EFFICACY OF 40% GLYCOLIC ACID PEEL AND TOPICAL VITAMIN C CREAM VERSUS TRIPLE COMBINATION CREAM IN THE TREATMENT OF EPIDERMAL MELASMA

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ABSTRACT

Objective: To evaluate the efficacy of 40% glycolic acid peel and topical vitamin c cream versus triple combination cream *(*Hydroquinone 4%,Tretinoin and Topical Steroids) in the management of epidermal melasma.

Study Design: Randomized controlled trial study.

Place and Duration of Study: This study was conducted at the Dermatology department Hayatabad medical complex Peshawar from February 2021 to August 2021.

Material and Methods: Total 178 patients with epidermal melasma were allocated randomly into two groups by lottery method. Melasma was diagnosed with wood's lamp examination and having MASI score >10 were enrolled for the study.Group A patients were treated with 40% glycolic acid peel and topical vitamin c cream. Group B Patients were treated with triple combination cream alone. Results were assessed after 6 weeks by calculating the MASI score. Chi square test of statistics was employed to compare the efficacy in two groups. p value ≤ 0.05 was considered for significance of parameters.

Results: In both groups A and B, the number of enrolled female patients with melasma was more than males and mean age of presentation was between 28 to 42 years SD±. Group treated with 40%glycolic acid and topical vitamin c showed better results(94.38% vs 79.77%).

Conclusion: This study shows that treatment with 40% Glycolic acid peel and Topical vitamin c cream is more effective than triple combination cream therapy alone.

Keywords: Glycolic Acid Peel, Melasma,Triple Combination Cream

INTRODUCTION

Melasma is pigmentary disorder of skin of face observed mostly in females.[1] The etiology of melasma include nutritional deficiencies, contraceptives, anti-epileptic and phototoxic drugs, pregnancy, genetic factors and sun exposure .[2,3,4] It has four types. Epidermal, Mixed, Dermal, and Intermediate type.[5,6,7] Treatment options for melasma are kojic acid, azelaic acid, hydroquinone, trichloroacetic acids, tretinoin, resorcin , IPL.[8,9,10]

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Topical treatment with a triple combination agent having tretinoin 0.05% hydroquinone 4 percent and fluocinoloneactonides 0.01% has proved effective for melasma patients. Hydroquinone, tyrosinase inhibitor, is a rate restraining enzyme in production of melanin. Topical tretinion inhibits tyrosinase transcription, stimulates keratinocytes turnover, puts a stop to hydroquinone oxidation and decreases melanosome transfer. Topical steroid inhibits production of melanin by lessening cellular metabolism. Glycolic acid peel along with peeling the pigment off also increases penetrating depth level of topical therapy.[11,12] Topical vitamin c inhibits melanin synthesis through down regulation of tyrosinase enzyme activity. Rationale of this study is to see the efficacy of this treatment(40%glycolic acid and topical vit c cream) in treatment of melasma which being a resistant disease is leading to distress and social anxiety in both genders. Many studies have been done on treatment of melasma in different populations around the globe but so far no local studies have been conducted on it in Pakistan and KPk.[13,14]

MATERIALS AND METHODS

Research question: Is 40% glycolic acid and topical vit c cream better than triple

combination cream in the treatment of melasma?

Hypothesis: 40% glycolic acid plus topical vit c cream is not better than triple combination cream in the treatment of melasma.

It was a Randomized controlled trial conducted in Dermatology unit, Hayatabad Medical complex Peshawar from 12 February, 2021 to 12 August, 2021. Sample size was 89 in both groups using 92.5% effectiveness of 40% glycolic acid peel and topical vitamin c cream, 77.5% of triple combination cream , confidence level of 95% and 90 percent power of test calculated using WHO formula of Goldberg's equation. Non probability consecutive sampling was used for data collection. Patients with melasma having fitzpatrick skin type (I-VI),MASI score of >10 and age 18-45 years were included. Patients who received treatment of melasma in last 2 months, pregnant or lactating mothers(retinoids are teratogenic), using any hormonal or steroid treatment (can mask the effect of our treatment)were excluded from the study. Clinically epidermal melasma was diagnosed by an experienced dermatologist with woods lamp examination.This study was done after seeking approval from the hospital ethical and research committee. Patients were counseled and consent was taken in written form. All patients were subjected to history and clinical evaluation and were placed randomly into two groups through lottery method. Group A patients used 40% glycolic acid peel once in three weeks and topical vitamin c cream daily at night while group B patients were advised triple combination cream daily once at night. Sun block was advised to all patients during treatment period. Efficacy was measured through improvement in MASI scoring at 8 weeks follow up.

RESULTS

Among enrolled patients females were more as compared to males (143 vs 35) Table 1. 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 years SD±8.78 years with the age range of 18 to 45 years. Age range in both groups was varying in between 28 to 42 years .Age wise distribution among the groups was insignificant as shown in table 2.Efficacy was more in group A as compared to group B, 94.38% vs 79.77%. This difference was statistically significant having p-value0.001 (Table 3).

TABLE 1: GENDER WISE COMPARISON OF THE GROUPS

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

TABLE 2: AGE WISE DISTRIBUTION IN THE GROUPS

Age range	**Male**		**Female**		**Total**		**P value**
	Number	**Frequency**	**Number**	**Frequency**	**Number**	**Frequency**	
< 28 years	34	38.23%	23	25.85%	57	32.03%	0.743
28-42 years	47	52.81%	53	59.56%	100	56.18%	
> 42 years	8	8.98%	13	14.61%	21	11.8%	

TABLE 3: EFFICACY WISE DISTRIBUTION OF PATIENTS

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

It is an acquired pigmentation disorder with challenges in treatment because of its refractory nature and high risk of recurrence.[9]There is no single rewarding treatment for melasma however there is an ongoing search for a treatment that can give acceptable results.

Our study shows that number of female patients with melasma were more than males, 4:1, which is comparable to the study done by bari et al and Douglas C Wu (Tab1). The reason for this finding is that hormonal disorders play major role in etiology of melasma in female population which explains why number of female patients presenting with melasma is more than males.[10,13]

Majority of our patients who presented with melasma were in the second to fourth decades of their lives. This finding is comparable with silonie sachdeva according to whom majority of their patients were in the second to fourth decades of their lives as well. The reason could be that this age range is exposed to active hormonal changes and more active involvement in physical and professional activities. Thus patients of these age groups are more exposed to stress and sun exposure leading to melasma in these patients.[14]

Results of present study have shown that combination of 40% Glycolic acid peel and vitamin c cream is more effective than triple combination creams in the treatment of melasma, p value 0.001. Chaudhary et al and Dayal et al showed comparable result that sequential application of glycolic acid peel is more effective than treatment with Triple combination cream alone in patients with melasma adding more value to peels in treatment of melasma.[15]

Conclusion

The study shows that treatment with 40% Glycolic acid peel and vitamin c cream is more efficacious than triple combination cream therapy alone in the treatment of epidermal melasma.

Recommendation

Multicentre study should be done in different hospitals to further validate our results.

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