

COMPARATIVE EFFICACY OF 35% GLYCOLIC ACID PEEL VS. 20% SALICYLIC ACID PEEL IN THE TREATMENT OF POST ACNE SCARRING

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ABSTRACT

BACKGROUND

Post acne scarring remains a common entity despite advances in the treatment of acne. A variety of modalities are available for post acne scarring, out of which chemical peels offer advantage of being non-invasive, painless, cheaper and easy to perform technique. Chemical peeling is the application of a chemical agent to the skin, causing controlled destruction of a part or whole of epidermis and/or a part of dermis.

Aims and Objectives- To compare the efficacy of GA 35% vs. SA 20% in treatment of acne scars.

MATERIALS AND METHODS

This is a randomised comparative study of total 100 patients with post acne scarring. After taking the informed consent, they were randomised by computer generated random number table, which was allocated into 2 groups (50 each). One group received 35% glycolic acid (GA) peel and other 20% salicylic acid (SA) peel. A total of 3 sessions at an interval of 3 weeks. Response was graded on a five-point visual analogue scale. Since the calculated sample size was too high and thereby not feasible to include in this limited period of study, we had to limit the sample size for convenience.

RESULTS

Both SA and GA peels caused significant improvement in hyperpigmented scars. Although, SA peels had slightly better outcome when compared to GA peel, the difference was statistically not significant. The subjects found a greater final effect with SA, the mean score being 1.52 for GA peel and 1.92 for SA peel. Side effects were minimal and transient and there was no difference in the side effect profile between both the groups.

CONCLUSION

Both the agents (SA and GA) were equally effective and safe in Indian patients for post acne scarring and hyperpigmentation.

KEY WORDS

Post Acne Scarring, Chemical Peeling, Glycolic Acid Peel, Salicylic Acid Peel.

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BACKGROUND

'Scar' as a noun, is defined as the fibrous tissue that replaces normal tissue destroyed by injury or disease. Acne scarring begins with the evolution of acne lesions injury to skin inflammation, granulation tissue degradation of extracellular matrix. On the basis of net loss or gain of tissue scars are divided into: Hypertrophic scar and Atrophic scar- further divided by Jacob et al into: 1. Ice pick Scar- 60-70%, 2. Boxcar Scar- 20-30% and 3. Rolling Scar- 15-25%.^{1,2,3}

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Chemoexfoliation is an application of one or more chemical agents to the skin, so as to cause controlled destruction of a portion of the epidermis and/ or dermis. Chemoexfoliation leads to a dry desquamation or moist maceration, exfoliation resurfacing remodelling. Glycolic acid is also known as fruit peel is obtained from sugarcane. It is the most common alpha hydroxy peel used. Salicylic acid is a member of the Beta hydroxy acid group. Salicylic acid is derived from willow bark, wintergreen leaves and sweet birch. It crystallizes on face leaving a white coat- pseudo frost.

Aims and Objectives- To study and compare the efficacy of 35% glycolic acid peel with 20% salicylic acid peel in the treatment of post acne scarring.

MATERIALS AND METHODS

This is a randomised comparative study of 100 patients with post acne scars. After taking the informed consent they were

randomised by computer generated random number table, which were divided into two groups consisting of 50 patients each. Group A contains 50 patients, of which 32 patients are females and 18 patients are males. Group B contains 50 patients, of which 36 are female patients and 14 are males. In this study, the sample size was taken for convenience.

Age Distribution	Group A		Group B		P value
Male	32		36		
Female	18		14		
Total	50		50		
Mean ± SD	18.3000 ± 1.23	0.251	16.0300 ± 0.239	0.032	0.047
T-test value	1.32				

Table 1. Intragroup Comparison done by Pre-Peel Testing

PEEL	Change Over Baseline Score	Percentage of Improvement with GA Peel (Group- A)	"T" test Value	P value (of GA)	Change Over Baseline Score	Percentage of Improvement with SA Peel (Group- B)	P value (of SA)	P value Gp 'A' vs. Gp 'B'	Results for P value (of GA) and P value (of SA)
1 st Peel	0.14	0.76%	0.2024	0.134	0.14	0.82	0.023	0.277	0.157
2 nd Peel	0.89	4.87%	0.1295	0.00	1.09	6.39	0.00	0.198	0.00
3 rd Peel	1.89	10.34%	0.1235	0.000	2.11	12.31	0.000	0.188	0.00
4 th Peel	2.84	15.54%	0.1268	0.000	3.00	17.5	0.000	0.190	0.000
									Total=0.157

Table 2. Comparison of difference in Improvement between GA and SA Peel

Objective Assessment

Assessment of Scars	Lesions 1-10	Lesions 11-20	Lesions >20
Mild scarring: 1 point each Erythematous, hyper- or hypo-pigmented flat marks mild atrophy, dish like.	1	2	3
Moderate scarring: 2 points each Moderate atrophy, dish-like punched out with shallow bases small scars (< 5 mm). Shallow with broad atrophic areas.	2	4	6
Severe scarring: 3 points each punched out with deep but normal bases, small scars (< 5 mm) Punched out with deep abnormal bases, small scars (<5mm) Linear or troughed dermal scarring Deep broad atrophic areas	3	6	9

The Total Acne Scar Score was Calculated as per the following Criteria

Grade	Points	Remarks
Nil	0	No improvement
Satisfactory	1	Upto 25% improvement
Good	2	26 - 50% improvement
Very Good	3	51 - 75% improvement
Excellent	4	> 76% improvement

Grading of Response was Calculated based on the Following

After obtaining the written consent, history had been taken, clinical examination and global acne scarring classification done. Pre-peel testing done. Priming was done for all with 0.025% tretinoin cream for two weeks. They were advised to use a broad-spectrum sunscreen twice a day.^{4,5}

Group A treated with 35% glycolic acid (GA) peel and Group B with 20% salicylic acid (SA) peel. A total of 4 sessions at an interval of 3 weeks. Response was graded by objective assessment by comparing the changes in the Quantitative global acne scarring score at each visit and subjective assessment by five-point visual analogue scale. All the patients were followed up for 9 months.



Using a cotton bud, GA peel was applied with smooth strokes over the face in an anti-clockwise manner. After 3-5 minutes depending on appearance of erythema, the peel was neutralised using a neutralisation solution. For SA peel, these patients showed a pseudo-frosting after a contact period of 3-5 minutes, which was then washed with water. Post acne scars of either sex and willing to participate were included in the study.⁶

The following Patients were excluded from the Study

Active infections and open wounds on face, patients with unrealistic expectations, tendency of keloid or hypertrophic scar formation, use of isotretinoin in last 6 months, pregnant and lactating females.

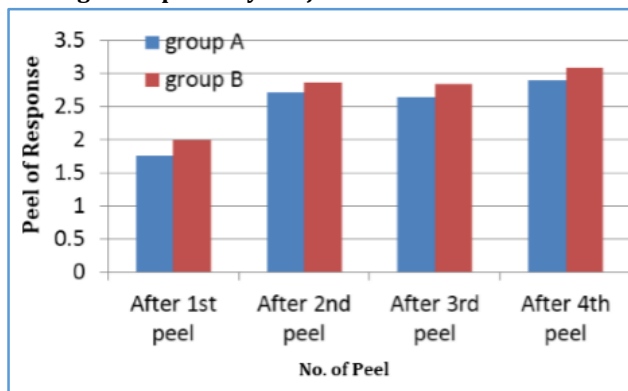
Statistical Analysis

Chi-square test, student's "t" test and paired "t" test was done for the statistical analysis. Software used SPSS v16.0 for statistical analysis.

RESULTS

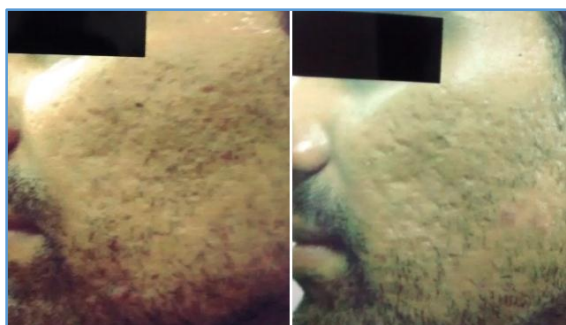
7 patients dropped out from the study, 3 from Group A and 4 from Group B. The scores showed a significant decreasing trend from the baseline to the 3rd, 6th, 9th and 12th week of treatment in both the treatment groups. All scores remained almost the same.

Grading of Response by Subject



	Group A	Group B
Erythema	12%	8%
Burning	8%	10%
Pigmentation	6%	8%
Dryness	6%	5%
Complications		

Both SA and GA peels caused significant improvement in post acne scars. Although, SA peels had slightly better outcome when compared to GA peel, the difference was statistically not significant. Side effects were minimal and transient in both the groups.



Pre and Post GA Peel



Pre and Post SA Peel

DISCUSSION

Post acne scarring remains a common entity despite advances in the treatment of acne. Acne scarring patients have greater level of stress, anxiety and psychological depression. It is estimated to reduce the quality of life as great as asthma, diabetic or arthritis.⁷ A variety of modalities are available for post acne scarring, out of which chemical peels are: - Effective, safe, painless, non-invasive, easy to perform, cheaper, comedolytic, reduces post acne hyperpigmentation too.

CONCLUSION

Both Salicylic acid and Glycolic acid are effective and safe in treatment for post acne scars. Scores were better in patients treated with Salicylic acid than Glycolic acid. Differences were not statistically significant. Thus, according to our study, both peels can be used safely with minimal side effects for the treatment of post acne scars.

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