Journal of Neonatal Surgery
ISSN(Online): 2226-0439
Vol. 14, Issue 31s (2025)
https://www.jneonatalsurg.com

OPEN ACCESS

Comparative Study On The Efficacy Of 70% Glycolic Acid Versus 30% Salicylic Acid Peel In The Management Of Mild To Moderate Acne Vulgaris

Md Faizi Karim[1], Rajeev Agarwal[2], Sharique Ali[3], Vivek Kumar Sahu[4], Raveena Yadav[5], Manthankumar K. Jhad[6]

[1]Junior Resident, Dept. of Dermatology, Venereology and Leprosy, IIMSR, Lucknow, Uttar Pradesh.

[2]Professor & HOD, Dept. of Dermatology, Venereology and Leprosy, IIMSR, Lucknow, Uttar Pradesh.

[3]Associate Professor, Dept. of Dermatology, Venereology and Leprosy, IIMSR, Lucknow, Uttar Pradesh.

[4]Assistant Professor, Dept. of Dermatology, Venereology and Leprosy, IIMSR, Lucknow, Uttar Pradesh.

[5]Junior Resident, Dept. of Dermatology, Venereology and Leprosy, IIMSR, Lucknow, Uttar Pradesh.

[6]Junior Resident, Dept. of Dermatology, Venereology and Leprosy, IIMSR, Lucknow, Uttar Pradesh.

[*]**Corresponding author:**

Rajeev Agarwal,

Professor & HOD, Dept. of Dermatology, Venereology and Leprosy, IIMSR, Lucknow, Uttar Pradesh.

Cite this paper as: Md Faizi Karim, Rajeev Agarwal, Sharique Ali, Vivek Kumar Sahu, Raveena Yadav, Manthankumar K. Jhad, (2025) Comparative Study On The Efficacy Of 70% Glycolic Acid Versus 30% Salicylic Acid Peel In The Management Of Mild To Moderate Acne Vulgaris. *Journal of Neonatal Surgery*, 14 (31s), 667-672.

ABSTRACT

Background: Acne vulgaris is a chronic inflammatory disorder of the pilosebaceous unit. Chemical peels such as glycolic acid (GA) and salicylic acid (SA) are popular, safe, and non-invasive treatment modalities.

Objective: To compare the clinical efficacy and tolerability of high-strength 70% GA and 30% SA peels in the management of mild to moderate acne vulgaris.

Methods: A prospective study was conducted from May 2024 to October 2024. Forty patients with mild to moderate acne (as per Global Acne Grading System - GAGS) were randomized into two groups. Group A received 70% GA peel, and Group B received 30% SA peel, with treatments administered at an interval of 2 weeks for a total of 6 sessions (12 weeks). Outcome was assessed by GAGS score and clinical photography.

Results: Group B (SA) demonstrated faster and greater GAGS score reduction (65%) compared to Group A (GA, 46%). Both treatments were well tolerated, with minor adverse events in <15% of patients.

Conclusion: Both peels were effective; however, 30% SA peel showed superior clinical response and earlier onset of action.

Keywords: *Acne vulgaris, Glycolic acid, Salicylic acid, Chemical peel, GAGS.*

1. INTRODUCTION

Acne vulgaris is one of the most prevalent dermatological conditions in adolescents and young adults aged 12 to 24 years affecting approximately 85% of this age group[1]. While multiple treatment options exist, chemical peels are increasingly favored due to their non-invasive nature and quick results.

Glycolic acid (GA), an alpha hydroxy acid[2], facilitates exfoliation, promotes collagen synthesis, and addresses post-inflammatory pigmentation. Salicylic acid (SA), a beta hydroxy acid, is lipophilic, allowing penetration into sebaceous follicles. It has comedolytic, keratolytic, and anti-inflammatory properties[3].

This study aims to compare the effectiveness of high-strength 70% GA with 30% SA peel in the treatment of mild to moderate acne.

2. MATERIALS AND METHODS

This was a prospective, randomized comparative study conducted over a period of 6 months in the Department of Dermatology, Integral Institute of Medical Sciences and Research (IIMSR), Lucknow. Forty participants clinically diagnosed

with mild to moderate acne, as per the Global Acne Grading System (GAGS), were enrolled. Patients were randomized into two groups :- Group A: 70% Glycolic Acid Peel- Group B: 30% Salicylic Acid Peel. Treatments were given at an interval of 2 weeks for a total of 6 sessions (12 weeks).

Inclusion Criteria :- Age >12 years - Mild to moderate acne, based on global acne grading system (GAGS)- No response to conventional therapy for ≥3 months.

Exclusion Criteria: Patient refusing consent, Pregnant and lactating women, Patients with Active/Recurrent herpes infection, Patient with a history of hypertrophic scarring/keloid, Patients with hypersensitivity to aspirin, Patients who had taken oral Isotretinoin in the past six months.

3. PROCEDURE OF CHEMICAL PEELING

Our institution's research review committee approved the study protocol. The procedure was explained in detail, and written informed consent was obtained from all patients included in the study. Consent was taken from the parent or guardian if the patient was younger than 18. All oral and topical medications being taken for acne were discontinued 4 weeks before peeling. The patients were divided into two age- and sex matched groups (A and B). Group A comprised 20 patients who received fortnightly 70% GA peels and Group B comprised 20 patients who received fortnightly 30% salicylic acid peels. Six peeling sessions were conducted for each group at Weeks 0, 2, 4, 6, 8,10 and 12. At the first visit, a test peel with 10% GA or SA was performed on a 1- X 1-cm area in the right retro-auricular area. The patients were reviewed after 1 week, and if they tolerated the peel well, they were taken up for full face peels. Patients were asked to first wash their face with water. They were then asked to lie down in a 45 degree semi-reclining position with eyes closed. The patients wore a surgical cap to pull back their hair and cover the ears. Degreasing was done by scrubbing with cotton gauze soaked with spirit, followed by one soaked with acetone. Sensitive areas of the face like the lips and nasolabial folds were protected with a thin layer of petrolatum. GA or SA peel was then applied over the face using a fan-shaped sable brush in a predetermined clockwise manner starting over the forehead, right cheek, chin, left cheek, nose, upper lip, and lastly the infraorbital areas, taking 30 to 35 seconds to accomplish and using approximately 0.8 to 1.0mL per session. The peeled areas were observed for the development of erythema for GA peels, which was considered the end point of peeling. The patients were also asked to report when they felt a stinging or burning sensation with GA peels, which was considered the alternative end point in patients in whom erythema could not be discerned (because of dark skin colour). With SA, the patients experienced a stinging sensation that lasted for 3 to 5 minutes. After the cessation of this stinging sensation, most patients developed a uniform white crystalline precipitate, ''pseudofrost'' in the peeled areas (indicating the deposition of salicylic acid after its hydroethanolic vehicle had volatilized). This was considered the end point of peeling. In patients who did not develop the pseudofrost, the cessation of the stinging sensation was considered the end point. Care was taken not to allow blanching to appear, which was indicative of a deeper peel causing epidermolysis. The duration of each peeling session with GA was serially increased by 1 minute at each visit until a maximum of 5 minutes and varied from 1 to 5 minutes. The total duration of the peeling sessions varied from 3 to 5 minutes with SA. As soon as the end point was reached, the peel was neutralized by asking the patients to wash their faces with copious amounts of cool tap water. They were then asked to pat, and not rub, the face dry. The patients were asked to apply a sunscreen with a sun protection factor (SPF) of greater than 15 on their faces before leaving the clinic. They were sent home with instructions to apply a moisturizing cream if the facial skin felt too dry, to avoid or minimize sun exposure, and to apply sunscreen whenever exposed to the sun. They were cautioned not to apply any cream or face wash containing AHAs, salicylic acid or retinoids.

Assessment

Assessments were done using GAGS at every follow-up. Clinical photographs using standardized positioning were taken at baseline and at 2,4, 6, 8, and 12 weeks. The side effects seen with both agents in the two groups during the peeling period and during follow-up were noted in the proforma.

Statistical Analysis

The data were analysed using the paired t-test for parametric data and the Wilcoxon signed rank test and Mann-Whitney U test for nonparametric data. $P<0.05$ was taken as significant.

4. RESULTS

Table 1: Patients data

Parameter	Group A(70%SA)	Group B(30%GA)	Total (n=40)
Age Group (years)			
12-15	1(5%)	2(10%)	3(7.5%)

16-20	4(20%)	4(20%)	8(20%)
21-25	9(45%)	10(50%)	19(47.5%)
26-30	6(30%)	4(20%)	10(25%)
Sex			
Male	6(30%)	7(35%)	13(32.5%)
Female	14(70%)	13(65%)	27(67.5%)

Mean age in our study was 24.2yrs & 22yrs in Group A&B respectively

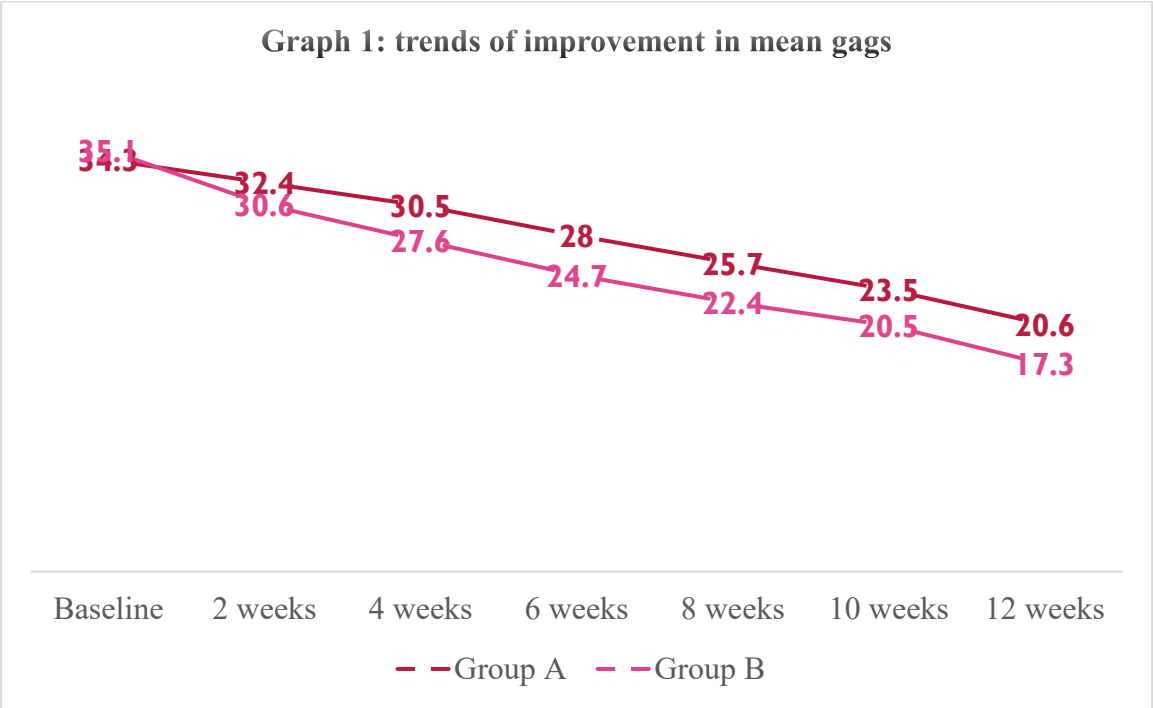
Female to male ratio in both groups noted to be 3:1

Table 2: Site wise distribution

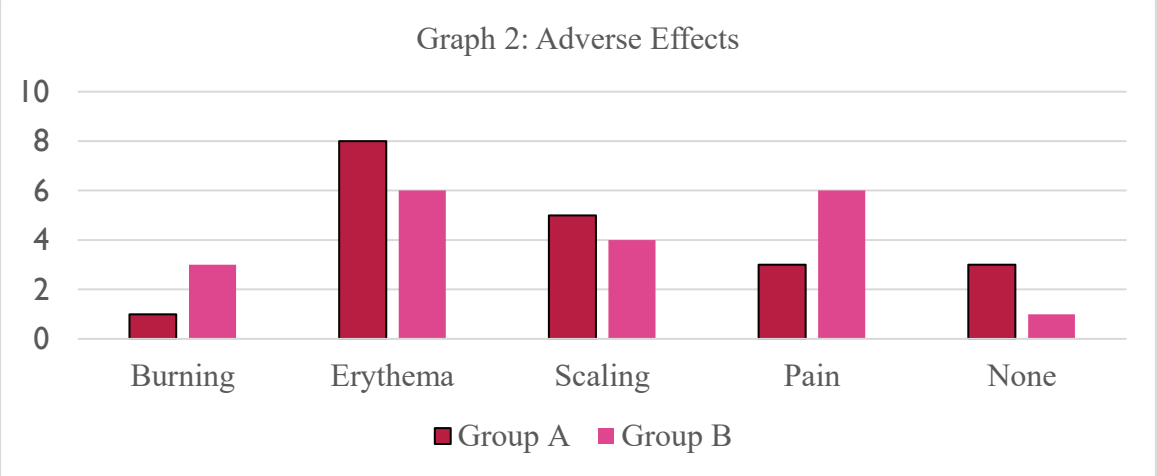
Parameter	Group A(70%SA)	Group B(30%GA)	Total (n=40)
Site of lesions			
Cheeks	4(20%)	5(25%)	9(22.5%)
Chin	2(10%)	2(10%)	4(10%)
Forehead	2(10%)	1(5%)	3(7.5%)
>1 site	7(35%)	8(40%)	15(37.5%)
Full face	5(25%)	4(20%)	9(22.5%)

Most common sites involved in both groups A & B are cheeks, full face & >1 site

The graph below illustrates the mean GAGS score reduction over the 12-week study period in both groups:



There was a significantly greater decrease in mean global acne grading system in group B to group A with percentage reduction of 65% in the former.



Both treatment showed acceptable tolerability with mild erythema, burning sensation, scaling and varying pain noted in < 15% of patients

Photographic Documentation

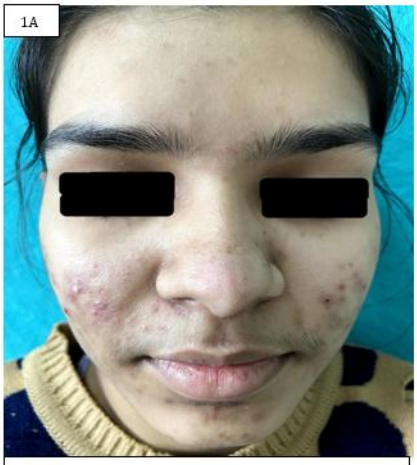


Image 1A- A patient of SA peel group prior to treatment

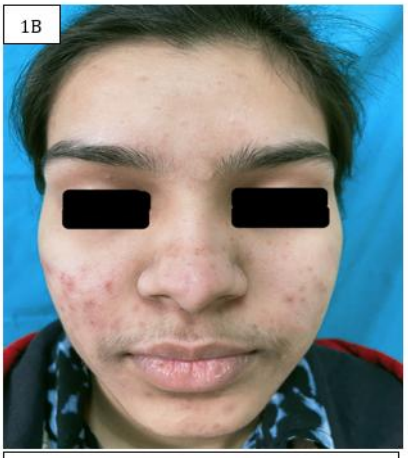


Image 1B- Clinical response noted with 30% SA peel at 12 weeks

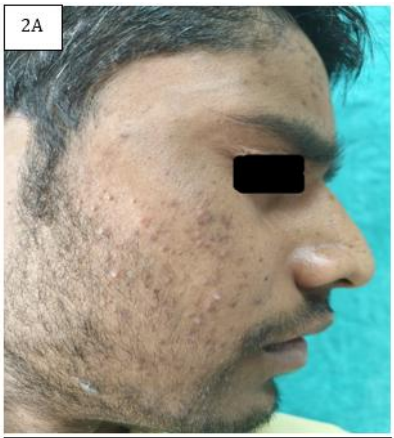


Image 2A- A patient of SA peel group prior to treatment

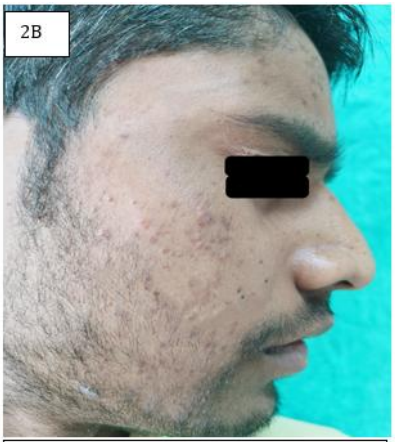


Image 2B- Clinical response noted with 30% SA peel at 12 weeks

Image 3A- A patient of GA peel group prior to treatment

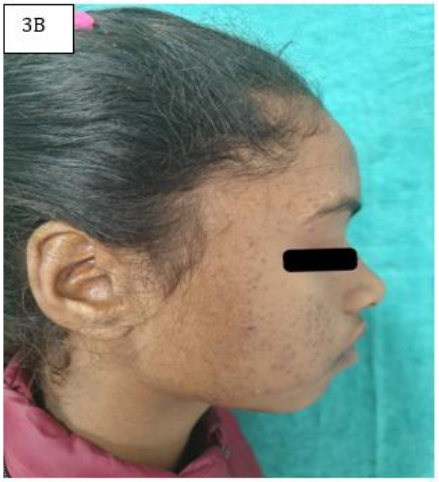


Image 3B- Clinical response noted with 70% GA peel at 12 weeks

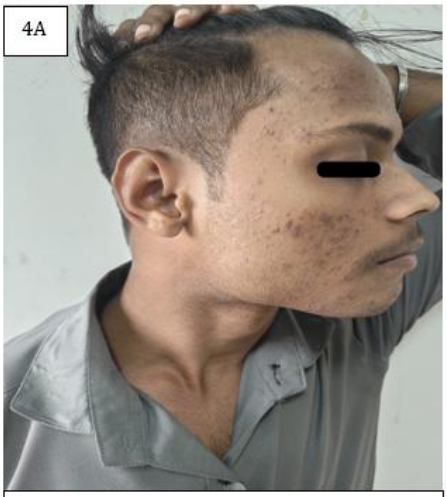


Image 4A- A patient of GA peel group prior to treatment

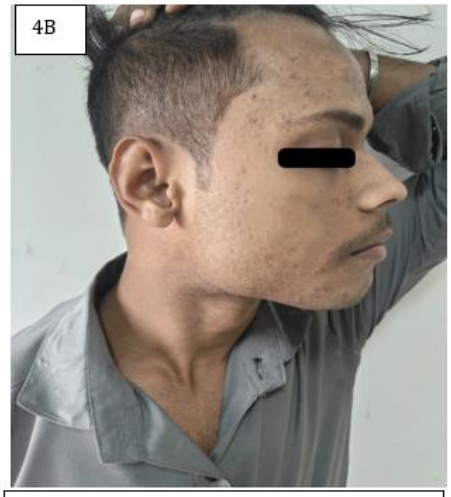


Image 4B- Clinical response noted with 70% GA peel at 12 weeks

5. DISCUSSION

Both GA and SA are well-established in acne management. GA enhances epidermal turnover and reduces pigmentation, making it ideal for post-acne marks. SA, due to its lipophilicity and anti-inflammatory nature, addresses comedones and inflammatory acne more effectively.

The study confirms that 30% SA peel provided quicker and more pronounced results, especially in reducing lesion counts within the first few sessions. GA showed steady, progressive improvement with a better effect on pigmentation.

Similar findings were reported by Kessler et al[4]. and Ilknur et al[5]., who found SA to be superior in early acne resolution.

Limitations include small sample size and short follow-up. Long-term efficacy and relapse rates require further study.

6. CONCLUSION

Both 70% Glycolic Acid and 30% Salicylic Acid peels were effective, safe, and well-tolerated adjuvants for mild to moderate acne treatment. However, 30% SA peel provides faster clinical improvement and should be preferred in cases requiring rapid results. Subjects reported fewer side effects on both agents.

Conflict of Interest: Nil

Financial support and sponsorship: Nil

Acknowledgment

We are grateful to all the patients who participated in the research for their cooperation and trust. Special thanks to the medical and technical staff for their assistance in data collection and patient care. **MCN: IU/R&D/2025-MCN0003675**

REFERENCES

[1] Prevalence, morbidity, and cost of dermatological diseases. J Invest Dermatol 1979;73:395–401.

[2] Lim JTE, Tham SN. Glycolic acid peels in the treatment of melasma among Asian women. Dermatol Surg 1997;23:177–9.

[3] Grimes PE.The safety and efficacy of salicylic acid chemical peel in darker racial-ethnic group.Dermatol surg 1999;25;18-22.

[4] Kessler E, Flanagan K, Chia C, et al. Comparison of alpha- and beta-hydroxy acid chemical peels in the treatment of mild to moderately severe facial acne vulgaris. Dermatol Surg. 2008;34(1):45-50. 5. Ilknur T, Biçak MU, Demirtaşoğlu M, Ozkan S. Glycolic acid peels versus amino fruit acid peels in the treatment of melasma. Dermatol Surg. 2010;36(4):490-495.