

Effectiveness of Triple Combination Cream and 30% Glycolic Acid Peel Versus Triple Combination Cream alone in the Treating Epidermal Melasma

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ABSTRACT

Objective: To evaluate the effectiveness of 30% glycolic acid peel and triple combination cream (Hydroquinone, Tretinoin and Topical Steroids) versus triple combination cream in the treatment/therapy of epidermal melasma.

Study Design: Randomized controlled trial study.

Place and Duration of Study: This study was conducted at the Dermatology Unit Lady Reading Hospital Peshawar from March 2016 to September 2016.

Materials and Methods: Total 178 patients having epidermal melasma were allocated at random into two equivalent groups by lottery process. Melasma was diagnosed with woods lamp examination and clinically and also having MASI score >12. Group A patients were treated with 30% glycolic acid peel and triple combination cream. Group B Patients were treated with triple combination cream alone. Results were assessed after 4 weeks by calculating the MASI score. Chi square test of statistics was employed to compare the efficacy in two groups and p-value < 0.05 was considered for significance of parameters.

Results: Group A had 20 (22.47%) male and 69 (77.53%) female patients. On the other hand, group B had 15 (16.85%) males and 74 (83.15%) female patients. Group A had 34 (38.32%) patients of <26 years, 47 (52.81%) of 26-40 years and 8 (8.98%) above 40 years. Group B had 23 (25.85%) patients of less than 26 years, 53 (53.56%) of 26-40 years and 13 (14.61%) above 40 years. In group A, 84 (94.38%) patients and in group B 71 (79.77%) patients showed significant improvement.

Conclusion: This study shows that treatment with 30% Glycolic acid peel and Triple combination cream is more efficient than triple combination cream therapy alone.

Key Words: Triple Combination Cream, Glycolic Acid Peel, Epidermal Melasma

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INTRODUCTION

Melasma is pigmentary disorder of face observed in people exposed to extreme UV radiations. It mostly affects females.^{1,2} The literal source of melasma is unidentified, however oral contraceptives anti-epileptic and phototoxic drugs, pregnancy, genetic factors, cosmetics can cause it.^{3,4}

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There are four kinds of melasma. Epidermal, Mixed, Dermal, and intermediate type.^{5,6} Other treatment options for melasma are kojic acid, azelaic acid, hydroquinone, trichloroacetic acids, tretinoin, resorcin, corticosteroids, flavonoid extract, glycolic acid, IPL and chemical peels.^{7,8,9}

Topical therapy/treatment with a triple combination agent containing tretinoin 0.05% hydroquinone 4 percent and fluocinolone acetonides 0.01% has proved to be effectual for examining melasma patients and followed by glycolic acid peel.^{10,11} Hydroquinone, a tyrosinase inhibitor is a rate restraining enzyme in production of melanin. Topical tretinoin inhibit tyrosinase transcription, stimulates keratinocytes turnover, put a stop to hydroquinone oxidation, its better penetration and decreases melanosome transfer. Topical steroid inhibit production of melanin by lessening cellular metabolism. Glycolic acid peel along with peeling off the pigment also increases the depth of penetration of topical therapy.^{10,11}

The underlying principle of this study is to compare/evaluate the usefulness of Triple combination cream and Glycolic acid peel versus Triple combination cream in treating melasma.

MATERIALS AND METHODS

The trial conducted was Randomized controlled in Dermatology unit, Lady Reading Hospital (LRH) Peshawar from 24 March, 2016 to 24 Sept, 2016. Sample size was 89 in all groups using 92.5% effectiveness of 30% triple combination cream and glycolic acid peel, 77.5% of triple combination cream alone, confidence level of 95% and 90 percent power of test calculated using WHO formula of Goldberg's equation. Non probability consecutive sampling was taken as a sampling technique. Patients with melasma having Fitzpatrick skin type (I-VI), MASI score of ≥ 12 and age 18-45 years were included while Patients who got treatment of melasma in last 3 months, pregnant or lactating mothers, on hormonal or steroid treatment or have received previous radiotherapy were excluded from the study. Clinically epidermal melasma was identified and with wood's lamp examination. This particular study has been carried out after approval from the hospital ethical and research committee and written consent was taken. The benefits and purpose of the work were elaborated to the patients. Each and every patient was subjected to comprehensive history and complete clinical examinations. After this, they were divided randomly into two groups through lottery technique. Group A patients were subjected to 30% glycolic acid peel once/two weeks and cream having triple combination used daily at night while group B patients were advised triple combination cream alone once at night. Sun block was advised to all patients during treatment period. Efficacy was measured through MASI scoring with regard to improvement/refinement in least score of 10 in MASI at four weeks follow up.

RESULTS

Gender wise division confirmed that in group A, 20(22.47%) were males and 69(77.53%) were females while group B consisted of 15(16.85%) males and 74(83.15%) females. Gender wise distribution among the groups appeared insignificant with p-value of more than 0.05 as shown in table 1. Average age was 28.56 ± 8.78 years with the age range of 18 to 45 years. Group A had 34(38.32%) patients of <26 years, 47(52.81%) of 26 to 40 years and 8(8.98%) patients having age >40 years. Likewise, Group B comprised of 23(25.85%) patients of <26 years, 53(53.56%) patients of 26 to 40 years and 13(14.61%) patients were above 40 years. Age wise distribution among the groups was insignificant as shown in table 2. In group A, 84(94.38%) patients showed efficacy while in group B 71(79.77%) patients showed improvement. Efficacy

wise distribution appeared significant having p-value 0.001 as appeared in Table 3.

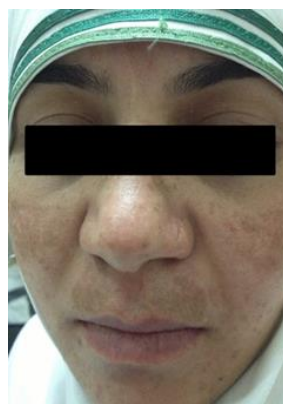
This signifies that 30% glycolic acid peel and triple combination treatment had greater efficiency than the triple combination solely in the therapy of epidermal melasma.



Group A: Before



After 4 week



Group B: Before



After 4 week

Table No.1: Gender wise assessment/comparison of the groups

	Male		Female		P value
	Number	Frequency	Number	Frequency	
Group A	20	22.47%	69	77.52%	0.217
Total= 89					
Group B	15	16.8%	74	83.15%	
Total= 89					
Total	35	19.7%	143	80.3%	

Table No. 2: Distribution in the groups in terms of age

Age range	Male		Female		Total		P value
	Number	Frequency	Number	Frequency	Number	Frequency	
< 26 years	34	38.23%	23	25.85%	57	32.03%	0.743
26-40 years	47	52.81%	53	59.56%	100	56.18%	
> 40 years	8	8.98%	13	14.61%	21	11.8%	

Table No.3: Distribution of patients in the groups in terms of efficacy

Efficacy	Yes		No		P value
	Number	Frequency	Number	Frequency	
Group A Total= 89	84	94.38%	5	5.6%	0.001
Group B Total=89	71	79.77%	18	20.23%	
Total Total=178	155	87.07%	23	12.92%	

DISCUSSION

Melasma is a widespread pigmentary disorder and there is no single satisfactory treatment proven significant so far. Results of my study have shown that combination of 30% Glycolic acid peel & Triple Combination Cream is the most useful treatment for melasma. Chaudhary et al and Dayal et al exhibited comparable outcome and showed that sequential treatment along with glycolic acid peel and trichloroacetic acid more useful than sequential treatment with Triple combination cream alone in patients with melasma.^{12,13,14,15,16, 17}

Ghulam et al and Mujtaba et al also proved that glycolic acid peel plus triple combination is more efficacious as compared to triple combination alone in melasma.¹⁸ Study conducted by Chan in 9 centers (Hong Kong, Korea, Singapore and the Philippines) on 260 South East Asian applicants also showed comparable results with our study.¹⁹

In our study, mean age of 28.56 years, which is comparable with the research of Soliman et al and Silonie et al that exhibited mean age of 34.27 ± 5.8 and 27.5 years respectively.^{21, 20} In our study melasma was common in females (80.3%) comparable to the Bari et al showing male to female ratio of 1:3.²²

CONCLUSION

The study shows that treatment with 30% Glycolic acid peel & Triple combination cream is useful than triple combination cream therapy alone in the medication of epidermal melasma.

Author's Contribution:

Concept & Design of Study: Kashif Kamal
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Final Approval of version:

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Conflict of Interest: The study has no conflict of interest to declare by any author.

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