



ROLE OF GLYCOLIC ACID PEELING (35%) IN MANAGEMENT OF ACNE VULGARIS: A PROSPECTIVE COMPARATIVE STUDY

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ABSTRACT

Introduction: Acne vulgaris is a common dermatological disorder primarily affecting adolescents and young adults. In spite of various modalities of treatment available, it still poses a therapeutic problem to the dermatologists. The advent of new and potent topical therapeutic modalities such as chemical peeling has resulted in significant improvement in the treatment of acne. **Objective:** This study aims to observe the therapeutic response of 35% glycolic acid peeling in active acne lesions as an adjuvant to conventional anti acne therapy. **Materials & Methods:** This was randomized control study in which 100 patients of mild – moderate grade acne vulgaris were taken and divided into 2 groups of 50 each. Group A was given conventional anti acne management and group B was given Glycolic acid peeling every 3 weeks in addition to the conventional anti acne management. Follow up was done for 4 months and results were compared between the 2 groups. **Result & Conclusion:** we found that acne grade improved faster in Group B patients (patients undergoing GLA peel). Although Group B patients showed faster improvement in clearance of acne lesions but by the end of the study i.e., at 15 weeks both the group had equal response rate. This means that glycolic acid peeling can be used as an adjuvant with conventional antiacne management to fasten the resolution of acne lesions but final response after full course of treatment is similar in both groups.

KEYWORDS : acne vulgaris, glycolic acid (35%), chemical peeling, acne management

INTRODUCTION:

Acne vulgaris is a chronic inflammatory condition involving the pilo sebaceous follicular unit, in which inflammation is secondary to disordered follicular keratinisation, increased sebum production and propionibacterium acnes colonisation of the follicles^[1].

Acne vulgaris have varied manifestations from non-inflammatory comedones to inflammatory papules, pustules, nodules and cysts distributed predominantly over seborrheic areas like face, upper chest, arms and upper back. It is one of the commonest concerns among the patients visiting Dermatology OPD and is most frequent in adolescents and young adults. Acne Vulgaris affects 90% of males and 80% of females of all ethnicities.^{[2][3]}

Acne possesses a substantial cosmetic and psychologic impact on the health of patients. As the duration or degree (i.e., grade) of acne increases, chance of post acne scar formation rises as well. Thus, early and effective treatment of acne is the most important step to prevent complications. Numerous treatment modalities are available for treatment of Acne vulgaris like topical and systemic retinoids, topical and systemic antibiotics and various chemical peels. Chemical peeling / chemical rejuvenation is a process where one or more chemical agents are applied to the skin, resulting in a controlled destruction of some layers of the skin, which is followed by remodeling & regeneration of skin with improvement in skin surface abnormalities^[4].

Glycolic acid (GA) obtained from sugarcane is the most common alpha-hydroxy acid peel used. Glycolic acid peeling is a common modality used as an adjuvant for treating active acne lesions. In this study we will add Glycolic acid peeling with conventional Acne management to see if that provides any advantage as compared to conventional anti acne management alone.

AIM:

To study the effectiveness of glycolic acid (35%) peeling in management of active acne vulgaris in patients of 18-30 years of age.

MATERIAL AND METHODS USED:

Study design: Prospective Randomised Comparative study

Location:

Out Patient Department of Dermatology, Venerology and Leprosy, M.Y. Hospital, Indore

Study Period:

The study was conducted over a period of 18 months from February 2021 to July 2022 after obtaining Institutional & Ethical Committee Approval.

Follow up: 5 follow ups, once every 3 weeks, a total of 15 weeks.

Study Size:

100 patients of Acne Vulgaris of mild to moderate grade of age group 18 to 30, attending the Out Patient Department of Dermatology, Venerology and Leprosy, M.Y. Hospital, Indore.

Inclusion Criteria:

- New cases of mild to moderate grade of Acne vulgaris
- Age group 18-30 years (both males and females).
- Patients giving consent for the study.

Exclusion Criteria:

- Subjects previously treated for Acne Vulgaris.
- Patients with chronic systemic diseases, including those with hepatic and renal insufficiency are excluded.
- Pregnant and lactating women.
- Female patients having clinical signs of androgen hypersensitivity.
- Active skin infections like herpes, warts and bacterial infection.

Study Process:

Selected Patients were informed about the nature of the study and written consent was obtained from the patients. The Demographic data such as age and sex of the selected patients, and duration of the disease were taken. A total of 100

patients (who were meeting the inclusion criteria) of either sex of age 18-30 years with acne were randomly selected and enrolled for the study. Two groups each containing 50 patients were subjected to two different treatment modalities, Group A was given conventional anti-acne treatment and Group B was given Conventional anti acne treatment + glycolic acid peeling every 3 weeks. Regular Follow ups every 3 weeks for 15 weeks was done. As this was an ongoing study, patients were recruited over 18 months and any patient lost to follow up was being replaced but count was being kept to compare at the end.

- This study was conducted after approval from the Institutional review board and ethical committee, Maharaja Yeshwantrao Hospital, Indore (Madhya Pradesh).
- A detailed and relevant medical history including drug intake in last 6 months, present and past systemic illness was taken at the first visit to ensure eligibility criteria.
- Thorough physical examination and general examination and relevant investigations were done in all patients.
- Conventional anti acne therapy used in the study: All 100 patients (both group A & B) were given conventional anti acne therapy. One of the following anti acne regimens based on random allocation was used in all patients:
 1. Regimen 1: Systemic retinoid (Isotretinoin) + Topical Clindamycin gel + Benzoyl Peroxide gel (2.5%)
 2. Regimen 2: Systemic Doxycycline + Topical Clindamycin gel + Topical Adapalene gel (0.1%)

Procedure of glycolic acid peeling:

1. Pre-Procedure Priming:

of skin was done for 1-3 weeks with hydroquinone, or topical retinoids, before the peeling day, as it increases peel efficacy and reduce the risk of post inflammatory hyperpigmentation.^[6]

On the day of procedure: Patients were asked to avoid make up and other topical applications. Patients were advised not to shave on the day of procedure.

2. Procedure of Glycolic acid peeling:

- During each sitting, the area of interest was cleaned with tap water and patted dry with clean towel.
- After cleaning the skin, Glycolic acid (35%) was applied using cotton buds or a brush in a sequential manner starting from the forehead to the left cheek, chin, right cheek to cover the entire face.
- Care was taken to protect the eyes and the corners of the nose and lips.
- The peel was then neutralized with sodium bicarbonate within 2 minutes, or when uniform erythema is seen. If frosting was observed in any particular area before the set time or end-point, the peel was immediately neutralised.

3. Post Peeling Care:

- The patient was advised to use moisturizer, sunscreen regularly for atleast 1 week.
- They were advised to avoid waxing, bleaching post procedure.
- Make up was allowed to be used after a period of 48 hours.

Follow up and assessment:

- Disease activity was monitored during the study period through follow ups at 3, 6, 9, 12 and 15 weeks on the parameters of no. of acne lesions, appearance of new lesions, grade of acne (by Investigator global assessment) and appearance of dyspigmentation
- Adverse effects if any were enquired in all the patients and noted.
- At the end of 5th follow up (15weeks) final improvement of patient was noted.
- Pre and Post treatment photographs of all patients were compared at the end of the study.

OBSERVATIONS AND RESULT:

Table 1: Age Distribution of study population:

	GROUP A	GROUP B
Age Range	18 – 29 years	18 – 30 years
Mean Age	21.32 years	21.7 years
Standard deviation (SD)	2.599	2.69
p - value	0.474 (not significant)	

Table 2 - Gender wise distribution in study population:

Gender	Group A	Group B	Total
Female	26	29	55
	52%	58%	55%
Male	24	21	45
	48%	42%	45%
Total	50	50	100
	100%	100%	100%
Pearson chi square	0.364α		
p-value	0.546 (not significant)		

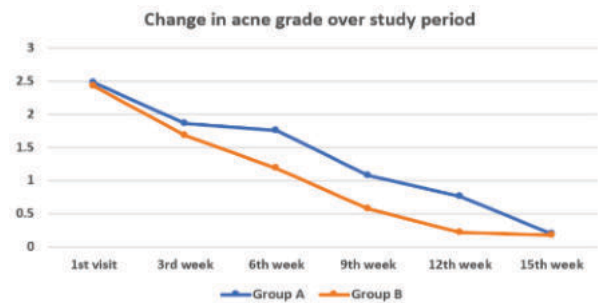
Table 3 Initial assessment of acne lesions (1st visit):

	Acne no.		Acne grading	
	A	B	A	B
Group				
N	50	50	50	50
Mean	13.62	13	2.48	2.42
Std. deviation	3.504	3.534	0.505	0.499
p - value	0.381Not significant		0.551Not significant	

Table 4: Conventional Anti acne management given in patients:

	Regimen 1 (Isotretinoin + Topical Clindamycin + BPO gel)	Regimen 2 (Doxycycline + Topical Clindamycin + Adapalene gel)
Group A	33	17
Group B	30	20

p - value = 0.53 (not significant difference)



Graph 1: Change in acne grade over study period

In our study

- we found that acne grade improved faster in Group B patients (patients undergoing GLA peel).
- No significant difference was observed in response at 3 weeks but by 6th week group B patients showed significantly better response than group A patients. Thus, improvement was seen after minimum 2 rounds of GLA peeling, done at 3 weeks interval.
- Similarly, in a study done by Kim et al^[7] after the 1st treatment session no significant improvement in acne lesions was seen while after 3 sessions 50% improvement was seen and in a study by Kessler et al^[8] improvement in acne lesions were seen after 2 peels done at 2 weeks interval.

In our study,

- although Group B patients showed faster improvement in clearance of acne lesions but by the end of the study i.e., at 15 weeks both the group had equal response rate. This means that glycolic acid peeling can be used as an adjuvant with conventional antiacne management to

fasten the resolution of acne lesions but final response after full course of treatment is similar in both groups.

- Similarly, in a study done by Zayed et al⁽⁹⁾ to compare effects of
- sequential peeling (Glycolic acid and salicylic acid) alone (group A),
- sequential peeling with oral doxycycline (Group B)
- Doxycycline alone (Group C)
- all groups showed statistically significant decrease in acne grading and lesion count but no significant difference between the 3 groups

CONCLUSION:

- GLA peeling is an effective modality for treatment of acne vulgaris which should be added to our anti acne regimen along with the conventional treatment to fasten the response and decrease the complication arising due to prolonged inflammation i.e. scarring.

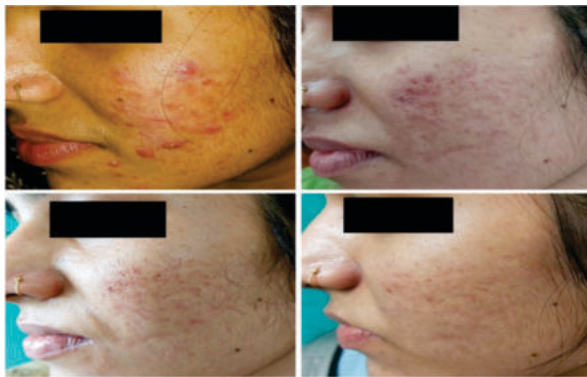
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Clinical Photographs:



Patient 1



Patient 2



Patient 3