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ORIGINAL ARTICLE

A comparative study of glycolic acid peel versus modified Kligman's regimen in Melasma patients

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ABSTRACT:

Background: Melasma is a common skin condition characterized by the development of brown or grayish-brown patches on the face, particularly on the cheeks, forehead, nose, and upper lip. The present study was conducted to compare 35% glycolic acid peel versus modified Kligman's regimen in patients with Melasma. **Materials & Methods:** 64 patients of Melasma were divided into 2 groups of 32 each. Group II received 35% glycolic acid peels once every four weeks for a total of twelve weeks, while group I received topical modified Kligman's formula (MKF) every day. The response was assessed by MASI score. **Results:** Group I had 12 males and 20 females and group II had 14 males and 18 females. The common type was central in 13 and 15 and malar seen in 19 and 17 in group I and group II respectively. The difference was significant (P< 0.05). Disease duration was 1-2 years in 11 and 15, 2-3 years in 14 and 10 and >3 years in 6 and 7 patients in group I and group II respectively. The common precipitating factors were sun exposure in 20 and 18, cosmetics in 3 and 4, pregnancy in 8 and 6, drugs in 3 and 2, and idiopathic in 1 and 2 patients in group Iand group II respectively. The difference was significant (P< 0.05). The pre-treatment mean MASI score in group I was 10.9 and in group II was 8.8 and the post-treatment score was 3.5 in group I and 2.1 in group II. The difference was significant (P< 0.05). **Conclusion:** Patients with melasma responded effectively to both modified Kligman's formula and glycolic acid peels.

Keywords: Melasma, glycolic acid, Kligman's formula

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INTRODUCTION

Melasma is a common skin condition characterized by the development of brown or grayish-brown patches on the face, particularly on the cheeks, forehead, nose, and upper lip. It often occurs symmetrically and is more prevalent in women than men.The exact cause of melasma is not well understood, but several factors are believed to contribute to its development, including sun exposure, hormonal changes, and genetics etc.[1]Ultraviolet (UV) rays from the sun can stimulate the production of melanin, the pigment responsible for skin color. Melasma often worsens with sun exposure.Melasma is frequently associated with hormonal changes, such as those occurring during pregnancy (often referred to as the "mask of pregnancy") or while taking birth control pills. Hormone replacement therapy (HRT) can also be a contributing factor.There may be a genetic predisposition to melasma, as it often runs in families.[2]

The treatment method is frequently multimodal. Before beginning therapeutic correction, it is crucial to provide patients with adequate counseling regarding the chronicity of their disease, the significance of photoprotection, and the role of hormones in disease persistence. This is because recurrences frequently limit the extent of improvement that can be achieved.[3] This is because psychological and social stress are associated with the disease. Therefore, even with the finest of treatments, melasma is difficult to treat. Glycolic acid, an α Hydroxy acid, is used in chemical peels to improve the appearance of skin by exfoliating the epidermis and then resurfacing it.[4] For the treatment of melasma, Kligman's mixture, which combines hydroquinone 5%, 0.1% retinoid, and 0.1% steroid in a cream base, has been in use for over 20 years.5. Subsequently, several changes were made; 4% hydroquinone, 0.05% retinoid, and 1% hydrocortisone acetate were among them.[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 64 patients with Melasma of both genders. All patients were informed regarding the study and their written consent was sorted. Ethical approval for the study was also obtained from the ethical review committee.

Data such as name, age, gender etc. was recorded. Two groups of 32 patients each were randomly assigned to the groups. Group II received 35% glycolic acid peels once every four weeks for a total of twelve weeks, while group I received topical modified Kligman's formula (MKF) every day. Records were kept on parameters such the beginning, course, and progression of the disease as well as any related systemic illnesses, triggering factors, and

family history. Response was assessed by MASI score as total MASI score: Forehead 0.3 (D+H) A + right malar 0.3 (D+H) A + left malar 0.3 (D+H) A + chin 0.1 (D+H) A. D is darkness graded from 0 to 4, H is homogeneity graded from 0 to 4, A is percentage area of the face affected graded from 0 to 6. 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	12:20	14:18

Table I shows that group I had 12 males and 20 females and group II had 14 males and 18 females.

Table II Type of lesions

Type	Group I	Group II	P value
Central	13	15	0.62
Malar	19	17	

Table II shows that the common type was central in 13 and 15 and malarseen in 19 and 17 in group Iand group II respectively.The difference was significant (P< 0.05).

Table III Comparison of parameters

Parameters	Variables	Group I	Group II	P value
Disease duration (years)	1-2	11	15	0.92
	2-3	14	10	
	>3	6	7	
Precipitating factors	Sun exposure	20	18	0.05
	Cosmetics	3	4	
	Pregnancy	8	6	
	Drugs	3	2	
	Idiopathic	1	2	

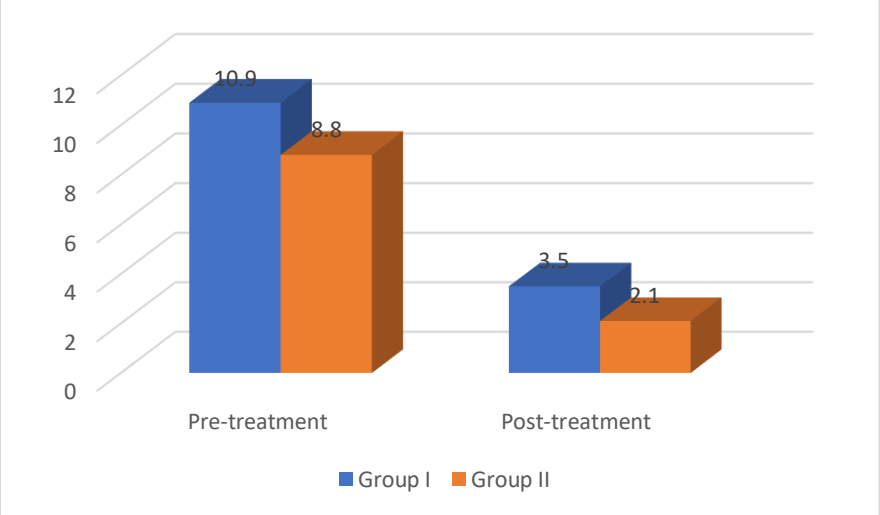
Table III shows that disease duration was 1-2 years in 11 and 15, 2-3 years in 14 and 10 and >3 years in 6 and 7 patients in group Iand group II respectively. The common precipitating factors were sun exposure in 20 and 18, cosmeticsin 3 and 4, pregnancy in 8 and 6, drugsin 3 and 2, and idiopathic in 1and 2 patients in group I and group II respectively. The difference was significant (P< 0.05).

Table IV Comparison of MASI

Parameters	Group I	Group II	P value
Pre-treatment	10.9	8.8	0.04
Post-treatment	3.5	2.1	0.05

Table IV, graph I shows that the pre-treatmentmean MASI score in group I was 10.9 and in group II was 8.8 and post-treatment score was 3.5 in group I and 2.1 in group II. The difference was significant (P< 0.05).

Graph I Comparison of MASI



DISCUSSION

Melasma is a disorder of acquired hyperpigmentation that appears as light-to-dark brown, blotchy, symmetrically distributed macules on sun-exposed body parts. The most prevalent skin types to have Fitzpatrick are IV–VI, especially in Asian, Hispanic, and African American communities.[6] Sun exposure, genetic predisposition, pregnancy, oral contraceptives, thyroid disorders, and drugs like antiepileptics are the most easily identifiable risk factors. Excessive pigmentation has been associated with melanocytosis, or an increase in melanocyte count, and melanogenesis, or an excess of melanin generated.Chemical peels are a popular treatment option that are used as a second line of treatment for melasma and may help improve the condition of the epidermal layer. The capacity of the peel to cause sluggish melanin to be phagocytosed handles the dermal component.[7] Deep chemical peeling is not advised for skin types IV through VI, though, since it can result in severe dyschromias and scarring for the dermal component of melasma. Spectrophotometry measurements of sequencing peels with a triple combination topically have demonstrated superior efficacy in moderate to severe melasma. The most often prescribed bleaching chemical is hydroquinone.[8] By speeding up keratinocyte turnover and improving hydroquinone penetration, retinoic acid promotes pigment elimination, while corticosteroid lessens inflammation brought on by both hydroquinone and retinoids. The cornerstone of melasma treatment is topical therapy, which is the first and most important requirement for single, dual, or triple combinations. Additional therapies often comprise the adjunctive protocol and are second or third-line approaches.[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 12 males and 20 females and group II had 14 males and 18 females. The common type was central in 13 and 15 and malar seen in 19 and 17 in group I and group II respectively. In a research by Sarkar et al[10], 40 Indian patients were split into two equal groups of 20 patients each. One group had treatment with Kligman's triple combination cream alone, while the other group received treatment with a combination of serial glycolic acid peels and triple combination cream. The MASI score significantly decreased in both groups between 0 and 12 weeks, according to the data.

We found that disease duration was 1-2 years in 11 and 15, 2-3 years in 14 and 10 and >3 years in 6 and 7 patients in group I and group II respectively. The common precipitating factors were sun exposure in 20 and 18, cosmetics in 3 and 4, pregnancy in 8 and 6, drugs in 3 and 2, and idiopathic in 1 and 2 patients in group Iand group II respectively. The pre-treatment mean MASI score in group I was 10.9 and in group II was 8.8 and the post-treatment score was 3.5 in group I and 2.1 in group II.In comparison to surrounding non-lesional skin, Kim et al[11] discovered that biopsy specimens of lesional melasma skin expressed more of the vascular endothelial growth factor in keratinocytes. Melasma has historically been associated with three different face patterns: mandibular, centrofacial, and malar. While there have been reports of arm and forearm melasma, this condition is less prevalent and less well-defined than facial melasma. Based on the major region of pigment accumulation, three histologic patterns—epidermal, dermal, and mixed—have been defined for the histological classification of melasma.

In a comparative study involving 100 cases of Melasma, Badabagni et al[12] split the patients into two groups of 50 each. For a period of 12 weeks, one group received topical modified Kligman's formula (MKF) every day, whereas the other group had peels with 35% glycolic acid once every four weeks. Reaction was evaluated using the MASI score. At the 12-week mark, 95% of patients treated with MKF and 85% of patients treated with glycolic acid peels showed good to very good response. Many patients in the glycolic acid group had burning and redness, whereas the MKF group experienced cuneiform eruptions.

CONCLUSION

Authors found that patients with melasma responded effectively to both modified Kligman's formula and glycolic acid peels.

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