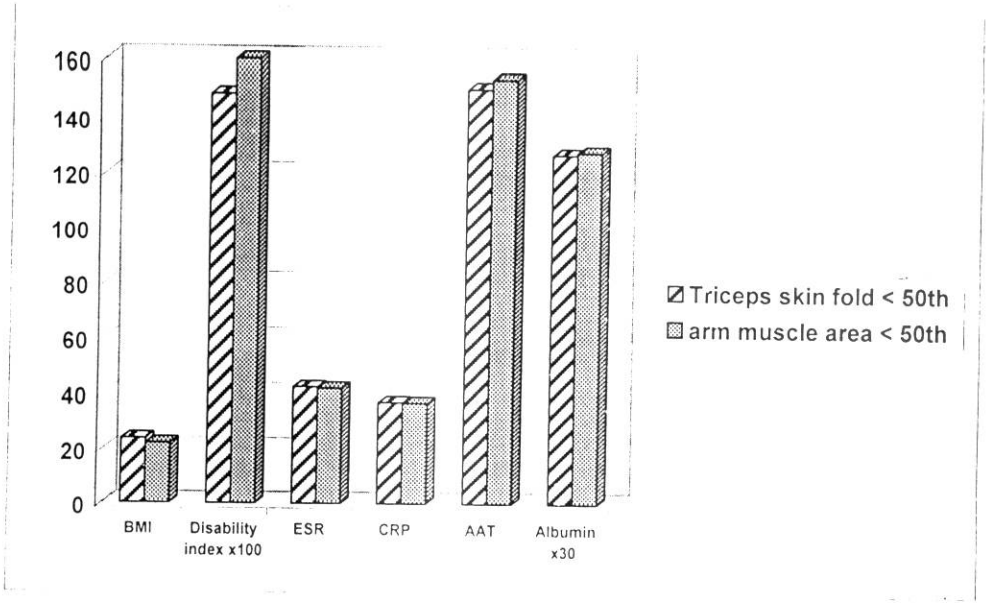

Fig. (10) Comparison of Triceps skin fold and Arm muscle area percentils in the studied cases

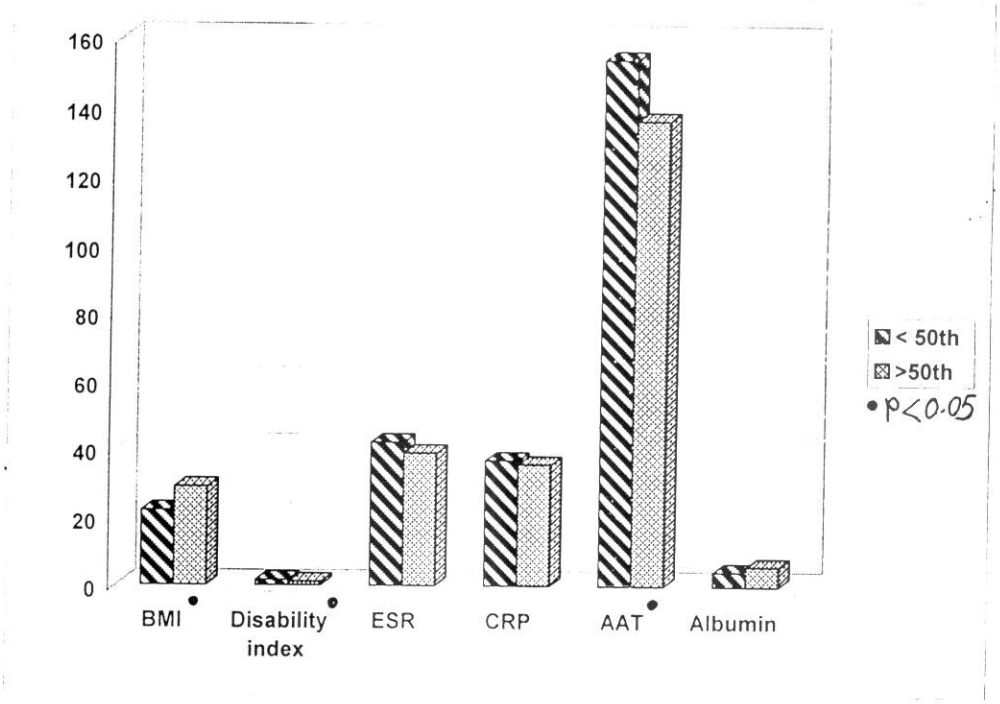

Fig. (11): Comparison of arm muscle area percentiles in the studied cases.

Table (14): Correlation coefficient between the disability index and weight of the studied patients

Sex	r	P	Sig.
Males (n=5)	0.094	0.86	NS
Females (n=15)	0.845	0.00	Sig.

r : r-test

P : P-value

Sig. : significant i.e $P \leq 0.05$

N.S : Non- significant i.e $P > 0.05$

Table (15): Correlation coefficient in female patients between FFMI and some variables

Females (n=15)	r	p	Sig.
Duration (y)	0.72	0.062	NS
Disability index	0.144	0.015	Sig.
ESR (mm/h)	0.353	0.003	Sig
CRP (mg/l)	0.413	0.24	N.S
α-1-Antitrypsin (mg/l)	0.582	0.008	Sig.
Albumin (g/l)	0.377	0.03	Sig

r : r-test

p : p-value

sig. : significant i.e ≤ 0.05

Ns.: non- significant i.e > 0.05

Table (16): Correlation coefficient in male patients between FFMI and some variables.

Males (n=5)	r	p	Sig.
Duration (y)	0.12	0.049	Sig
Disability index	2.54	0.54	NS
ESR (mm/h)	1.2	0.051	NS
CRP (mg/l)	8.26	0.06	NS
α-1-Antitrypsin (mg/l)	0.65	0.25	NS
Albumin (g/l)	3.06	0.065	NS

r : r-test

p : p-value

sig. : significant i.e ≤ 0.05

Ns.: non- significant i.e > 0.05