



COMPARATIVE STUDY OF MICRONEEDLING VERSUS MICRONEEDLING WITH PRP IN THE MANAGEMENT OF ACNE SCARS

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ABSTRACT

Background: Acne is an extremely common clinical entity in the adolescent population. Inflammatory acne lesions can further lead to acne scarring. Acne scars can cause substantial psychological distress particularly among the adolescent age group which can have lasting impact into later years. In this study we aim to compare the treatment response of acne scars with microneedling versus microneedling plus PRP.

Methods: Subjects with acne scars were enrolled to the study and divided into 2 groups randomly. The Baron and Goodman global quantitative score was used to evaluate the level of acne scarring. One group received 3 sessions of microneedling and the other group received 3 sessions of microneedling plus PRP at monthly intervals. The mean Baron and Goodman global quantitative score was calculated for each group pre-treatment, 3 months post treatment and 6 months post treatment.

Results: Both groups showed statistically significant improved over the study period. However the magnitude of improvement was greater in the microneedling with PRP group

Conclusion: Treatment with microneedling plus PRP was shown to have greater improvement when compared to microneedling alone

KEYWORDS : Platelet rich plasma, PRP, Microneedling, Dermaroller, acne scars

INTRODUCTION:

Faces act as unique identifiers for each individual and contribute greatly to our self-image. Acne scarring on the face causes a reduction in self-confidence and social activities due to embarrassment and low self-esteem. Acne vulgaris takes several years to naturally resolve completely. It has a profound impact on self-esteem, mood and psychological status. Moderate-to-severe acne has the potential to cause permanent scarring². Acne scars result from an altered wound healing response to cutaneous inflammation, with inflammatory cell infiltrates. In patients prone to scarring, early lesions are characterized by a smaller number of skin-homing CD4+ T-cells compared to non-scarring patients³.

Various treatment protocols have been used to treat acne scars including PRP, microneedling, chemical peels, dermabrasion, laser treatments, punch techniques, dermal grafting, cryotherapy etc^{3,4}. The most commonly used techniques are PRP, Microneedling and lasers. However objective evaluation of the treatment response is generally lacking with most studies relying on subjective clinical assessment.

In this study we aim to compare the treatment response of acne scars to microneedling versus microneedling plus PRP. Objective assessment of the same will be carried out with the use of Baron and Goodman global quantitative score.

MATERIALS AND METHODS:

The study was carried in a tertiary care center in Kanchipuram from June 2020 to December 2020.

INCLUSION CRITERIA

All subjects with Goodman and Baron Grade 2,3,4 acne scars

EXCLUSION CRITERIA

1. Subjects with absence of active acne
2. Keloidal tendency patients
3. History of bleeding disorders and on anticoagulant therapy
4. Subjects with active skin infections
5. Pregnant and lactating women

Age and gender of the subjects was obtained and the mean demographics is detailed below. The Baron and Goodman global quantitative score was evaluated for the subjects individually based on clinical assessment of dermatologists to assess the level of acne scarring. They received 3 sittings of microneedling or microneedling with PRP as per institution protocol at monthly intervals. The mean Baron and Goodman global quantitative score was calculated for each group pre-treatment, 3 months post treatment and 6 months post treatment.

This is a comparative clinical trial. The change in Baron and Goodman

global quantitative score was assessed over the treatment period and 3 months following treatment. The improvement in the score was tested statistically by the students t-Test and the 'p' value obtained to assess the significance of the findings. To assess level of significance 'p' value over 0.05 is considered not significant, less than 0.05 is considered significant.

RESULTS:

Table 1 - The age and gender variation in both groups were comparable. The mean age in the microneedling with PRP group was around 27 years while that of the microneedling group was around 29. The majority of the subjects in each group were female with a fairly equal distribution in each group.

Table 1: Characteristics of study group

	Microneedling plus PRP	Microneedling	Total
Subjects	30	30	60
Male	10	8	18
Female	20	22	42
Mean Age	27.2	28.8	28

Table 2 - On assessing the response to treatment in 3 months following initiation of treatment of microneedling with PRP group there was an improvement in the global quantitative score from 4.3 to 3.36 and this improvement was found to be statistically significant.

Table 2: Treatment response to PRP after 3 months

Microneedling plus PRP group	Male (10)	Female (20)	Total
Mean Pretreatment Score	4.9	4	4.3
3 month post treatment Score	3.5	3.3	3.36
Level of significance			Highly Significant

Table 3 - On assessing the response to treatment in 6 months following initiation of treatment of microneedling with PRP group there was an improvement in the global quantitative score from 4.3 to 3.06 and this improvement was found to be statistically significant.

Table 3: Treatment response to PRP after 6 months

Microneedling plus PRP group	Male (10)	Female (20)	Total
Mean Pretreatment Score	4.9	4	4.3
6 month post treatment Score	3	3.1	3.06
Level of significance			Highly significant

Table 4 - On assessing the response to treatment in 3 months following initiation of treatment of the microneedling group there was a

improvement in the global quantitative score from 4.33 to 4.06 and this improvement was found to be statistically significant.

Table 4: Treatment response to Microneedling after 3 months

Microneedling group	Male (8)	Female (22)	Total
Mean Pretreatment Score	4.25	4.36	4.33
3 month post treatment score	4	4.09	4.06
Level of significance			Highly significant

Table 5 - On assessing the response to treatment in 6 months following initiation of treatment of the microneedling group there was a improvement in the global quantitative score from 4.33 to 3.43 and this improvement was found to be statistically significant.

Table 5: Treatment response to Microneedling after 6 months

Microneedling group	Male (8)	Female (22)	Total
Mean Pretreatment Score	4.25	4.36	4.33
6 month post treatment score	3.5	3.41	3.43
Level of significance			Highly Significant

DISCUSSION:

We enrolled subjects over the age of 18 years and the mean age group was comparable in both groups at around 28 years. The majority of the subjects enrolled in the study were female. However a nearly equal proportion was represented for each gender across both study groups.

Our study showed statistically significant improvement following treatment with microneedling plus PRP at both the 3 month and 6 month intervals. This is similar to other studies that have evaluated PRP in acne scars⁵.

A similar statistically significant improvement was seen following treatment with microneedling alone . This is again as expected and seen in multiple previous studies^{5,6,7}.

However the magnitude of response following treatment with microneedling plus PRP was greater than microneedling alone at the end of 3 month and 6 month intervals respectively.

CONCLUSION:

From our study we were able to conclude that definitive improvement in the level of acne scars were demonstrated by both treatment protocols. However treatment with microneedling plus PRP was shown to have greater improvement in comparison to microneedling alone.

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