

A Comparative Study of Dermaroller and Platelet-Rich Plasma versus Dermaroller Alone In Patients with Acne Scars

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Abstract

Background: To compare combined dermaroller and platelet-rich plasma versus dermaroller alone in acne scars. **Subjects and Methods:** One hundred twenty adult patients in age ranged 18-38 years of either gender with acne scare were enrolled. Patients were divided into 2 groups. Group I was treated with dermaroller alone and group II with combination therapy of dermaroller and PRP. Acne scars were classified on the basis of Goodman and Baron's quantitative global acne scar grading system. In all patients, scar type, degree of scarring, and number of lesions were recorded. Visual analog score (VAS) was recorded on a 0–10 scale. **Results:** There were 25 males and 35 females in group I and 30 males and 30 females in group II. Age group (Years) 18-28 had 28 in group I and 34 in group II, 28-38 had 32 in group I and 26 in group II, SE status was upper in 12 and 14, middle in 30 and 26 and lower in 18 and 20. Scar type was ice pick and box in 12 and 10, box and rolling in 16 and 18, rolling in 20 and 14 and ice pick, box and rolling in 12 and 18 in group I and II respectively. The mean Goodman and Baron's quantitative scores at baseline in group I was 43.2 and in group II was 44.8 and at 1 month was 23.5 in group I and 17.1 in group II. The mean VAS after 1st session I group I and II was 1.16 and 2.10, after 2nd session was 3.20 and 4.32 and after 3rd session was 4.72 and 6.51 in group I and II respectively. **Conclusion:** Combination therapy of dermaroller and PRP found to be superior than dermaroller alone in management of patients with post acne scars.

Keywords: acne scars, dermaroller, platelet rich plasma, Visual analog score

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Introduction

Acne vulgaris is a common disorder of pilosebaceous unit. Severely inflamed papulopustular and nodulocystic lesions result in post acne scars, associated with lowered self-esteem and severe psychological distress thus mandates appropriate treatment. Facial scarring affects both sexes equally and occurs in 75% of patients of acne.^[1]

Post-acne scarring is one of the most common causes of disfiguring scars over the face. Studies have shown that nearly 80% of patients with acne have some scarring and 50% have clinically relevant scarring.^[2] Acne scaring is commonly seen in adolescence and young adults causing marked psychological distress. Dermatology life quality index (DLQI) in these patients is significantly lower than in patients without scars.^[3]

Various methods such as chemical peels, microdermabrasion, lasers - non-ablative, ablative lasers, fractional photo thermolysis (FP), techniques - punch excision, pin point irradiation technique, radio-frequency (RF), punch elevation, micro-needling, peels, platelet rich plasma (PRP), punch replacement grafting, tissue augmenting agents, micro-needling, subcision, combined therapy, stem cell therapy, IPL are widely used.^[4] PRP has

been a long-known tool in esthetic medicine although very few of the studies specifically attest to benefits in face and neck revitalization.^[5] Considering this, we selected present study to compare combined dermaroller and platelet-rich plasma versus dermaroller alone in acne scars.

Subjects and Methods

A sum total of one hundred twenty adult patients in age ranged 18-38 years of either gender with acne scare were enrolled. All were agreed to participate in the study. Ethical approval for the study was obtained before commencing it. Socio-demographic data of each patient was recorded. Patients were divided into 2 groups. Group I was treated with dermaroller alone and group II with combination therapy of dermaroller and PRP. Following cleansing of the face, PRP was injected intradermally on the treated area using insulin syringe, and dermaroller was applied. The patients were instructed to protect their face from light exposure, application of broad spectrum sunscreen was advised. They were recalled regularly.

Acne scars were classified on the basis of Goodman and Baron's quantitative global acne scar grading system. In all patients, scar type, degree of scarring, and number of lesions

were recorded. Visual analog score (VAS) was recorded on a 0–10 scale. Results of the study was compiled and assessed statistically using Mann Whitney U test. The level of significance was set below 0.05.

Results

Table 1: Distribution of patients

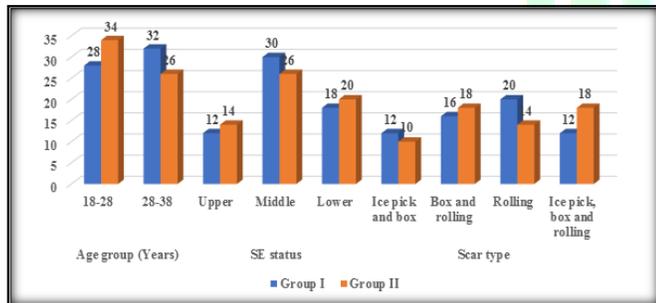
Groups	Group I (60)	Group II (60)
Agent	dermaroller alone	dermaroller and PRP
M:F	25:35	30:30

There were 25 males and 35 females in group I and 30 males and 30 females in group II (Table I).

Table 2: Assessment of parameters

Parameters	Variables	Group I	Group II	P value
Age group (Years)	18-28	28	34	>0.05
	28-38	32	26	
SE status	Upper	12	14	>0.05
	Middle	30	26	
	Lower	18	20	
Scar type	Ice pick and box	12	10	>0.05
	Box and rolling	16	18	
	Rolling	20	14	
	Ice pick, box and rolling	12	18	

Age group (Years) 18-28 had 28 in group I and 34 in group II, 28-38 had 32 in group I and 26 in group II, SE status was upper in 12 and 14, middle in 30 and 26 and lower in 18 and 20. Scar type was ice pick and box in 12 and 10, box and rolling in 16 and 18, rolling in 20 and 14 and ice pick, box and rolling in 12 and 18 in group I and II respectively. A non-significant difference was observed (P> 0.05) (Table II, graph I)

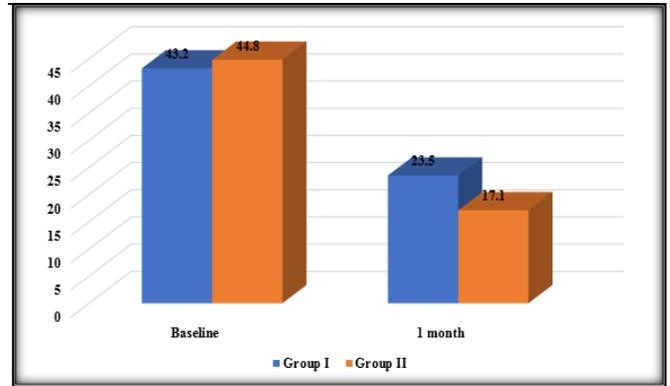


Graph 1: Assessment of parameters

Table 3: Assessment of Goodman and Baron's quantitative scores

Follow up	Group I	Group II	P value
Baseline	43.2	44.8	>0.05
1 month	23.5	17.1	<0.05

The mean Goodman and Baron's quantitative scores at baseline in group I was 43.2 and in group II was 44.8 and at 1 month was 23.5 in group I and 17.1 in group II. The difference found to be significant at 1 month (P< 0.05) (Table III, graph II).

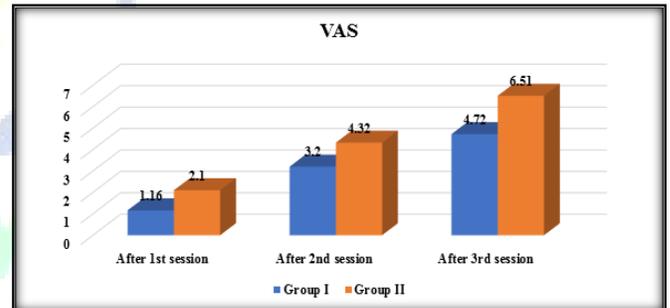


Graph 2: Assessment of Goodman and Baron's quantitative scores

Table 4: Assessment of Visual analog scores

VAS	Group I	Group II	P value
After 1st session	1.16	2.10	<0.05
After 2nd session	3.20	4.32	<0.05
After 3rd session	4.72	6.51	<0.05

The mean VAS after 1st session I group I and II was 1.16 and 2.10, after 2nd session was 3.20 and 4.32 and after 3rd session was 4.72 and 6.51 in group I and II respectively. The difference found to be significant (P< 0.05) (Table IV, graph III).



Graph 3: Assessment of Visual analog scores

Discussion

Acne vulgaris is the most inflammatory illness of pilosebaceous part occur in young persons and teenager which cause multiple troubling and hard to treat scars. It is a common condition with prevalence as high as 80% among adolescents and persists to adulthood.^[6] Scarring can be a complication of untreated acne due to skin injury through the mechanism of heals of skin.^[7] Two kinds found according to decrease or increase of collagen: atrophic plus hypertrophic. Atrophic one occur due to decrease of collagen post inflammatory acne.^[8] There are three types-ice pick, rolling and boxcar. Scarring occur after acne is considered worrying difficulty. Severe scarring is associated with psychological distress, particularly in young adults, and often results in decreased self-confidence and diminished quality of life.^[9,10] Various treatment modalities are used for acne scars including not invasive and invasive procedures, non-invasive: (biochemical peels, retinoid topically, microdermabrasion) and small invasive: (lasers, small needle

radiofrequency apparatus) and invasive: (surgery for acne scar, laser for ablation), each technique with benefits and difficulties.^[11,12] We selected present study to compare combined dermaroller and platelet-rich plasma versus dermaroller alone in acne scars.

Our results showed that there were 25 males and 35 females in group I and 30 males and 30 females in group II. Age group (Years) 18-28 had 28 in group I and 34 in group II, 28-38 had 32 in group I and 26 in group II, SE status was upper in 12 and 14, middle in 30 and 26 and lower in 18 and 20. Scar type was ice pick and box in 12 and 10, box and rolling in 16 and 18, rolling in 20 and 14 and ice pick, box and rolling in 12 and 18 in group I and II respectively. Jacob et al^[13] observed that ice pick type represents 60%–70% of total scars, the box scars 20%–30%, and rolling scars 15%–25%. Our results revealed that the mean Goodman and Baron's quantitative scores at baseline in group I was 43.2 and in group II was 44.8 and at 1 month was 23.5 in group I and 17.1 in group II. Chandrashekar et al^[14] did quantitative assessment using Goodman and Baron's score in patients with post acne scar and found moderate improvement in 58% of the patients, minimal in 29%, good improvement in 9%, and very good improvement in 3% of the patients. Porwal et al^[15] compared the efficacy of combined dermaroller and PRP therapy with dermaroller alone in facial acne scars in 55 patients who were randomly divided into two groups, Group A: 28 and Group B: 27. Patients in Group A were treated with dermaroller alone while Group B patients underwent treatment with a combination of dermaroller and intradermal PRP injections. Results showed significant percentage improvement in both the groups. However, Group B treated with both modalities had better results when compared with that in the Group A.

Sharma et al^[16] treated 40 patients having Goodman and Baron's acne scar grade II-IV. The efficacy of PRP in combination with microneedling was compared to microneedling alone in the treatment of post acne scars. It was observed that the combination therapy of microneedling along with PRP improved the scar grading significantly, with the decrease of the mean of Goodman and Baron's grade from 3.20 ± 0.40 at baseline, to 2.13 ± 0.56 at final treatment whereas on the left half of patient's face mean acne scar grade reduced from 3.20 ± 0.40 to 2.36 ± 0.56 at final treatment.

Conclusion

Combination therapy of dermaroller and PRP found to be superior than dermaroller alone in management of patients with post acne scars.

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