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ORIGINAL RESEARCH

Glycolic acid peel and modified Kligman's regimen in Melasma patients

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ABSTRACT

Background: Brown or grayish-brown spots that appear on the face, especially on the cheeks, forehead, nose, and upper lip, are a common sign of melasma, a skin disorder. The present study was conducted to compare 35% glycolic acid peel versus modified Kligman's regimen in patients with Melasma.**Materials & Methods:** 50 patients with Melasma of both genders were selected. Random assignment was used to divide the patients into two groups of 25 each. For a total of twelve weeks, Group II underwent peels containing 35% glycolic acid once every four weeks, whereas Group I received topical modified Kligman's formula (MKF) daily.**Results:** Group I had 11 males and 14 females and group II had 10 males and 15 females. Common type was central in 12 and 11 and malar seen in 13 and 14 in group I and group II respectively. Disease duration was 1-2 years in 10 and 12, 2-3 years in 8 and 4 and >3 years in 7 and 9 patients in group I and group II respectively. The common precipitating factors were sun exposure in 11 and 7, cosmetics in 2 and 4, pregnancy in 9 and 10, drugs in 1 and 3, and idiopathic in 2 and 1 patient in group I and group II respectively. The difference was significant (P< 0.05). The pre-treatment mean MASI score in group I was 11.5 and in group II was 9.8 and post-treatment score was 3.7 in group I and 2.4 in group II. The difference was significant (P< 0.05).**Conclusion:** Glycolic acid peels and modified Kligman's recipe both worked well for melasma patients.

Keywords: Kligman's formula, glycolic acid,Melasma

INTRODUCTION

Brown or grayish-brown spots that appear on the face, especially on the cheeks, forehead, nose, and upper lip, are a common sign of melasma, a skin disorder. It is more common in women than in men and frequently manifests symmetrically.[1] Although the precise etiology of melasma is unknown, a number of factors, such as heredity, hormone changes, and sun exposure, are thought to have a role in its development.[2,3] Melanin, the pigment that gives skin its color, can be stimulated by the sun's ultraviolet (UV) radiation. Sun exposure often makes melasma worse.[4] Hormonal changes, such as those that take place during pregnancy (commonly referred to as the "mask of pregnancy") or while taking birth control pills, are often linked to melasma. Additionally, hormone replacement treatment (HRT) might be acontributing factor. There may be a genetic predisposition to melasma, as it often runs in families.[5]The present study was conducted to compare 35% glycolic acid peel versus modified Kligman's regimen in patients with Melasma.

MATERIALS & METHODS

The present study consisted of 50 patients with Melasma of both genders. All patients were informed regarding the study and their written consent was obtained.

Name, age, gender, and other details were noted. Random assignment was used to divide the patients into two groups of 25 each. For a total of twelve weeks, Group II underwent peels containing 35% glycolic acid once every four weeks, whereas Group I received topical modified Kligman's formula (MKF) daily. Parameters like the onset, progression, and duration of the disease, together with any associated systemic disorders, triggering factors, and family history, were documented. The overall MASI score was used to evaluate the response. 0.3 (D+H) forehead A + right malar 0.3 (D+H) A + left malar 0.3

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(D+H) A + chin 0.1 (D+H) A is the percentage area of the darkness, D is the darkness, and H is the homogeneity, all of which are graded from 0 to 4.Results were assessed statistically. P value less than 0.05 was considered significant.

RESULTS

Table I Distribution of patients

Groups	Group I	Group II
Method	35% glycolic acid	Kligman's formula (MKF)
M:F	11:14	10:15

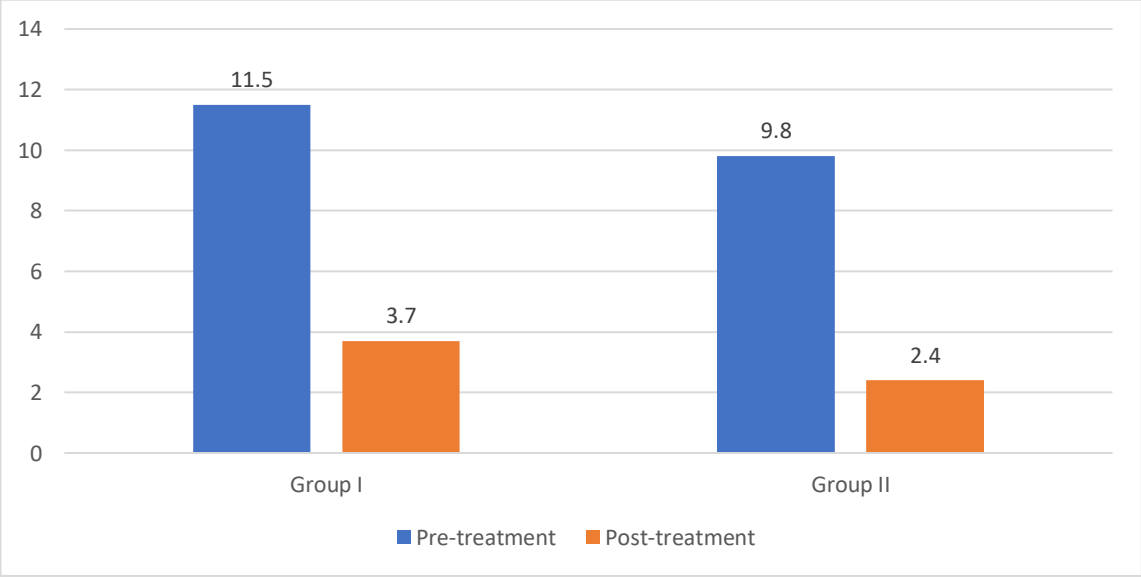
Table I shows that group I had 11 males and 14 females and group II had 10 males and 15 females.

Table II Comparison of parameters

Parameters	Variables	Group I	Group II	P value
Type of lesions	Central	12	11	0.74
	Malar	13	14	
duration of Disease	1-2 years	10	12	0.91
	2-3 years	8	4	
	>3 years	7	9	
Precipitating factors	Sun exposure	11	7	0.05
	Cosmetics	2	4	
	Pregnancy	9	10	
	Drugs	1	3	
	Idiopathic	2	1	

Table III shows that common type was central in 12 and 11 and malar seen in 13 and 14 in group I and group II respectively. Disease duration was 1-2 years in 10 and 12, 2-3 years in 8 and 4 and >3 years in 7 and 9patients in group Iand group II respectively. The common precipitating factors were sun exposure in 11 and 7, cosmetics in 2 and 4, pregnancy in 9 and 10, drugs in 1 and 3, and idiopathic in 2 and 1 patient in group Iand group II respectively. The difference was significant (P< 0.05).

Graph I Comparison of MASI



Graph I shows that the pre-treatmentmean MASI score in group I was 11.5 and in group II was 9.8 and post-treatment score was 3.7 in group I and 2.4 in group II. The difference was significant (P< 0.05).

DISCUSSION

Acquired hyperpigmentation condition melasma manifests as symmetrically distributed, light-to-dark brown, blotchy macules on body areas exposed to sunlight. Fitzpatrick is most common in skin types IV–VI, particularly in African American, Asian, and Hispanic ethnicities. The most obvious risk factors are sun exposure, genetic susceptibility, pregnancy, oral contraceptives, thyroid conditions, and medications such as antiepileptics.[6]Melanocytosis, or an increase in the number of melanocytes, and melanogenesis, or an excess of melanin produced, have been linked to excessive pigmentation. As a second line of treatment for melasma, chemical peels are a common procedure that may assist to improve the state of the epidermal layer.[7] The dermal component is handled by the peel's

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ability to phagocytose slow melanin. However, because deep chemical peeling can cause severe dyschromias and scarring for the dermal component of melasma, it is not recommended for skin types IV through VI. Hydroquinone is the bleaching agent that is most frequently given.[8] Retinoic acid facilitates pigment removal by increasing keratinocyte turnover and enhancing hydroquinone penetration, whereas corticosteroids reduce inflammation caused by both hydroquinone and retinoids. The first and most crucial prerequisite for single, dual, or triple combinations is topical therapy, which is the cornerstone of melasma treatment. The adjunctive treatment frequently includes additional therapies, which are second- or third-line methods.[9]The present study was conducted to compare 35% glycolic acid peel versus modified Kligman's regimen in patients with Melasma.

We found that group I had 11 males and 14 females and group II had 10 males and 15 females. Javaheri et al[10] in their study 25 nonpregnant female patients with a minimum melasma area and severity index (MASI) of 15 were recruited. After a detailed history and clinical examination under natural light and Wood's light, MASI was calculated and color photographs were taken of all patients. Patients were advised to carry out a prepeel program of daily application of topical sunscreens (sun protection factor-15, SPF-15) and 10% glycolic acid lotion at night for 2 weeks. Patients were then treated with 50% glycolic acid facial peel once per month for three consecutive months. At regular intervals and at the end of the follow-up period (3 months) after the last peel, the degree of improvement in pigmentation was assessed by remeasuring MASI. Side-effects, if any, were also recorded. Improvement in melasma (reduction in MASI) was observed in 91% of patients ($P < 0.01$). Patients with epidermal-type melasma demonstrated a better response to treatment than those with mixed-type melasma ($P < 0.05$).The prepeel program followed by 50% glycolic acid facial peel once per month for three consecutive months proved to be an effective treatment modality in Indian patients without any significant sideeffects.

We found that common type was central in 12 and 11 and malar seen in 13 and 14 in group I and group II respectively. Disease duration was 1-2 years in 10 and 12, 2-3 years in 8 and 4 and >3 years in 7 and 9 patients in group I and group II respectively. The common precipitating factors were sun exposure in 11 and 7, cosmetics in 2 and 4, pregnancy in 9 and 10, drugs in 1 and 3, and idiopathic in 2 and 1 patient in group I and group II respectively. Badabagni et al.[11] divided the 100 patients in a comparison research with Melasma into two groups of 50 each. One group was given topical modified Kligman's formula (MKF) daily for 12 weeks, whereas the other group got peels with 35% glycolic acid every four weeks. The MASI score was used to assess the reaction. 85% of patients treated with glycolic acid peels and 95% of individuals treated with MKF demonstrated good to very good response at the 12-week period. While the MKF group suffered cuneiform eruptions, many individuals in the glycolic acid group complained burning and redness.

We found that the pre-treatment mean MASI score in group I was 11.5 and in group II was 9.8 and post-treatment score was 3.7 in group I and 2.4 in group II. Kim et al.[12] found that biopsy specimens of lesional melasma skin expressed higher vascular endothelial growth factor in keratinocytes than the surrounding non-lesional skin. Three distinct facial patterns—mandibular, centrofacial, and malar—have historically been linked to melasma. Although arm and forearm melasma has been reported, it is less common and less distinct than facial melasma. Three histologic patterns—epidermal, dermal, and mixed—have been established for the histological classification of melasma based on the primary area of pigment accumulation.

The shortcoming of the study is small sample size.

CONCLUSION

Authors found that glycolic acid peels and modified Kligman's recipe both worked well for melasma patients.

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