RESULTS

Table (8): Comparison of age (years) between the study groups

	GI	GII	GIII
Number of cases	30	15	20
$\bar{x}$ **± SD**	1.67±1.05	1.76±0.79	1.82±0.70
Minimum	0.2	0.3	0.2
Maximum	5	3	3
Median	1.45	1.60	1.83
H*	1.268		
Overall p value*	> 0.05		
GI # GII†	> 0.05		
GI # GIII†	> 0.05		
GII # GIII†	> 0.05		

* Kruskal Wallis ANOVA

† Mann Whitney test

p values > 0.05 is statistically insignificant

p values < 0.05 is statistically significant

p values < 0.01 is statistically highly significant

Comparing the age of the groups revealed statistically non significant relation (p> 0.05), denoting a good matching of the age of all the studied groups.

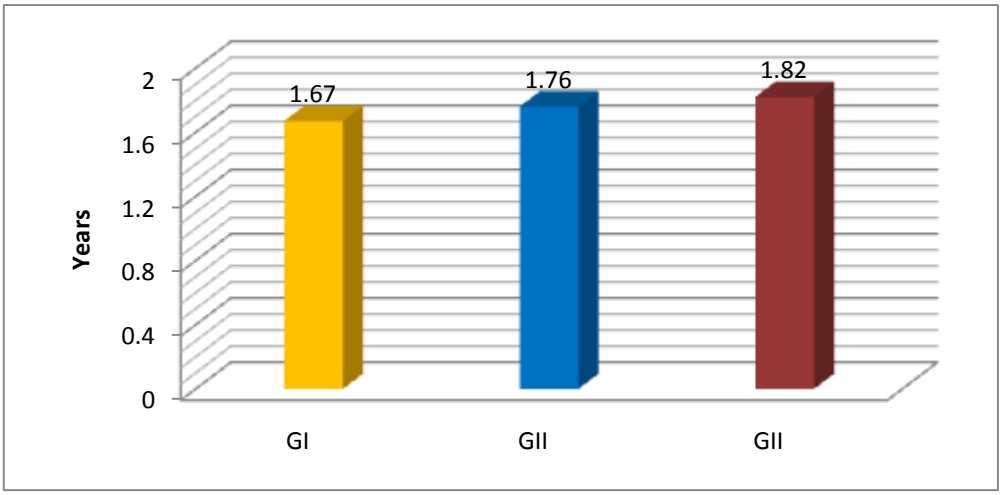

Figure (3): Mean age (years) between the study groups

Table (9): Sex distribution among the study groups

		GI	GII	GIII
Females	**no. of cases**	14	7	5
	%	46.7%	35.0%	33.3%
Males	**no. of cases**	16	13	10
	%	53.3%	65.0%	66.7%
χ^2		1.042		
p value		> 0.05		

Considering the sex, the difference between group I ,group II and group III was statistically non significant (P>0.05) denoting a good matching of the sex of all the studied groups.

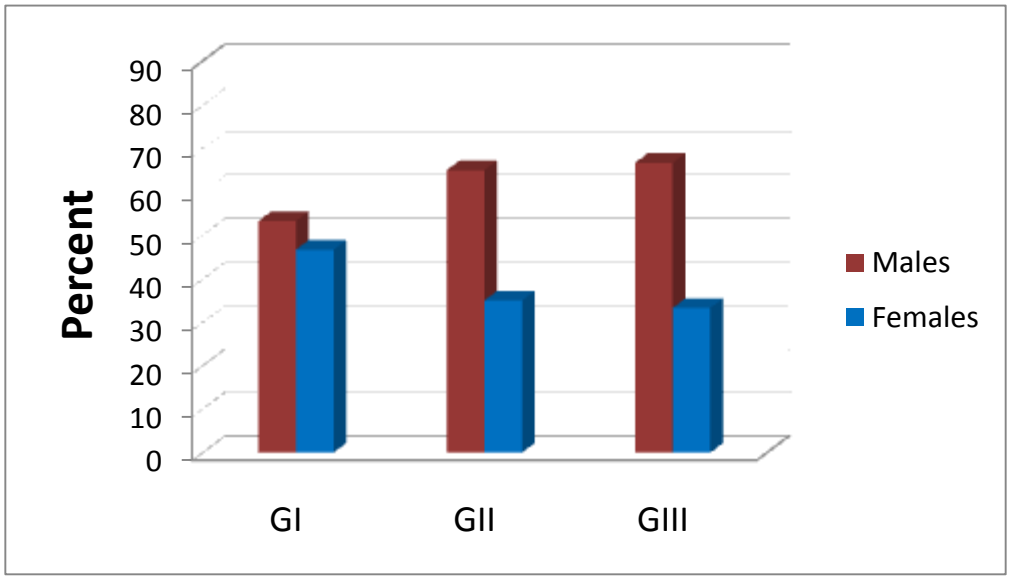

Figure (4): Distribution of sex among the study groups

Table (10): Comparison of height or length (cm) between the study groups

	GI	GII	GIII
Number of cases	30	15	20
$\bar{x}$ **± SD**	75.72±10.78	69.37±10.16	89.65±5.21
Minimum	58	55	78
Maximum	97	97	98
Median	76.25	65.50	89.00
H*	27.101		
Overall p value*	< 0.001		
GI # GII†	> 0.05		
GI # GIII†	< 0.001		
GII # GIII†	< 0.001		

* Kruskal Wallis ANOVA

† Mann Whitney test

p values > 0.05 is statistically insignificant

p values < 0.05 is statistically significant

p values < 0.01 is statistically highly significant

Regarding the height (Cm), the mean height of group I was (75.72± 0.78), the mean height of group II was (69.37± 10.16), and the mean height of group III was (89.65± 5.21). this denoted that there is no significant statistical difference between group I & group II as regard height (P> 0.05). But the differences between both groups (I&II) and group III was statistically highly significant (P<0.001)

Comparing the height of the groups revealed the difference in height between 3 groups was statistically highly significant (P< 0.001)

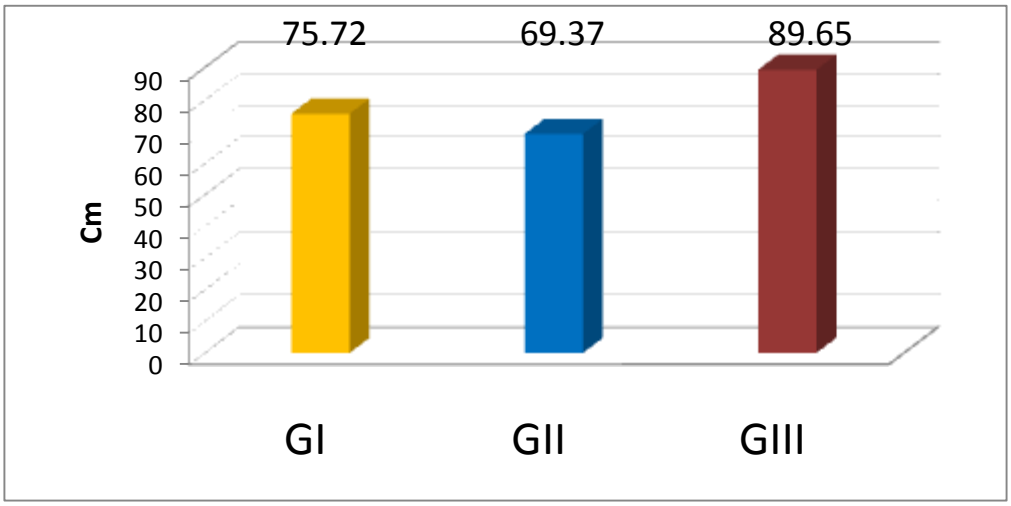

Figure (5): Mean height (cm) between the study groups

Table (11): Comparison of weight (kg) between the study groups

	GI	GII	GIII
Number of cases	30	15	20
$\bar{x}$ **± SD**	8.73±2.69	7.52±2.55	13.60±2.05
Minimum	5	3	10
Maximum	15	13	19
Median	8.50	6.90	13.25
H*	32.776		
Overall p value*	< 0.001		
GI # GII†	> 0.05		
GI # GIII†	< 0.001		
GII # GIII†	< 0.001		

* Kruskal Wallis ANOVA

† Mann Whitney test

p values > 0.05 is statistically insignificant

p values < 0.05 is statistically significant

p values < 0.01 is statistically highly significant

Regarding the weight (kg), the mean weight of group I was (8.73 $\pm$ 2.69), the mean weight of group II was (7.52 $\pm$ 2.55), and the mean weight of group III was (13.60 $\pm$ 2.05). This denoted that there was no significant statistical difference between group I & group II as regard weight (P> 0.05) But the differences between both groups (I&II) and group III were statistically highly significant (P<0.001)

Comparing the weight of the studied groups revealed the differences in weight between 3 groups were statistically highly significant (P< 0.001)

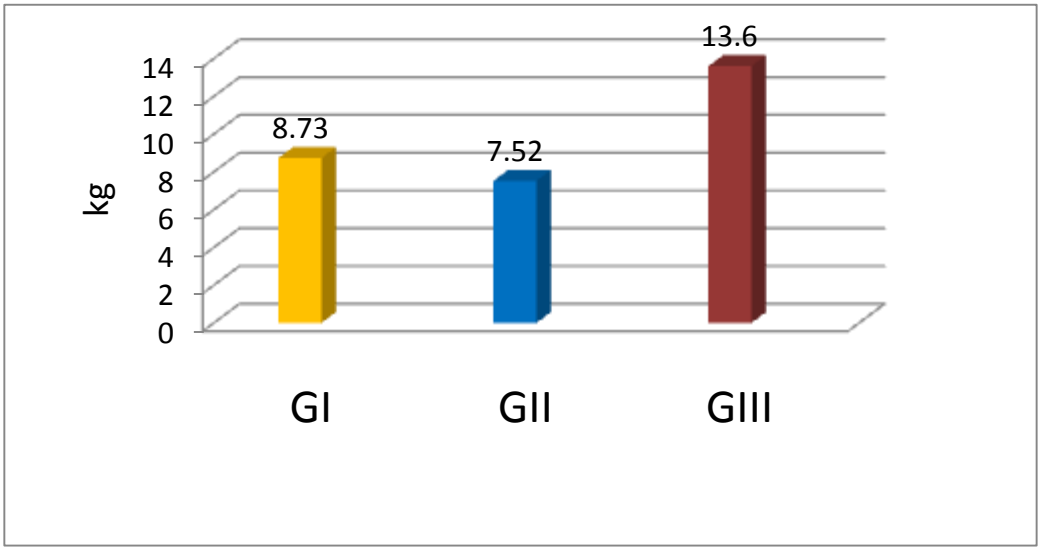

Figure (6): Mean weight (kg) between the study groups

Table (12): Comparison of head circumference (cm) between the study groups

	GI	GII	GIII
Number of cases	30	15	20
$\bar{x}$ **± SD**	43.51±2.65	42.63±2.65	47.60±2.21
Minimum	38	39	44
Maximum	48	48	52
Median	43.25	42.00	47.50
H*	26.101		
Overall p value*	< 0.001		
GI # GII†	> 0.05		
GI # GIII†	< 0.001		
GII # GIII†	< 0.001		

* Kruskal Wallis ANOVA

† Mann Whitney test

p values > 0.05 is statistically insignificant

p values < 0.05 is statistically significant

p values < 0.01 is statistically highly significant

Regarding the head circumference (cm), the mean head circumference of group I was (43.51 ± 2.65), the mean head circumference of group II was (42.63± 2.65), and the mean head circumference of group III was (47.60 ± 2.21). This denoted that there was no significant statistical difference between group I & group II as regard head circumference (P> 0.05). But the differences between both groups (I&II) and group III were statistically significant (P<0.001)

Comparing the head circumference of the student that groups that revealed the differences in height between 3 groups were statistically highly significant (P< 0.001)

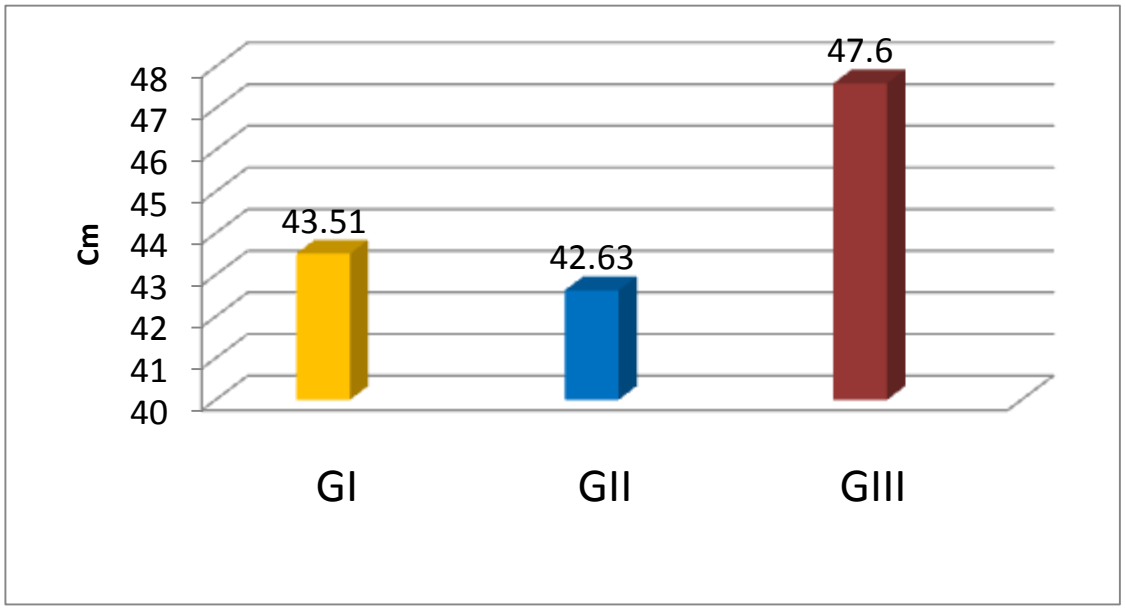

Figure (7): Mean head circumference (cm) between the study groups

Table (13): Comparison of mid-arm circumference (cm) between the study groups

	GI	GII	GIII
Number of cases	30	15	20
$\bar{x}$ **± SD**	11.95±1.82	11.31±1.12	12.55±1.07
Minimum	8.0	10.0	11.0
Maximum	17.0	13.0	14.5
Median	12.00	11.00	12.25
H*	6.911		
Overall p value*	< 0.05		
GI # GII†	> 0.05		
GI # GIII†	> 0.05		
GII # GIII†	< 0.01		

* Kruskal Wallis ANOVA

† Mann Whitney test

p values > 0.05 is statistically insignificant

p values < 0.05 is statistically significant

p values < 0.01 is statistically highly significant

Regarding the mid-arm circumference (cm) there was no significant statistical difference between group I & group II (P> 0.05) also there was no statistical difference between group I & group III as regard mid-arm circumference, But the difference between both groups (I &II) and group III were highly statistically significant (P<0.01)

Comparing the mid arm-circumference of the studied groups revealed that the difference in mid-arm circumference between three groups were statistically significant(P<0.05).

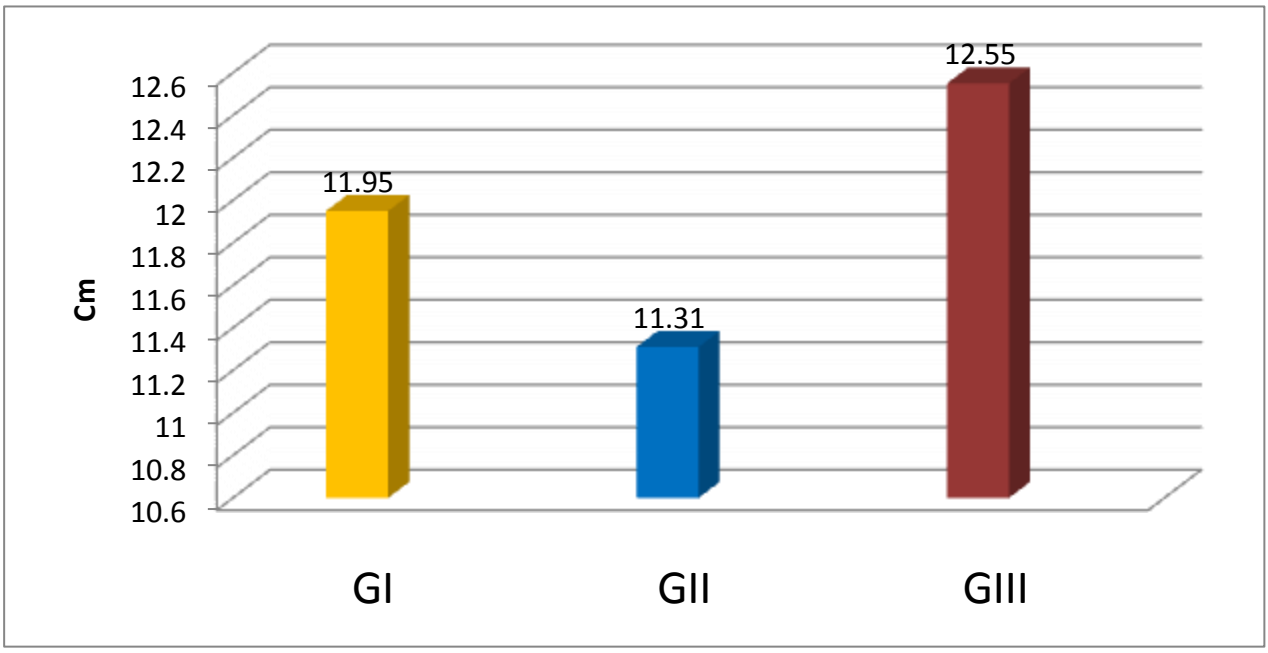

Figure (8): Mean mid-arm circumference (cm) between the study groups

Table (14): Comparison of BMI (kg/m^2) between the study groups

	GI	GII	GIII
Number of cases	30	15	20
$\bar{x}$ **± SD**	13.49±2.63	14.37±2.59	17.56±2.24
Minimum	7.5	6.0	13.9
Maximum	17.0	17.0	21.2
Median	13.65	14.90	18.05
H*	22.607		
Overall p value*	< 0.001		
GI # GII†	> 0.05		
GI # GIII†	< 0.001		
GII # GIII†	<0.001		

* Kruskal Wallis ANOVA

† Mann Whitney test

p values > 0.05 is statistically insignificant

p values < 0.05 is statistically significant

p values < 0.01 is statistically highly significant

Regarding the BMI (kg/m^2), the mean BMI (kg/m^2) of group I was (13.49 $\pm$ 2.63), the mean BMI of group II was (14.37$\pm$ 2.59), and the mean BMI of group III was (17.56 $\pm$ 12.24). This denoted that there was no significant statistical difference between group I & group II as regard BMI (P> 0.05) But the difference between both groups (I&II) and group II were statistically BMI significant (P<0.001)

Comparing the BMI of the groups revealed that the differences in BMI between 3 groups were statistically highly significant (P< 0.001)

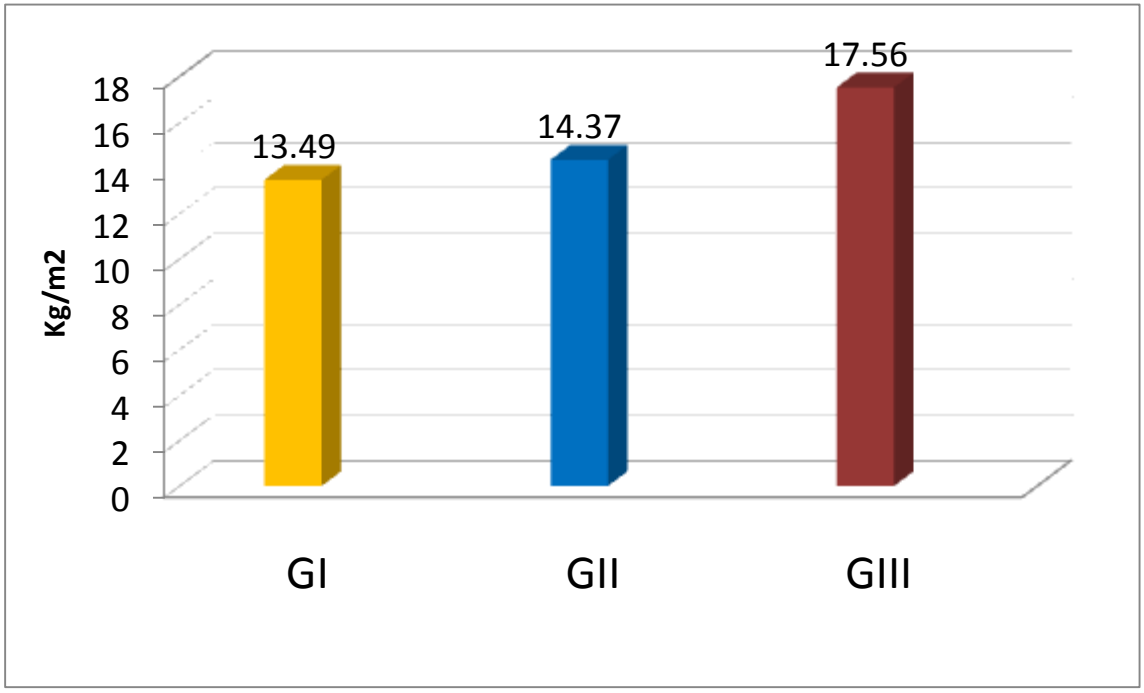

Figure (9): Mean BMI (kg/m^2) between the study groups

Table (15): Comparison of IGF-1 (ng/ml) between the study groups

	GI	GII	GIII
Number of cases	30	15	20
$\bar{x}$ **± SD**	55.90±16.86	29.13±19.81	135.55±4.59
Minimum	41	12	130
Maximum	112	67	146
Median	49.95	20.20	134.00
H*	47.312		
Overall p value*	< 0.001		
GI # GII†	< 0.001		
GI # GIII†	< 0.001		
GII # GIII†	< 0.001		

* Kruskal Wallis ANOVA

† Mann Whitney test

p values > 0.05 is statistically insignificant

p values < 0.05 is statistically significant

p values < 0.01 is statistically highly significant

As regard Serum IGF-1 (ng/ml), group I had a mean of (55.90±16.86), group II had a mean of (29.13±19.81)while group III had a mean of (135.55±4.59) The differences among the studied groups were statistically highly significant.

The difference in serum IGF-1 level between group I and group III was statistically highly significant (p<0.001).

Also the difference in serum IGF-1level between the group II and group III was statistically highly significant (p<0.001).

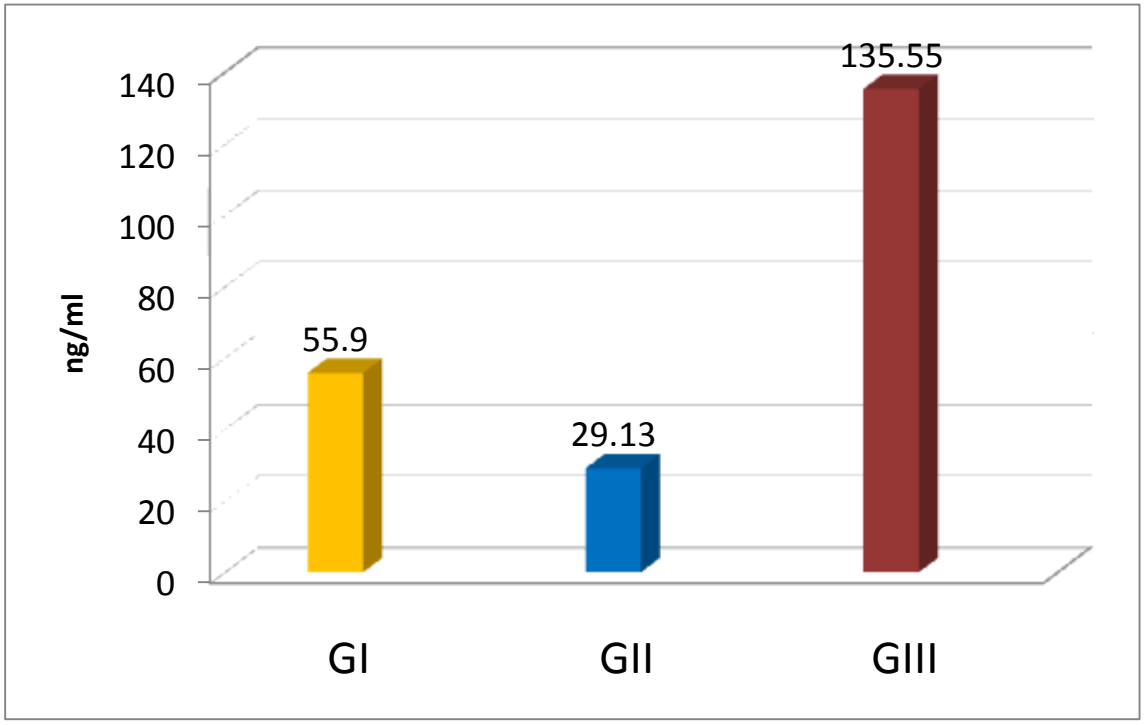

Figure (10): Mean IGF-1 (ng/ml) between the study groups

Table (16): Correlation between IGF-1 (ng/ml) and other studied variables among GI

	r	*p* value
Age (years)	0.295	>0.05
Height (cm)	0.212	>0.05
Weight (kg)	0.327	>0.05
Head circumference (cm)	0.339	>0.05
Mid-arm circumference (cm)	0.012	>0.05
BMI (kg/m2)	0.328	>0.05

As regard group I, the correlation between serum level of IGF-I and(age, height, weight, head circumference, mid-arm circumference.BMI)were non significant

Table (17): Correlation between IGF-1 (ng/ml) and other studied variables among GII

	r	*p* value
Age (years)	0.734	< 0.05
Height (cm)	0.596	< 0.05
Weight (kg)	0.627	< 0.05
Head circumference (cm)	0.535	< 0.05
Mid-arm circumference (cm)	0.481	>0.05
BMI (kg/m2)	0.344	>0.05

As regard group II correlation between serum level of IGF-1 and(age, height, weight, head circumference) revealed a statistically significant positive correlation while (mid-arm circumference, BMI)showed a non significant correlation.

Table (18): Correlation between IGF-1 (ng/ml) and other studied variables among group I and group II

	r	*p* value
Age (years)	0.310	< 0.05
Height (cm)	0.430	< 0.05
Weight (kg)	0.466	< 0.05
Head circumference (cm)	0.420	< 0.05
Mid-arm circumference (cm)	0.197	>0.05
BMI (kg/m2)	0.172	>0.05

Correlation between IGF-1 and other studied variables(age, height, weight, head circumference) among total patients(G I and G II) revealed a statistically significant positive correlation while (Mid-arm circumference, BMI) showed a non significant correlation.

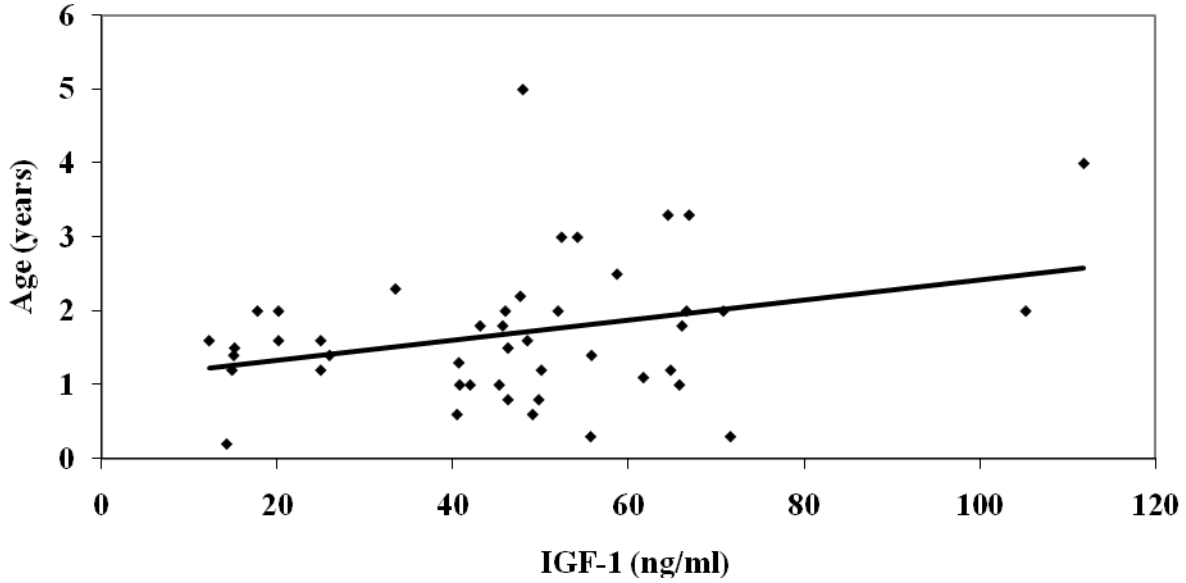

Figure (11): Correlation between IGF-1 (ng/ml) and age (years) among (GI & GII)

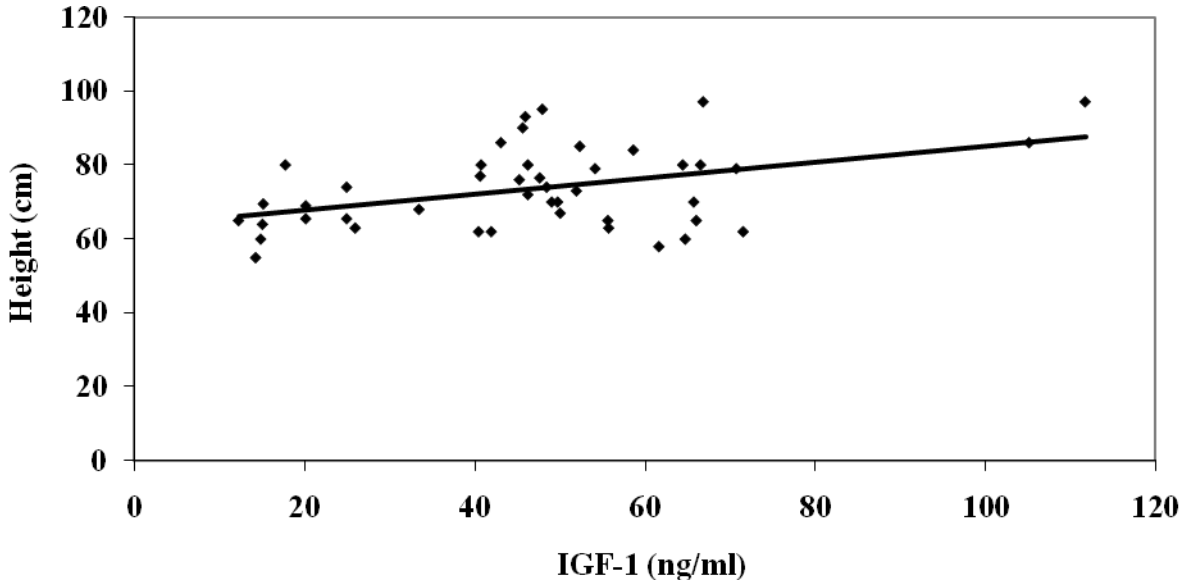

Figure (12): Correlation between IGF-1 (ng/ml) and height (cm) among total patients (GI & GII)

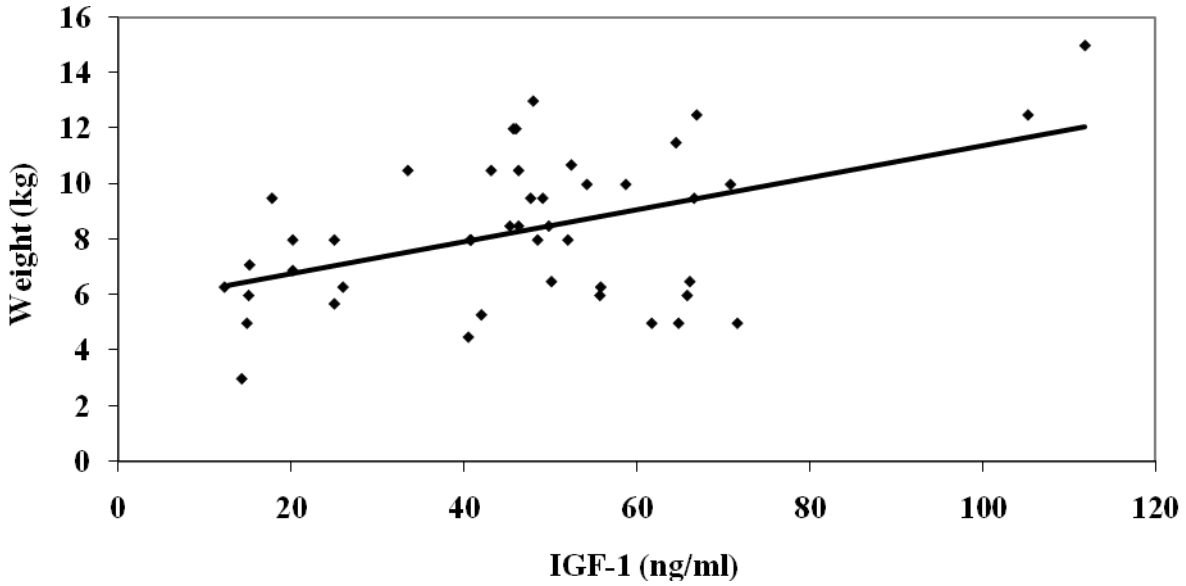

Figure (13): Correlation between IGF-1 (ng/ml) and weight (kg) among total patients (GI & GII)

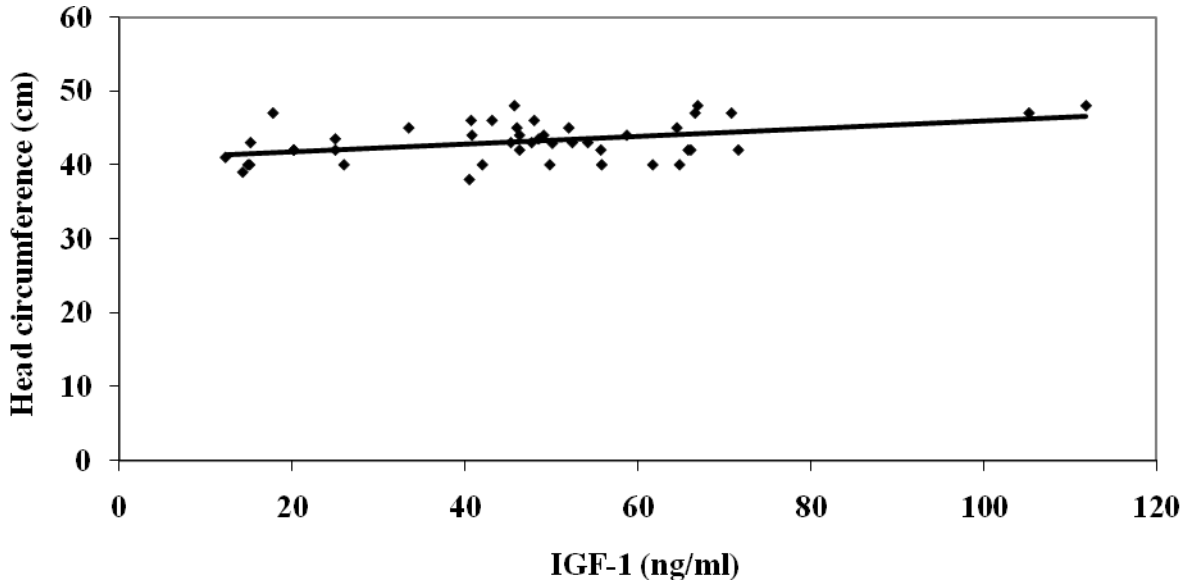

Figure (14): Correlation between IGF-1 (ng/ml) and head circumference (cm) among total patients (GI & GII)

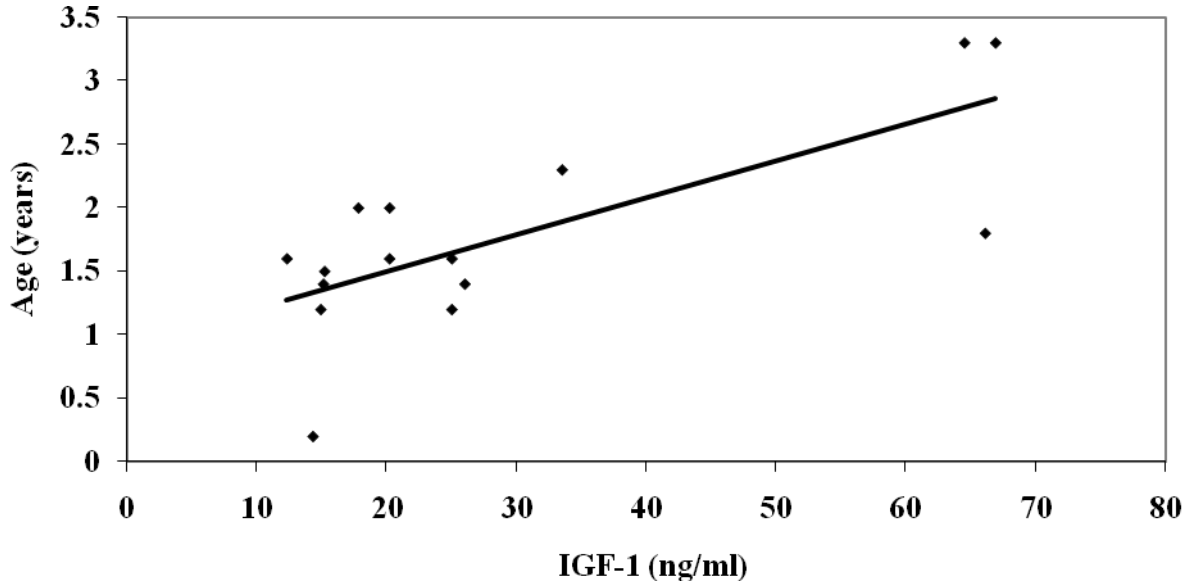

Figure (15): Correlation between IGF-1 (ng/ml) and age (years) among GII.

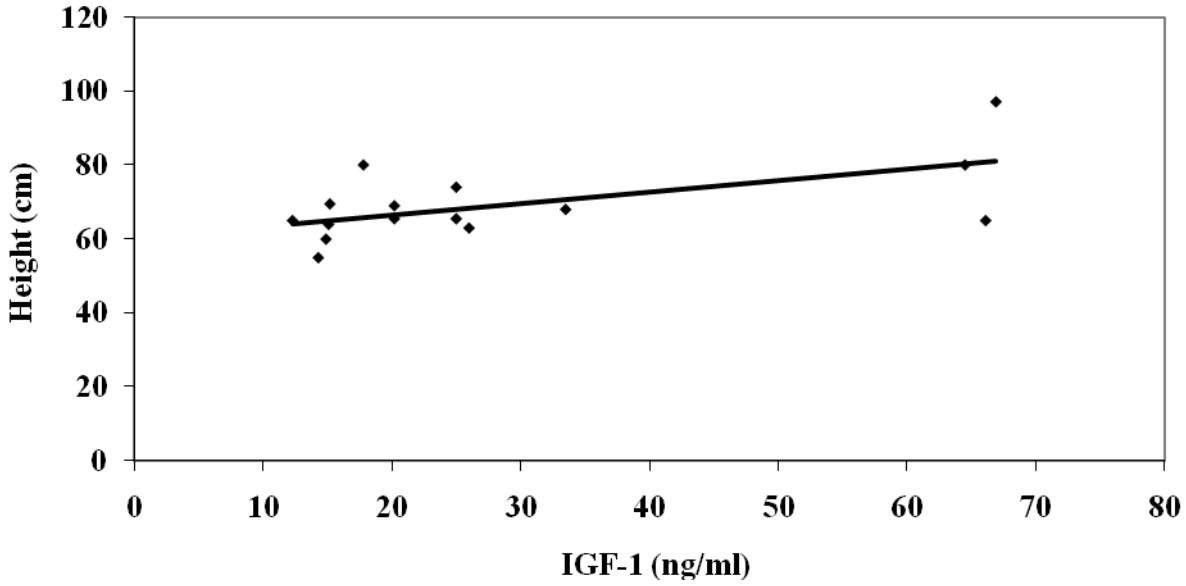

Figure (16): Correlation between IGF-1 (ng/ml) and height (cm) among GII.

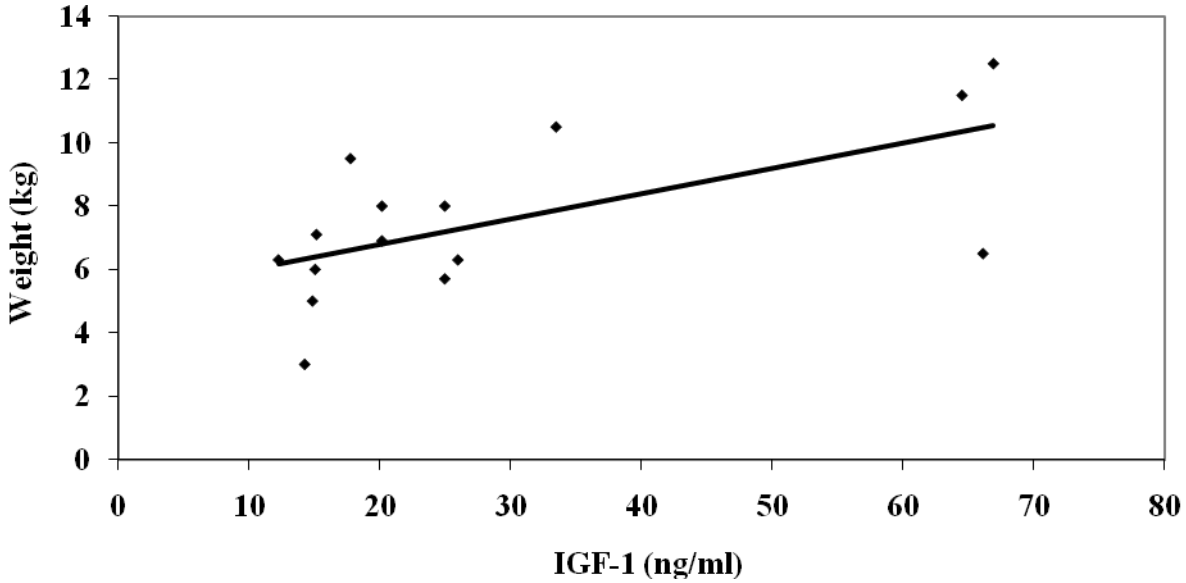

Figure (17): Correlation between IGF-1 (ng/ml) and weight (kg) among GII.

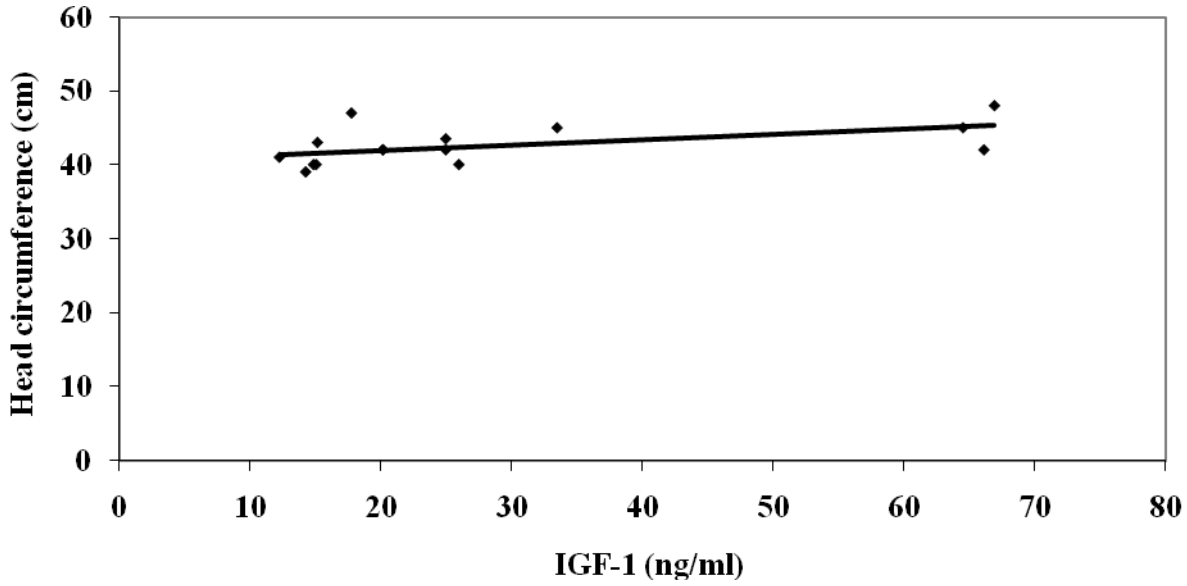

Figure (18): Correlation between IGF-1 (ng/ml) and head circumference (cm) among GII.

Table (19): Clinical and laboratory data of group (I).

no.	Sex	Age(years)	Ht/ cm	Wt/kg	HC/cm	MAC/cm	BMI	IGF1/(ng/ml)
1	F	1.5	80	10.5	44	15	13.1	46.3
2	M	2	80	9.5	47	11	14.8	66.6
3	M	0.8	70	8.5	40	15	12.1	49.8
4	M	0.8	72	8.5	42	13	12.1	46.3
5	F	2.5	84	10	44	12	12.5	58.7
6	M	1.1	58	5	40	10.5	16.2	61.7
7	F	3	85	10.7	43	13	14.3	52.4
8	M	0.6	70	9.5	44	10	13.5	49.1
9	M	1	70	6	42	11	8.5	65.8
10	F	4	97	15	48	12	16.6	112
11	M	0.3	62	5	42	11	8.3	71.6
12	M	0.3	65	6	42	12	10	55.7
13	F	1.2	60	5	40	10.5	13.1	64.8
14	F	1.8	90	12	48	17	13.3	45.7
15	F	1.3	77	8	46	12	11.4	40.7
16	F	1.8	86	10.5	46	14	13.1	43.1
17	M	0.6	62	4.5	38	8	7.5	40.5
18	F	2.2	76.5	9.5	43	11.5	16.2	47.7
19	M	3	79	10	43	12	16	54.2
20	F	1.4	63	6.3	40	10	16.4	55.8
21	F	2	73	8	45	11	16.5	52
22	M	2	93	12	45	13	13.3	46
23	F	5	95	13	46	10	14.4	48
24	M	2	79	10	47	13.5	16.9	70.8
25	M	1	76	8.5	43	11.5	14.7	45.3
26	M	2	86	12.5	47	13	17	105
27	F	1	80	8	44	13	10	40.8
28	M	1.6	74	8	44	12	14.6	48.5
29	M	1	62	5.3	40	10	13.8	42
30	F	1.2	67	6.5	43	11	14.5	50.1

M= male F= female

Table (20): Clinical and laboratory data of group (II).

no.	Sex	Age(years)	Ht/ cm	Wt/kg	HC/cm	MAC/cm	BMI	IGF1/(ng/ml)
1	M	1.6	65	6.3	41	10	14.9	12.3
2	F	1.4	64	6	40	11	14.6	15.1
3	M	1.6	65.5	6.9	42	10.5	16.1	20.2
4	M	1.5	69.5	7.1	43	11.5	14.7	15.2
5	M	2.3	68	10.5	45	13	15.8	33.5
6	M	1.2	65.5	5.7	42	10.2	13.3	25
7	M	3.3	80	11.5	45	13	15.2	64.5
8	F	2	69	8	42	12	12.2	20.2
9	F	1.2	60	5	40	10.5	15.1	14.9
10	F	1.4	63	6.3	40	10	16.4	26
11	M	3.3	97	12.5	48	12.5	17	66.9
12	M	1.6	74	8	44	12	14.6	25
13	M	0.2	55	3	39	10	6	14.3
14	F	1.8	65	6.5	42	11	14.9	66.1
15	M	2	80	9.5	47	12.5	14.8	17.8

M= male F= female

Table (21): Clinical and laboratory data of group (III).

no.	Sex	Age(years)	Ht/ cm	Wt/kg	HC/cm	MAC/cm	BMI	IGF1/(ng/ml)
1	M	0.7	94	13	48	14.5	16.2	132
2	F	0.8	88	12	47	12	18.7	140
3	F	2.5	87	12	47	12.5	18.7	134
4	M	1.6	90	11.5	45	12	14.3	133
5	M	0.5	87	13.5	48	11.5	18	132
6	F	0.7	86	14	47	12	19	145
7	M	1.5	88	13	45	12	18	133
8	M	1	78	10	44	11	20.4	146
9	M	1.8	89	15	46	12.5	18.9	136
10	M	1.2	80	12	45	12	18.7	140
11	M	0.5	95	17	50	12.5	21.2	130
12	M	3.2	95	19	50	13	21.1	132
13	M	2.7	90	12	46	12	15	130
14	M	3	96	15	49	13	15.8	136
15	F	0.9	88	14	48	12	18.1	135
16	F	2.1	86	13	48	11	14.1	132
17	M	0.6	96.5	14.5	50	14.5	15.9	136
18	F	3	93	12	51	14	13.9	134
19	M	0.2	97.5	14.5	52	14.5	16.5	141
20	F	1.8	89	15	46	12.5	18.7	134

M= male F= female