

## *Results*

### **Collective data of studied groups**

This study was conducted as a case-control study that included 30 patients with psoriasis divided into two groups.

Group A; treated with NB-UVB; included 15 patients 9 males (60%) and 6 females (40%) with their ages ranged between 9 and 59 years with the mean age (  $38.26 \pm 17.06$  years ), duration of the illness ranged between 3 months and 10 years with the mean of (  $2.05 \pm 2.54$  years), duration of present relapse ranged between 1 and 24 months with the mean (  $10.83 \pm 1.97$  months) and Psoriasis area and severity index (PASI) score ranged between 33 and 7.8 with mean of (  $14.62 \pm 7.63$ ).

Group B; treated with tazarotene; included 15 patients, 5 males (33.77%) and 10 females (66.23%) with their ages ranged between 36 and 72 years with the main age is (  $56.6 \pm 9.21$  years), duration of the illness ranged between (3 months and 33 years with the mean of (  $8.56 \pm 1.96$  years), duration of present relapse ranged between 1 and 36 months with the mean of (  $14.98 \pm 3.17$  months) and psoriasis area and severity index (PASI) score ranged between 1.9 and 12.4 with the mean of (  $6.63 \pm 3.42$ ).

In addition 10 healthy volunteers were chosen as control subjects for comparison of the results. They were 7 males and 3 females, with an age range from 12 to 66 years with a mean of (  $38.4 \pm 19.36$  years). Both patients and controls were sex and age matched.

Collective data of the patients of group A including sex, age, duration of illness, duration of present relapse, PASI score before treatment , PASI score after treatment, VEGF levels before and after treatment were represented in **table (19)**, collective data of the patients of group B including sex, age, duration of illness, duration of present relapse, PASI score before treatment , PASI score after treatment, VEGF levels before and after treatment were represented in **table (20)**, collective data of control group were represented in **table (21)**.

## **Analysis of the results**

### **Demographic characteristics of the studied groups**

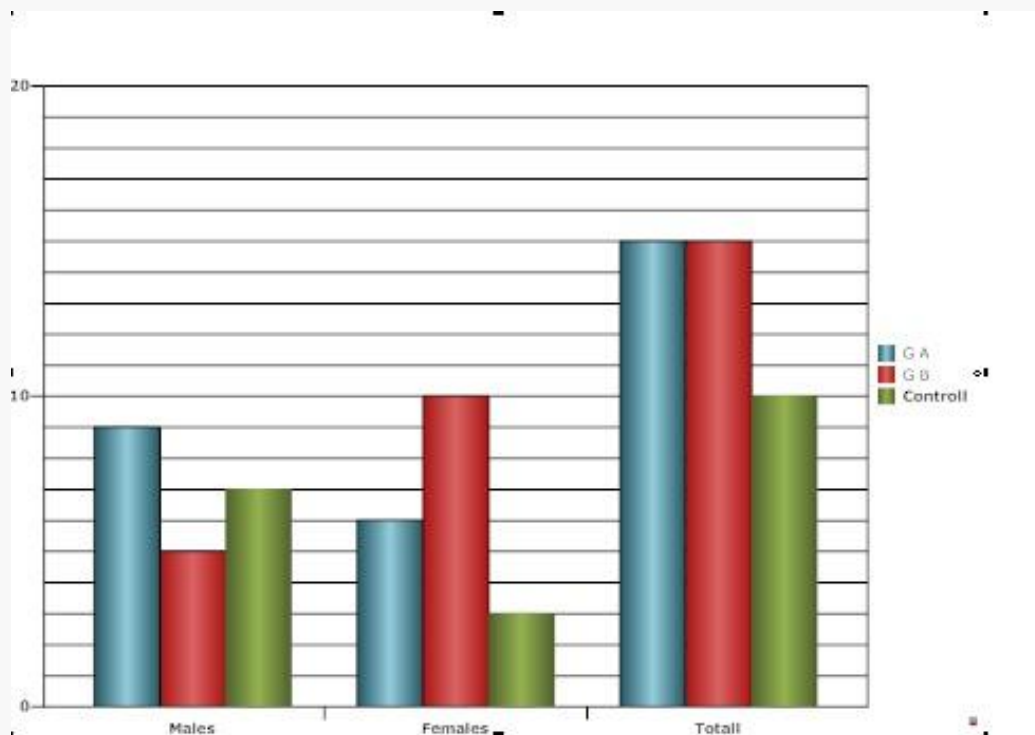
The study included 30 patients with psoriasis divided into two groups, group A included 15 patients (9 males and 6 females), and group B included 15 patients (5 males and 10 females); and 10 healthy volunteers as control (7 males and 3 females) ,**fig. (4)**.

**Table (1) Sex distribution among studied groups.**

|                   |                | Sex          |        |        |
|-------------------|----------------|--------------|--------|--------|
|                   |                | Male         | female | Total  |
| <b>Group A</b>    | N              | 9            | 6      | 15     |
|                   | %              | 60.0%        | 40.0%  | 100.0% |
| <b>Group B</b>    | N              | 5            | 10     | 15     |
|                   | %              | 33.77%       | 66.23% | 100.0% |
| <b>Control</b>    | N              | 7            | 3      | 10     |
|                   | %              | 70.0%        | 30.0%  | 100.0% |
| <b>Total</b>      | N              | 20           | 18     | 40     |
|                   | %              | 52.6%        | 47.3%  | 100.0% |
| <b>Chi-Square</b> | X <sup>2</sup> | <b>0.536</b> |        |        |
|                   | P-value        | <b>0.441</b> |        |        |

(p>0.05)

There was no statistically significant difference between patients and control group regarding gender (P-value =0.441), **fig (4)**.



Fig(4) Demographic characteristics of patients and control groups

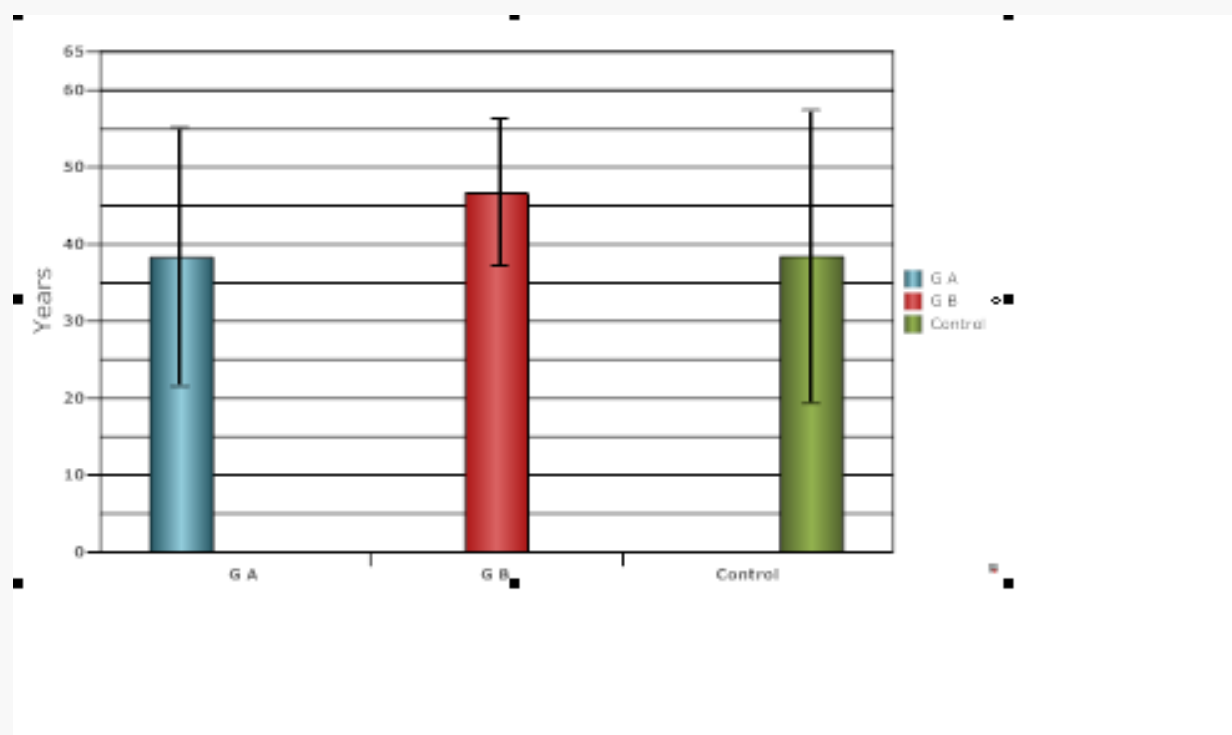
**Table (2) comparison between studied groups regarding age.**

| Age      | Group A | Group B | Control |
|----------|---------|---------|---------|
| Mean     | 38.26   | 46.6    | 38.4    |
| $\pm$ SD | 17.06   | 9.21    | 19.36   |
| t. test  | 1.86    |         |         |
| p. value | 0.06    |         |         |

( $p > 0.05$ )

The mean age of group A was  $38.26 \pm 17.06$  years and the mean age of group B was  $46.6 \pm 19.21$  years while the mean age of control group was  $38.4 \pm 19.39$  years.

There was no statistically significant difference between patients and control group regarding Age (P-value =0.06), **fig (5)**.



**Fig. (5) Age distribution among studied groups.**

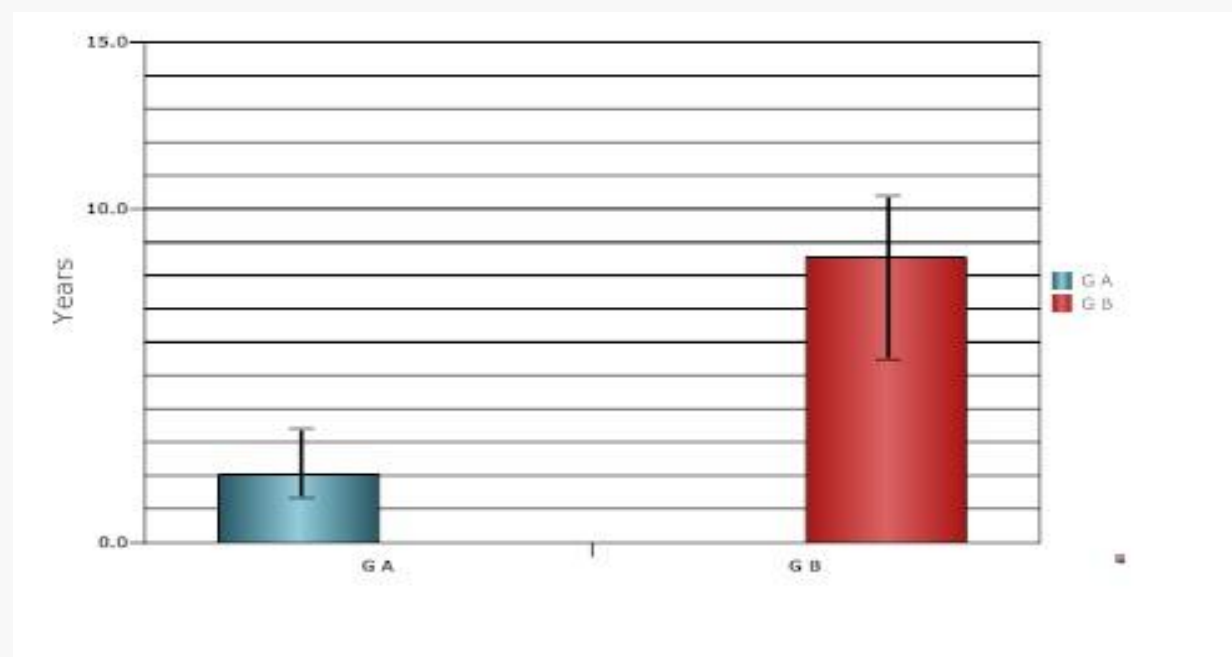
**Table (3) duration of the illness among studied groups**

|          | duration of disease (years) |         |
|----------|-----------------------------|---------|
|          | Group A                     | Group B |
| Mean     | 2.05                        | 8.56    |
| $\pm$ SD | 2.54                        | 1.96    |
| t. test  | 3.188                       |         |
| p. value | 0.004                       |         |

(p<0.05)

The mean duration of the disease in the group A was  $2.05 \pm 2.54$  years while the mean duration of the disease in group B was  $8.56 \pm 1.96$  years.

There was statistically difference between the two groups regarding duration of the diseases (p value= 0.004), **fig (6)**.



**Fig.(6)** duration of illness among studied groups

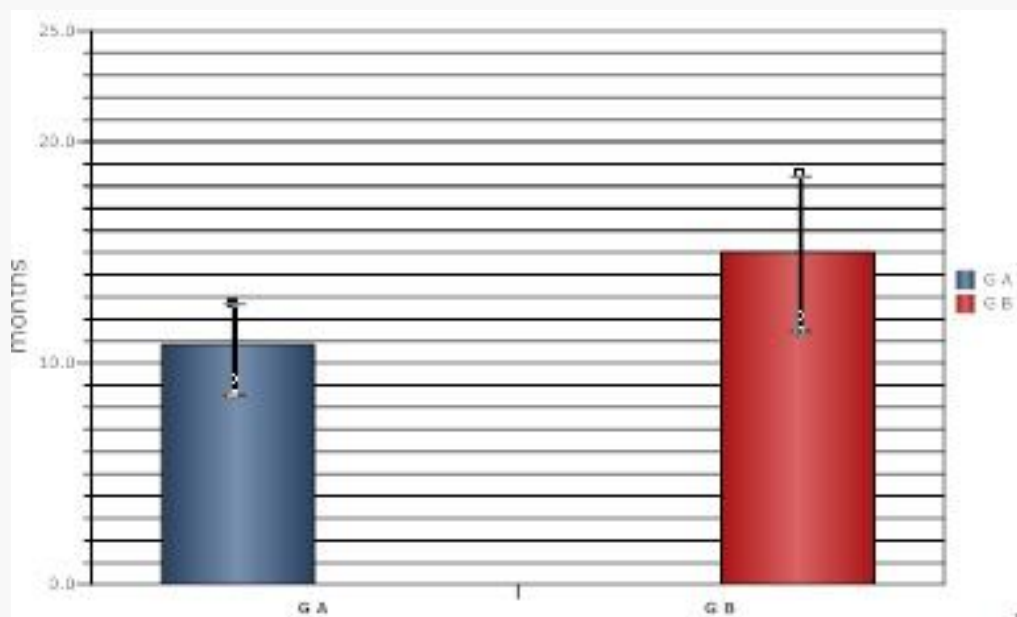
**Table (4) duration of present relapse among patients groups**

|          | duration of present relapse (months) |         |
|----------|--------------------------------------|---------|
|          | Group A                              | Group B |
| Mean     | 10.83                                | 14.98   |
| $\pm$ SD | 1.97                                 | 3.17    |
| t. test  | 2.142                                |         |
| p. value | 0.096                                |         |

(p>0.05)

The mean duration of the present relapse in group A was  $10.83 \pm 1.97$  months, while in group B was  $14.98 \pm 3.17$  months.

There is no statistically significant difference between the two patients groups, **fig (7)**.



**Fig (7) duration of present relapse among the patients groups**

### **Clinical characteristics of studied groups**

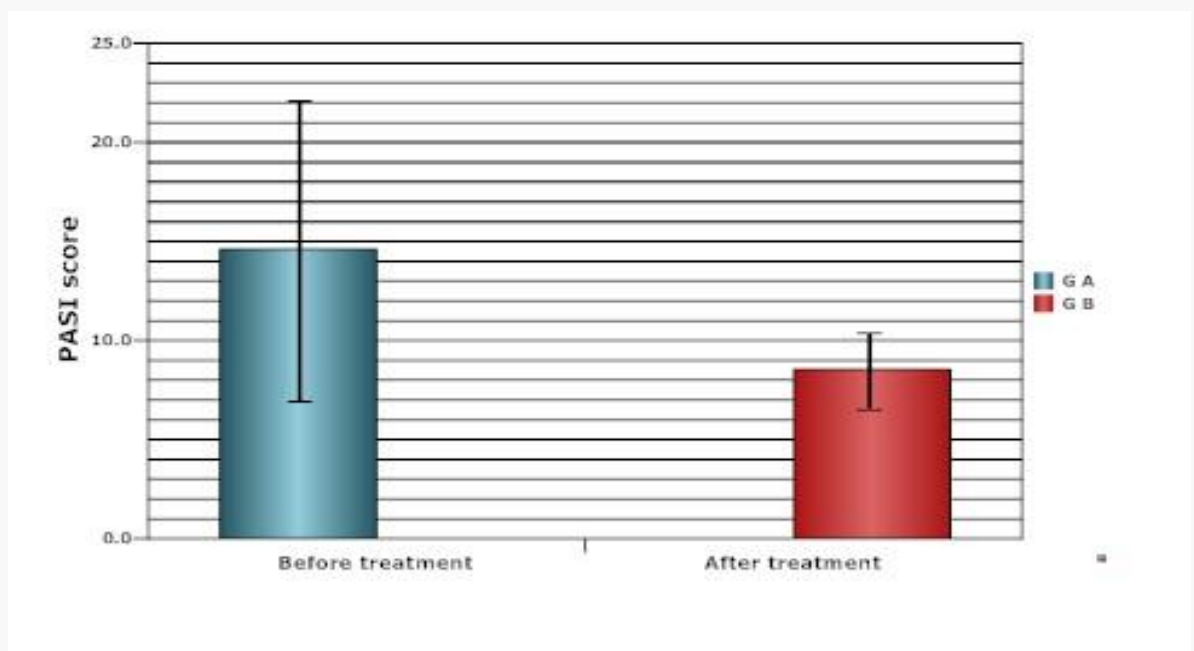
**Table (5) comparison of PASI score in group A before and after treatment.**

|                 | PASI (group A) |       |
|-----------------|----------------|-------|
|                 | Before         | After |
| <b>Mean</b>     | 14.62          | 8.56  |
| <b>±SD</b>      | 7.63           | 2.15  |
| <b>t. test</b>  | <b>3.362</b>   |       |
| <b>p. value</b> | <b>0.001</b>   |       |

(p<0.05)

The mean PASI score among group A patient, who treated with NB-UVB, before starting treatment was  $14.62 \pm 7.63$  while after treatment was  $8.56 \pm 2.15$ .

There was statically significant difference between the score before and after the treatment (p value = 0.001), **fig (8)**.



**Fig (8) PASI score in group A before and after treatment**



**Table (6) Comparison of PASI score in group B patients who treated with tazarotene before and after treatment.**

|          | PASI (group B) |       |
|----------|----------------|-------|
|          | Before         | After |
| Mean     | 6.63           | 4.57  |
| ±SD      | 3.42           | 0.93  |
| t. test  | 1.528          |       |
| p. value | 0.096          |       |

(p>0.05)

The mean PASI score among group B patient, who treated with Tazarotene, before starting treatment, was  $6.63 \pm 3.42$  while after treatment was  $4.57 \pm 0.93$ .

There was no statically significant difference between the score before and after the treatment (p value = 0.096), **fig (9)**.

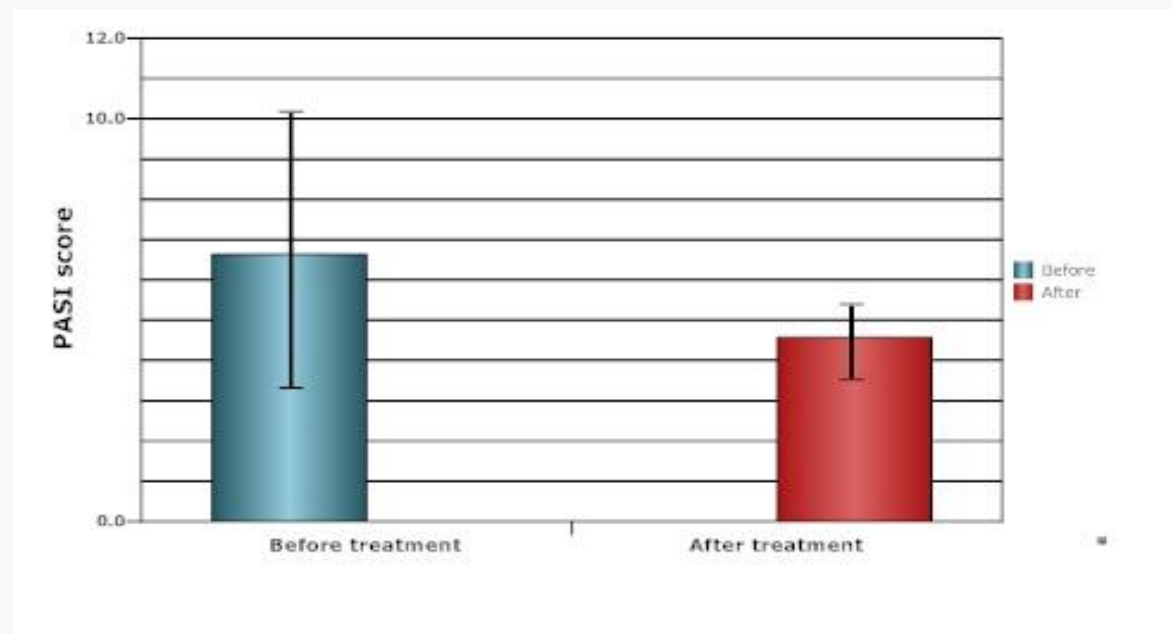


Fig. (9) PASI score in group B before and after treatment

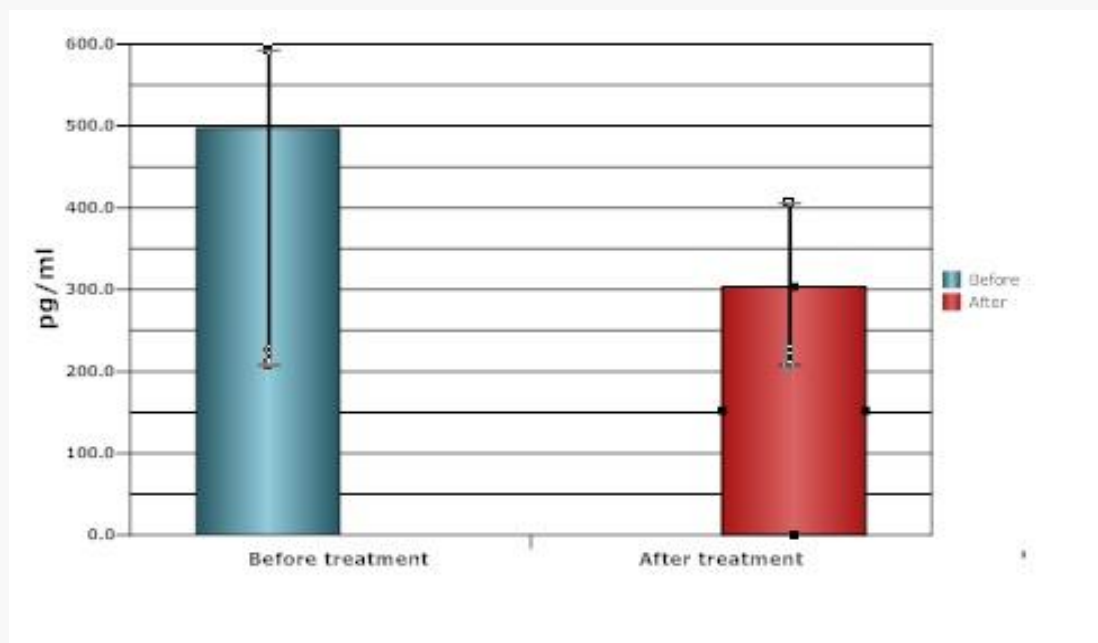
**Table (7) comparison of VEGF serum concentration among group A patients before and after treatment.**

|                 | VEGF (group A) |       |
|-----------------|----------------|-------|
|                 | Before         | After |
| <b>Mean</b>     | 496.9          | 303.5 |
| <b>±SD</b>      | 94.7           | 97.4  |
| <b>t. test</b>  | 5.326          |       |
| <b>p. value</b> | 0.002          |       |

(p<0.05)

The mean VEGF serum concentration among group A patients who treated with NB-UVR before treatment was  $496.9 \pm 94.7$  pg/ml, while after treatment it was  $303.5 \pm 97.4$  pg/ml.

There was statically significant difference between the two concentrations (p value= 0.002), **fig (10)**.



**Fig. (10) VEGF serum conc. Of group A before and after treatment**

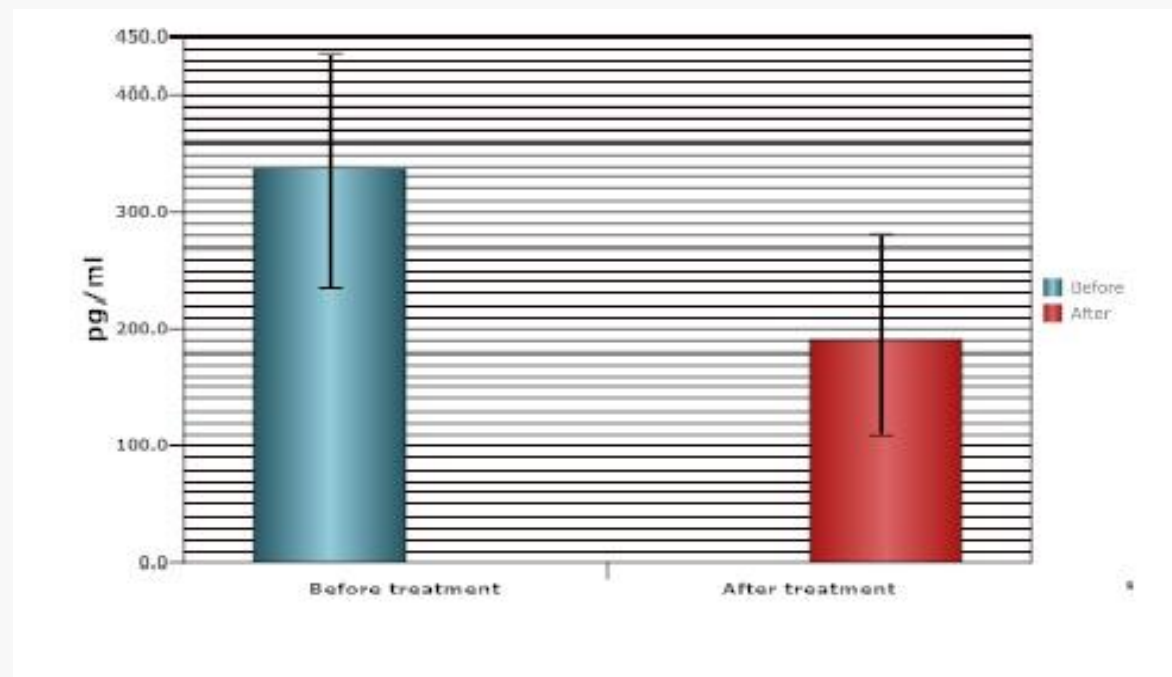
**Table (8) comparison of VEGF serum concentration in group B patients before and after treatment.**

|                 | VEGF (group B) |       |
|-----------------|----------------|-------|
|                 | Before         | After |
| <b>Mean</b>     | 337.3          | 190.2 |
| <b>±SD</b>      | 97.9           | 79.1  |
| <b>t. test</b>  | <b>10.362</b>  |       |
| <b>p. value</b> | <b>0.001</b>   |       |

(p<0.05)

The mean VEGF serum concentration among group B patients who treated with tazarotene before treatment was  $337.3 \pm 97.9$  pg/ml, while after treatment it was  $190.2 \pm 79.1$  pg/ml.

There was statically significant difference between the two concentrations (p value= 0.001), **fig (11)**.



**Fig. (11) VEGF serum concentration of group B before and after treatment.**

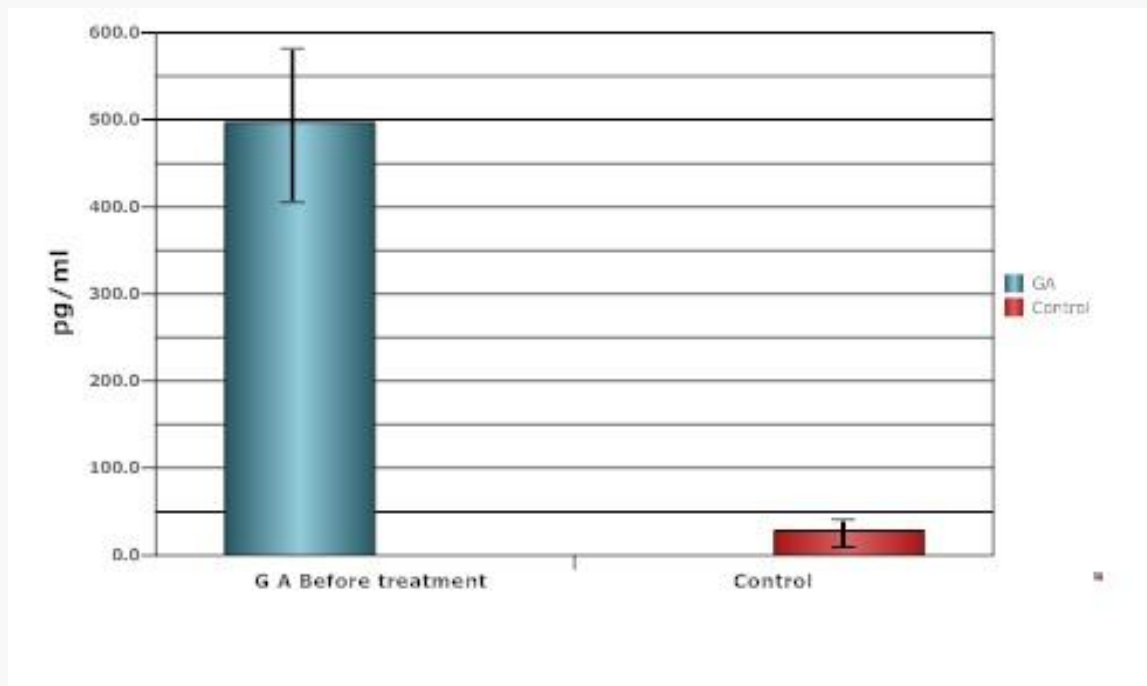
**Table (9) Comparison of VEGF serum concentration between group A before treatment and control group.**

|          | VEGF                     |         |
|----------|--------------------------|---------|
|          | Group A Before treatment | Control |
| Mean     | 496.9                    | 28.39   |
| ±SD      | 94.7                     | 4.63    |
| t. test  | 4.27                     |         |
| p. value | 0.002                    |         |

(p<0.05)

The mean VEGF serum concentration of group A before treatment was  $496.9 \pm 94.7$  while in control group it was  $28.39 \pm 4.39$  pg/ml.

There was statically significant difference between the two concentrations (p value = 0.002), **fig (12)**.



**Fig (12) VEGF of group A before treatment and control.**

**Table (10) comparison of VEGF serum concentration between group A patients after treatment and control group.**

|          | VEGF                      |         |
|----------|---------------------------|---------|
|          | Group A (after treatment) | Control |
| Mean     | 303.5                     | 28.39   |
| ±SD      | 97.4                      | 4.63    |
| t. test  | 2.16                      |         |
| p. value | 0.009                     |         |

(p<0.05)

The mean VEGF serum concentration of group A after treatment was  $303.5 \pm 97.4$  while in control group it was  $28.39 \pm 4.39$  pg/ml .

There was statically significant higher level of VEGF in group A after treatment ( p value = 0.009), **fig (13)**.

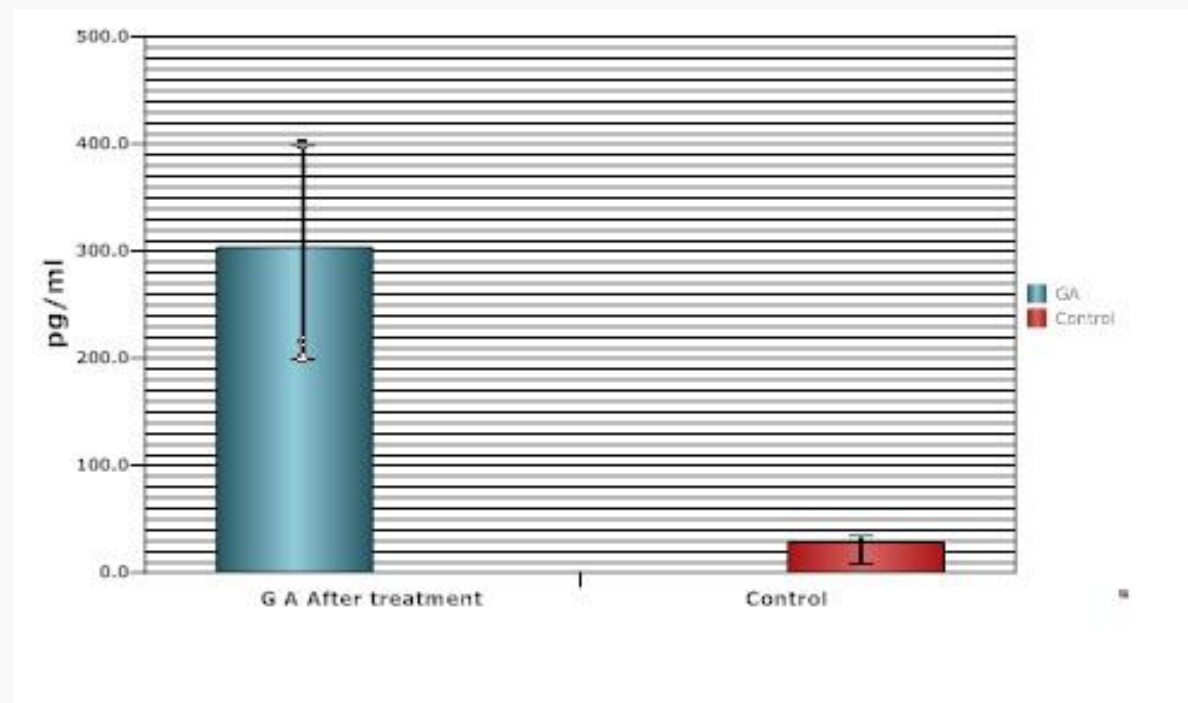


Fig. (13) VEGF serum conc of group A after treatment and control group

**Table (11) comparison of VEGF serum conc between group B before treatment and control group.**

|          | VEGF                       |         |
|----------|----------------------------|---------|
|          | Group B (before treatment) | Control |
| Mean     | 337.3                      | 28.39   |
| ±SD      | 97.7                       | 4.63    |
| t. test  | 3.30                       |         |
| p. value | 0.009                      |         |

(p<0.05)

The mean VEGF serum concentration of group B before treatment was  $337.3 \pm 97.9$  pg/ml while in control group it was  $28.39 \pm 4.39$  pg/ml .

There was statically significant higher levels of VEGF in group B before treatment ( p value = 0.009), **fig (14)**.

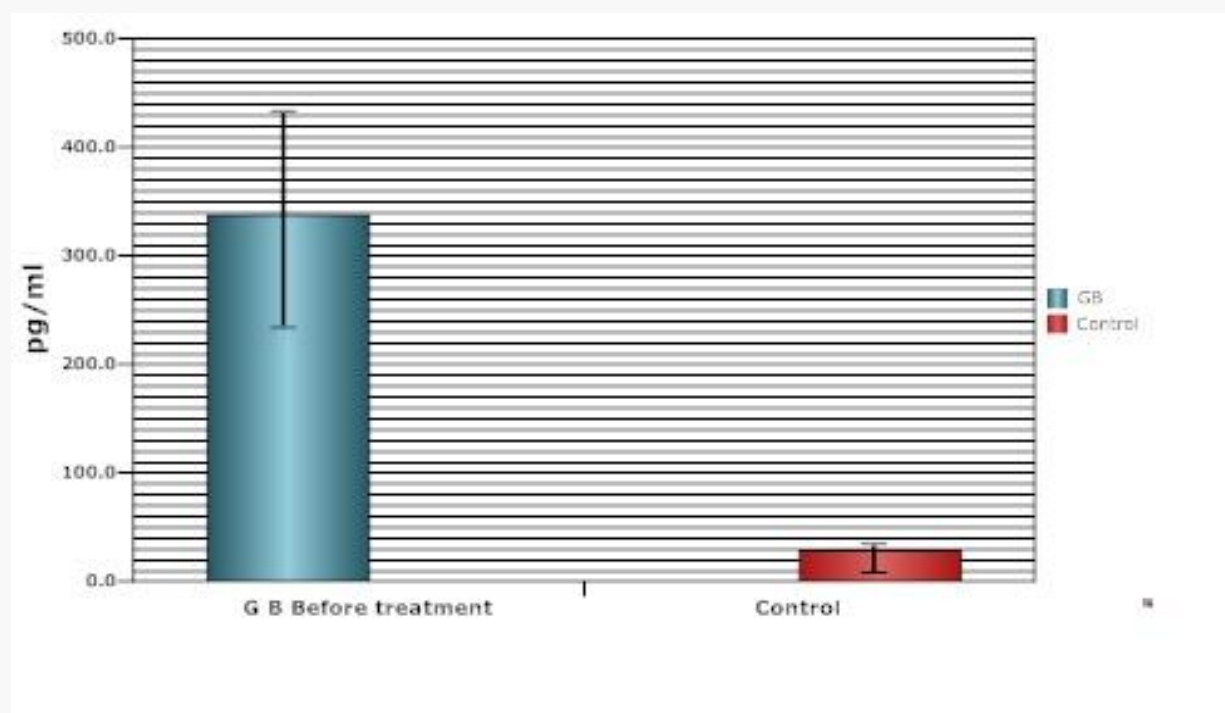


Fig (14) VEGF in group B before treatment and control group

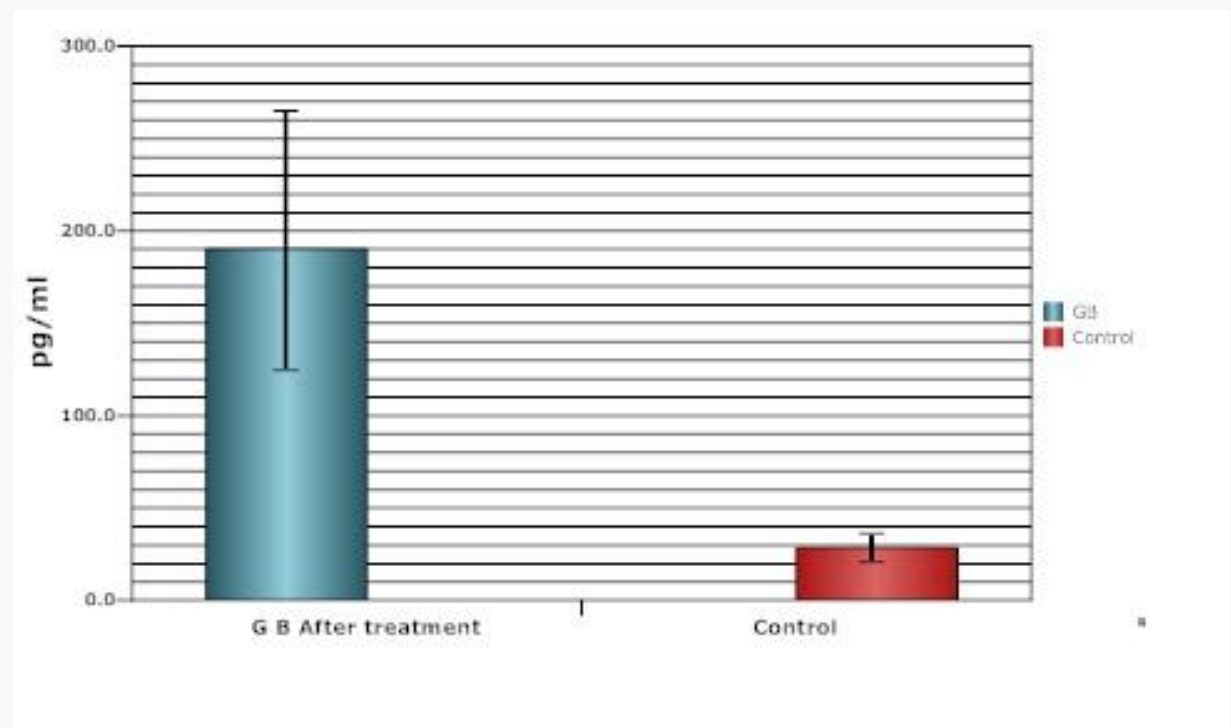
**Table(12) comparison of VEGF serum conc. between group B after treatment and control group.**

|          | VEGF                       |         |
|----------|----------------------------|---------|
|          | Group B (before treatment) | Control |
| Mean     | 190.2                      | 28.39   |
| ±SD      | 79.1                       | 4.63    |
| t. test  | 2.39                       |         |
| p. value | 0.04                       |         |

(p<0.05)

The mean VEGF serum concentration of group B after treatment was  $190.2 \pm 79.1$  pg/ml while in control group it was  $28.39 \pm 4.39$  pg/ml.

There was statically significant difference between the two concentrations ( p value = 0.04), **fig (15)**.



**Fig (15) VEGF serum conc. of group B after treatment and control**

**Table (13) Mean ( $\pm$ SD) concentrations of serum vascular endothelial growth factor (VEGF) before and after treatment depending on psoriasis area and severity index (PASI) score.**

|                      | VEGF serum concentrations |                     | t- value | p- value |
|----------------------|---------------------------|---------------------|----------|----------|
|                      | Before treatment          | After treatment     |          |          |
| PASI<10<br>(n=16)    | 224.63 $\pm$ 166.8        | 149.49 $\pm$ 162.14 | 1.11     | 0.278    |
| PASI 10-20<br>(n=10) | 532 $\pm$ 216.4           | 261.6 $\pm$ 198.14  | 2.02     | 0.083    |
| PASI>20<br>(n=4)     | 956.3 $\pm$ 321.56        | 737.2 $\pm$ 555.8   | 0.68     | 0.5      |

P value less than 0.05 is significant.

In the group of patients with PASI score  $> 10$ , the mean value before treatment was  $224.63 \pm 166.8$  pg/ml while after treatment it was  $149 \pm 162$  pg/ml, there was no statically difference between the two concentrations (p. value = 0.278), **Fig (16)**.

In the group of patients with PASI score between 10 and 20, the mean value was  $532 \pm 216.4$  pg/ml while after treatment it was  $269.6 \pm 194.14$  pg/ml, there was no statically difference baetwee the two concentrations (p.value= 0.08), **Fig (16)**.

In the group of patients with PASI score  $>20$ , the mean value before treatment was  $956.3 \pm 321.56$ pg/ml while after treatment it was  $737.2 \pm 555.76$  pg/ml, there was no statically difference between the two concentrations (p. value = 0.05), **Fig (16)**.



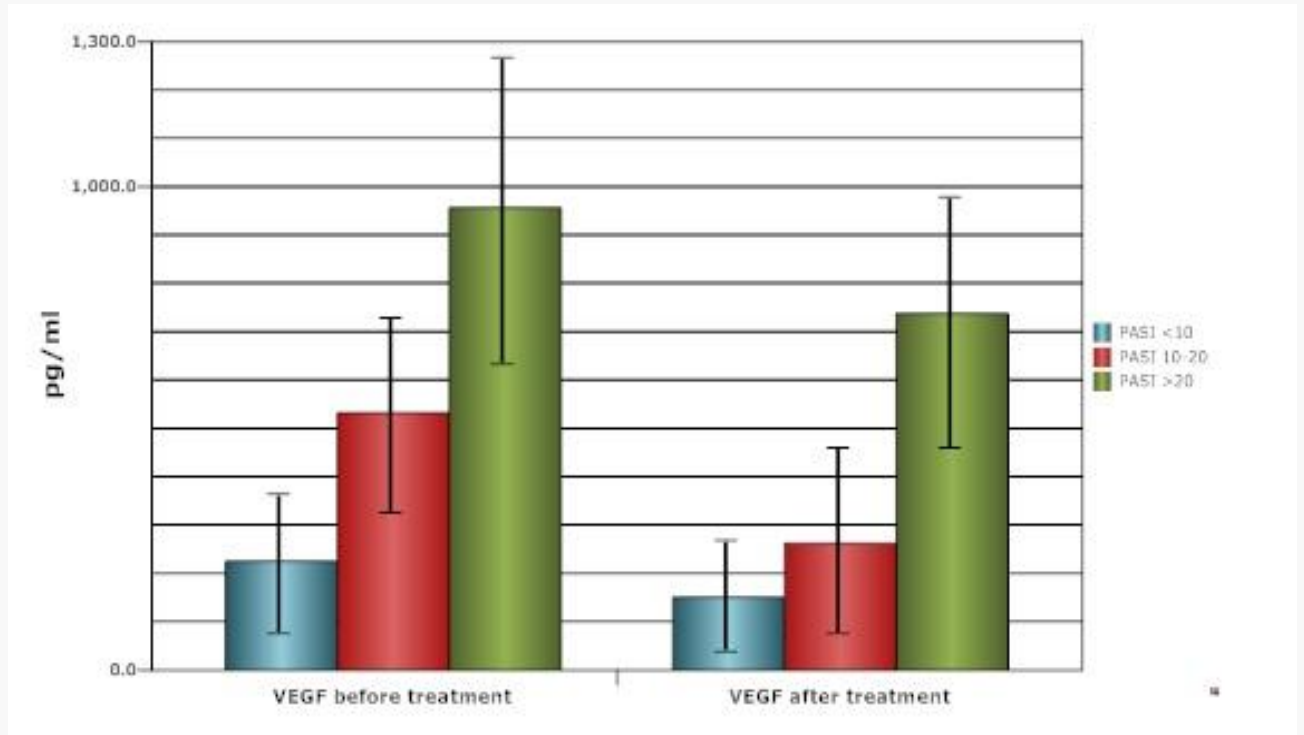
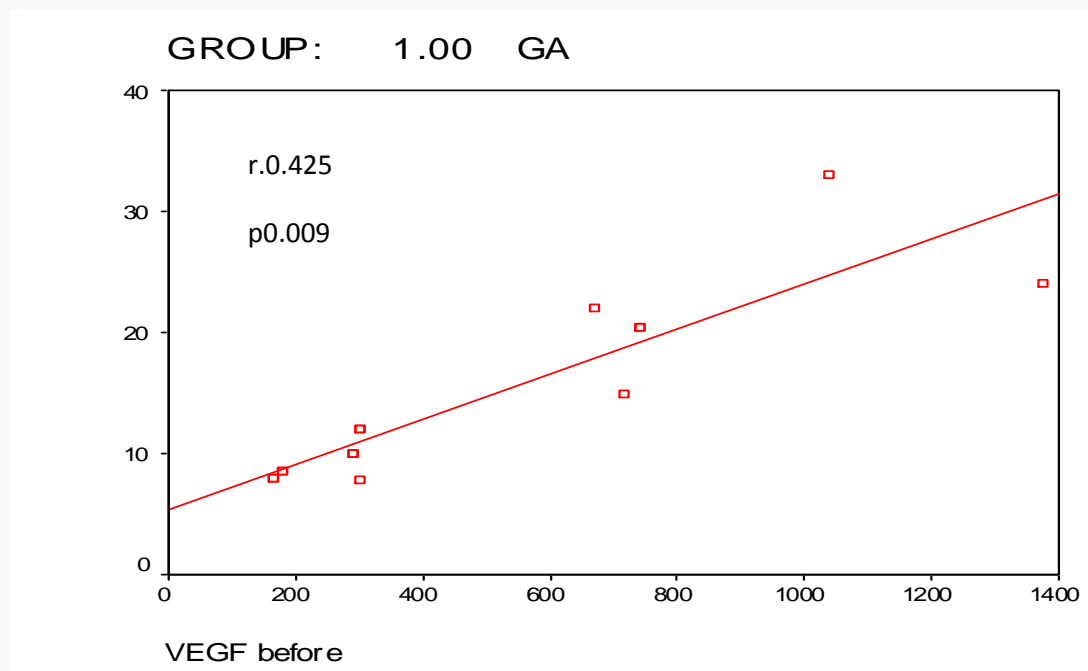


Fig.(16) The mean value of VEGF serum concentration according to the PASI score value.

**Table (14) correlation between PASI score and VEGF serum concentration in group A before treatment.**

| Variable |      | VEGF pg/ml |
|----------|------|------------|
| PASI     | r    | 0.425      |
|          | Sig. | <0.05      |

Using bivariate statistical analysis, there was statistically significant positive correlation between PASI score before treatment of patients in group A and VEGF serum concentration of the same group ( $r = 0.425$  and P value <0.05, **fig (17)**).

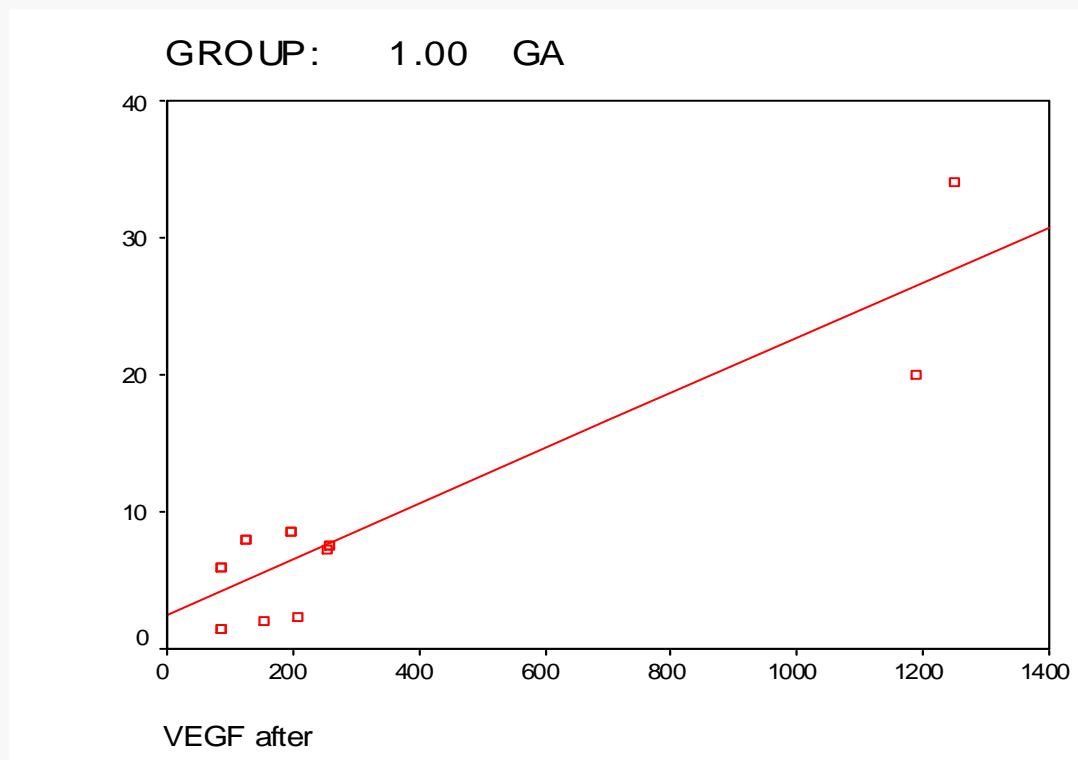


**Fig. (17) Correlation between PASI and VEGF of group A before treatment.**

**Table (15) correlation between PASI score and VEGF serum concentration in group A after treatment.**

| Variable |      | VEGF pg/ml |
|----------|------|------------|
| PASI     | r    | 0.352      |
|          | Sig. | <0.05      |

Using bivariate statistical analysis, there was statistically significant positive correlation between PASI score after treatment of patients in group A and VEGF serum concentration of the same group ( $r = -0.352$  and P value  $<0.05$  . **fig (18)**).

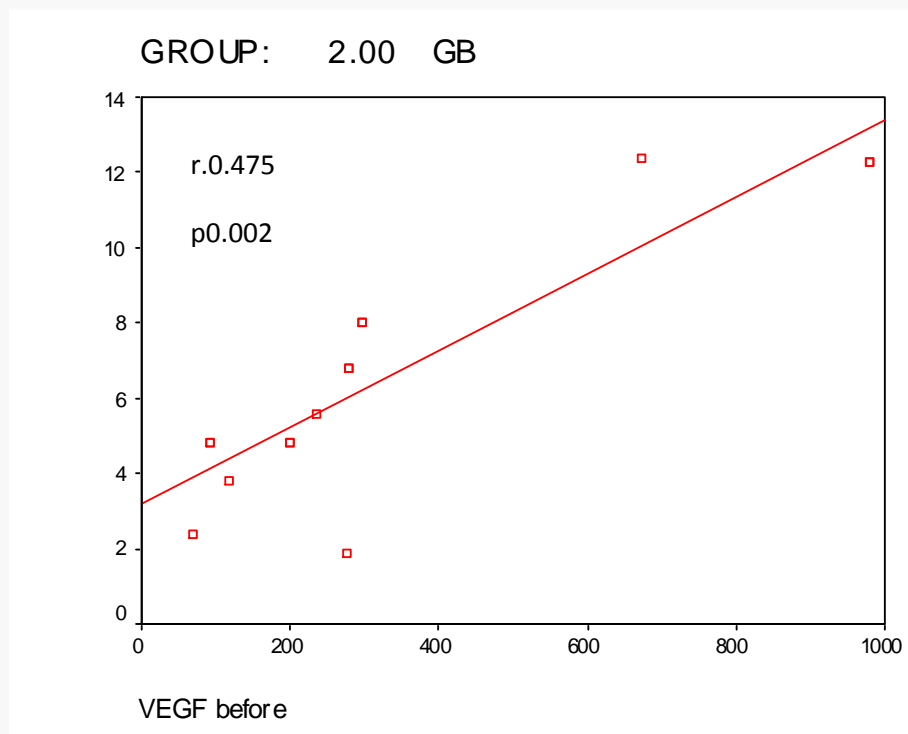


**Fig. (18) Correlation between PASI and VEGF in group A after treatment.**

**Table (16) correlation between PASI score and VEGF serum concentration in group B before treatment.**

| Variable |      | VEGF pg/ml |
|----------|------|------------|
| PASI     | r    | 0.475      |
|          | Sig. | <0.05      |

Using bivariate statistical analysis, there was statistically significant positive correlation between PASI score before treatment of patients in group B and VEGF serum concentration of the same group ( $r = 0.475$  and P value  $<0.05$  , **fig (19)**).

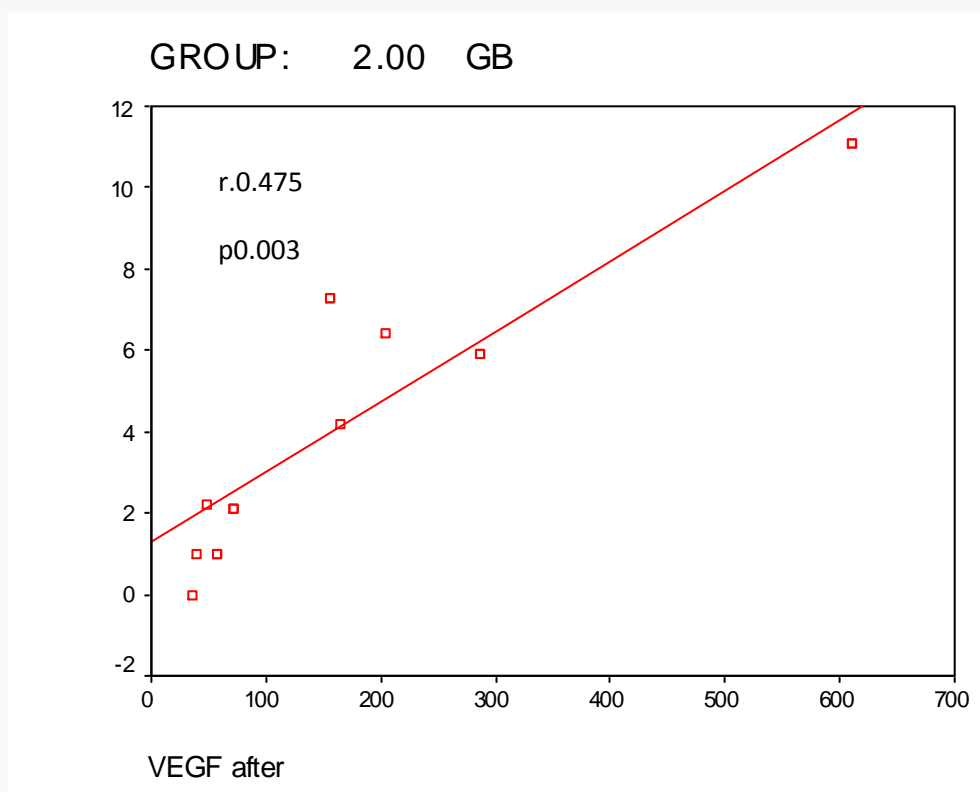


**Fig. (19) Correlation between PASI and VEGF in group B before treatment.**

**Table (17) correlation between PASI score and VEGF serum concentration in group B after treatment.**

| Variable |      | VEGF pg/ml |
|----------|------|------------|
| PASI     | r    | 0.475      |
|          | Sig. | <0.05      |

Using bivariate statistical analysis, there was statistically significant positive correlation between PASI score after treatment of patients in group B and VEGF serum concentration of the same group ( $r = 0.475$  and P value <0.05 ,**fig (20)**).

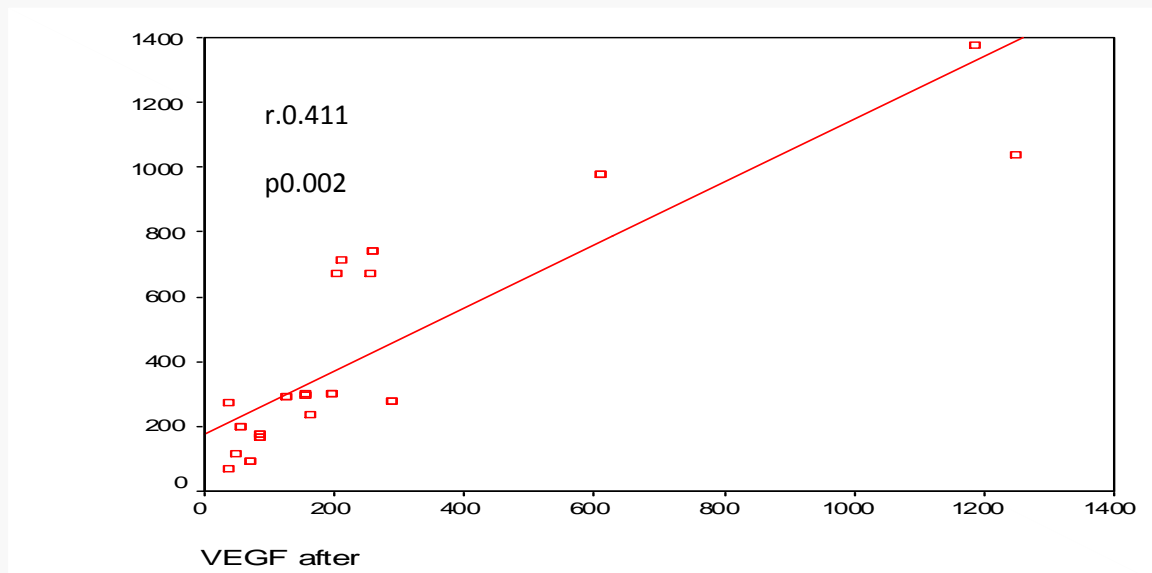


**Fig. (20) correlation between PASI and VEGF in group B after treatment**

**Table (18) correlation between VEGF concentrations before and after treatment**

| Variable                     |      | VEGF before treatment pg/ml |
|------------------------------|------|-----------------------------|
| VEGF after treatment (pg/ml) | r    | 0.411                       |
|                              | Sig. | <0.05                       |

Using bivariate statistical analysis, there was statistically significant positive correlation between VEGF concentration before treatment and VEGF serum concentration after treatment ( $r = 0.411$  and  $P \text{ value} < 0.05$  ,fig (21).



**Fig (21) correlation between VEGF concentrations before and after treatment**



Fig. (22): Male patient with lower limb psoriatic plaques before treatment.



Fig.(23): male patient with lower limb psoriatic plaques after 6 week treatment with NB-UVB.



Fig. (24): Female patient with generalized plaque psoriasis before treatment.



Fig. (25): female patient with generalized plaque psoriasis after treatment for 6 weeks with NB-UVB.





Fig. (26): female patient with generalized plaque psoriasis before treatment.



Fig.(27): female patient with generalized plaque psoriasis after treatment for 6 weeks with NB-UVB.



Fig.(28): male patient with upper limb plaque psoriasis before treatment.



Fig.(29): male patient with upper limbs plaque psoriasis after treatment for 6 week with NB-UVB.



Fig.(30): female patient with localized plaque psoriasis before treatment.



Fig.(31): female patient with localized plaque psoriasis after treatment for 4 weeks with tazarotene.





Fig.(32): female patient with localized plaque psoriasis before treatment.



Fig.(33): female patient with localized plaque psoriasis after treatment for 4 weeks with tazarotene.



Fig.(34): female patient with localized plaque psoriasis in the back before treatment.



Fig.(35): female patient with localized plaque psoriasis on the back after treatment for 4 week with tazarotene.



Fig.(36): female patient with localized plaque psoriasis on the elbow before treatment.



Fig.(37): female patient with localized plaque psoriasis on the elbow after treatment for 4 weeks with tazarotene ( complete clearance is noticed).



Fig.(38): male patient with localized plaque psoriasis on the thigh before treatment.



Fig.(39): male patient with localized plaque psoriasis on the thigh after treatment for 4 weeks with tazarotene, ( complete clearance of large area of the lesion is noticed).





Fig.(40): female patient with localized plaque psoriasis on the knees before treatment.



Fig.(41): female patient with localized plaque psoriasis on the knees after treatment for 4 weeks with tazarotene.