Peels and Needles: Comparing Microneedling and Glycolic Acid Chemical Peel for Acne Scar Treatment

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Introduction

- Acne is estimated to affect 9.4% of the global population, making it the eighth most prevalent disease worldwide. [1]
- Scars secondary to acne can lead to physical disfigurements and a profound psychological impact.[1]
- Early and effective treatment is the best means to minimize and prevent acne scarring
- In patients with darker skin tones, current acne scar treatments pose complications including dyspigmentation, further scarring, and overall unsatisfactory clinical outcomes.[2]
- Microneedling is a relatively new, minimally invasive procedure which uses fine needles to puncture the epidermis. The microwounds stimulate growth factors and collagen production while the epidermis remains intact.[3]
- Chemical peels are another option for treating acne scars and consist of applying an ablative agent to the skin's surface to induce keratolysis or keratin coagulation.[3]

Methods

- 60 patients aged 15-50 with acne scars from Benazir Bhutto Hospital Pakistan were randomly divided into two groups: treatment with microneedling and treatment with 35% glycolic acid peeling.
- Patients with active acne assessed on clinical examination, history of collagen vascular disease or keloid formation, pregnant females, hypersensitivity to glycolic acid, bleeding disorders, or diabetes mellitus were excluded.
  - Microneedling group: Vitamin A and C 1x/day, minimal pressure added, and topical abx.
  - Chemical peel group: skin cleansing, petroleum jelly for sensitive skin, and topical abx.
- Efficacy determination was completed during a follow-up visit two weeks after final treatment. Collected data was analyzed using SPSS Version 25.0

Results

Group A: microneedling
Group B: chemical peel 35%

Table 1: Efficacy Stratification with Regards to Type of Scar Between Groups

Type of Scars		Group A	Group B
Icepick	Yes	11	2
	No	4	8
Boxcar	Yes	4	4
	No	4	7
Rolling Type	Yes	7	4
	No	0	4

Table 2: Age Distribution Between Treatment Groups

	Group A (n=30)		Group B (n=30)	
Age (years)	Number of Pts	%	Number of Pts	%
15-40	19	63.33	11	36.67
41-50	11	36.67	19	63.33
Total	30	100	30	100
Mean + SD	36.53+/- 7.92		41.27+/- 5.44	

Table 3: Gender Distribution Between Treatment Groups

	Group A (n=30)		Group B (n=30)	
Gender	Number of Pts	%	Number of Pts	%
Male	9	30	10	33.33
Female	21	70	20	66.77
Total	30	100	30	100

Table 4: Comparing efficacy of microneedling and 35% glycolic acid peel for acne scar treatment

	Group A (n=30)		Group B (n=30)	
Efficacy	Number of Pts	%	Number of Pts	%
Yes	22	73.33	10	33.33
No	8	26.67	20	66.77
Total	30	100	30	100

Efficacy in our study was represented by a x >1 grade improvement from baseline measured two weeks after the completion of the last treatment session.

Discussion

- In the South Asian population, acne prevalence among adolescents is 91% in males and 79% in females.[2]
- In darker skin, chemical peels can be associated with prolonged recovery and complication risk. These complications include dyspigmentation, further scarring, and overall unsatisfactory clinical outcomes.
- Microneedling offers a desirable safety profile in the skin-of-color population because it keeps the epidermis partially intact while retaining the skin barrier.
- Our study's population was predominantly phototype IV, V, and VI.
- Aside from acne scar treatment, microneedling may be used for skin rejuvenation, photodamage, melasma, and drug delivery.

Conclusions

- Our results suggest the need for a transition to microneedling as a treatment option for a population in South Asia.
- We envision either using microneedling as a first line option followed by chemical peels if limited improvement is witnessed or using them in combination with one another.
- Our results provide a foundation for acne scar treatments specifically in patients with darker skin tone.
- Microneedling may prove useful for any clinician who regularly treats patients with darker skin tones.
- Adverse effects of microneedling are rare, the most common including transient erythema and post-inflammatory hyperpigmentation

References

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