Original Research Article

Glycolic acid peel versus modified Kligman's regimen in patients with Melasma

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Abstract

Background: Melasma is an acquired disorder of hyperpigmentation characterised by blotchy, light-to-dark brown macules distributed symmetrically on the sun-exposed parts of the body. The present study compared 35% glycolic acid peel versus modified Kligman's regimen in in patients with Melasma. **Materials & Methods:** 72 patients having Melasma of both genders were randomly divided into 2 groups of 36 each. Group I received topical modified Kligman's formula (MKF) daily and group II received 35% glycolic acid peels once in 4 weeks for 12 weeks. Response was assessed by MASI score. **Results:** Common type was malar seen in 25 and 27, central in 11 and 9 in group I and group II respectively. Precipitating factors were sun exposure in 18 and 14, pregnancy in 10 and 6, drugs in 5 and 7, cosmetics in 2 and 5 and idiopathic in 1and 4 group I and group II respectively. Disease duration (years) was <0.5 in 8 and 6, 0.5-1 in 12 and 14, 1-3 in 10 and 9 and >3 in 6 and 7 group I and group II respectively. Pre- treatment mean MASI score in group I was 10.5 and in group II was 8.7 and post- treatment score was 3.2 in group I and 2.6 in group II. The difference was significant (P< 0.05). **Conclusion:** Melasma patients were well managed with both glycolic acid peels and modified Kligman's formula.

Keywords: Kligman's formula, Melasma, glycolic acid peels.

Introduction

Melasma is an acquired disorder of hyperpigmentation characterised by blotchy, light-to-dark brown macules distributed symmetrically on the sun-exposed parts of the body. It is seen predominantly in Fitzpatrick skin types IV-VI, especially among Hispanics, African Americans, Africans and Asians[1]. The most commonly identifiable risk factors include ultraviolet radiation, genetic predisposition, pregnancy, oral contraceptives, thyroid disease and drugs like antiepileptics. The excessive pigmentation has been attributed to both melanocytosis (increased number of melanocytes) as well as melanogenesis (excess production of melanin)[2].

Treatment is often a multimodality approach. Due to the psychological and social stress attached to it, it is important to counsel the patients adequately about disease chronicity, the importance of photoprotection and role of hormones in disease persistence before embarking on therapeutic correction, as improvement of whatever degree is often limited by recurrences. Hence, melasma is a challenge to treat even by the best of interventions[3]. Topical therapies are the mainstay of treatment for melasma and form the primary mandatory step of single, dual, or triple combinations. Other interventions are often second- or third-line approach and constitute the adjunctive protocol[4].

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Chemical peeling with glycolic acid which is a α Hydroxy acid improves skin appearance by exfoliating part or entire epidermis and its subsequent resurfacing.

Kligman's formula is a combination of dexamethasone 0.1% (steroid), 0.1 % retinoid and hydroquinone 5% in a cream base has been in use for more than 2 decades for the treatment of melasma[5]. Later several modifications done and one among them includes 4% hydroquinone, 0.05% retinoid and 1% hydrocortisone acetate[6]. The present study compared 35% glycolic acid peel versus modified Kligman's regimen in patients with Melasma.

Materials & Methods

The present study comprised of 72 patients having Melasma of both genders. They were made a
ware of the study and their written consent was sorted.

Demographic data was recorded. Patients were randomly divided into 2 groups of 36 each. Group I received topical modified Kligman's formula (MKF) daily and group II received 35% glycolic acid peels once in 4 weeks for 12 weeks. Parameters such as onset, disease duration, progression, triggering factors, other associated systemic illness, family history, past treatment history were recorded. 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. Records were analysed using appropriate test with level of significance below 0.05.

Results

Table 1:Comparison of patient characteristics

Variables	Parameters	Group I	Group II	P value
Type	Malar	25	27	0.05
	Central	11	9	
Precipitating factors	Sun exposure	18	14	0.04
	Pregnancy	10	6	
	Drugs	5	7	
	Cosmetics	2	5	
	Idiopathic	1	4	
Disease duration (years)	<0.5	8	6	0.09
	0.5-1	12	14	
	1-3	10	9	
	>3	6	7	

Table 1, Fig. 1 shows that common type was malar seen in 25 and 27, central in 11 and 9 in group I and group II respectively. Precipitating factors were sun exposure in 18 and 14, pregnancy in 10 and 6, drugs in 5 and 7, cosmetics in 2 and 5 and idiopathic in 1 and 4 group I and group II respectively. Disease duration (years) was <0.5 in 8 and 6, 0.5-1 in 12 and 14, 1-3 in 10 and 9 and >3 in 6 and 7 group I and group II respectively. The difference was significant (P< 0.05).

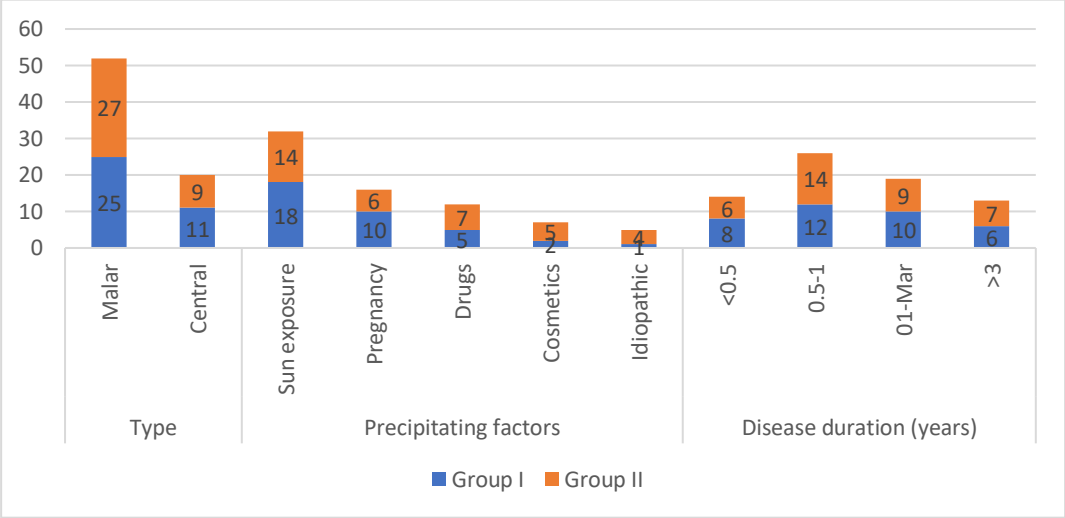

Fig 1:Comparison of patient characteristics

Table 2:Assessment of MASI in both groups

Parameters	Group I	Group II	P value
Pre- treatment	10.5	8.7	0.05
Post- treatment	3.2	2.6	0.04

Table 2, Fig. 2 shows that pre- treatment mean MASI score in group I was 10.5 and in group II was 8.7 and post- treatment score was 3.2 in group I and 2.6 in group II. The difference was significant (P< 0.05).

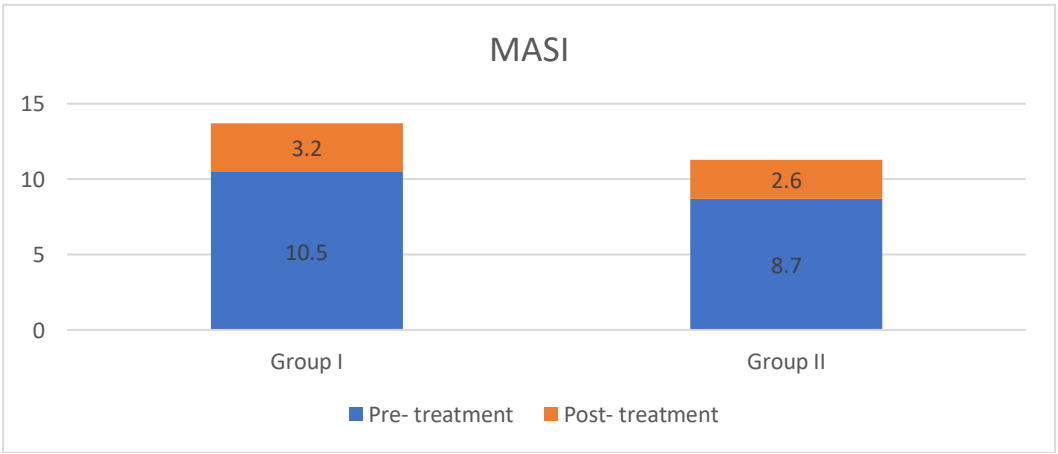

Fig 2: Assessment of MASI in both groups

Discussion

Chemical peels are a well-known modality of treatment and forms the second-line of management in melasma and may be helpful in improvement of its epidermal component[7]. The dermal component is handled by the ability of peel to induce phagocytosis of stagnant melanin[8]. However deep chemical peeling for a dermal component of melasma is not recommended in skin types IV to VI since it can lead to scarring and severe dyschromias. Sequencing peels with a triple combination topically have shown a better efficacy in moderate to severe melasma when measured by spectrometry[9]. Hydroquinone is most commonly prescribed bleaching agent. Retinoic facilitates pigment removal by accelerating keratinocyte turn over and enhancing hydroquinone penetration whereas corticosteroid reduces inflammation caused by both hydroquinone and retinoid[10]. The present study compared 35% glycolic acid peel versus modified Kligman's regimen in patients with Melasma.

In present study, common type was malar seen in 25 and 27, central in 11 and 9 in group I and group II respectively. Precipitating factors were sun exposure in 18 and 14, pregnancy in 10 and 6, drugs in 5 and 7, cosmetics in 2 and 5 and idiopathic in 1 and 4 group I and group II respectively. Disease duration (years) was <0.5 in 8 and 6, 0.5-1 in 12 and 14, 1-3 in 10 and 9 and >3 in 6 and 7 group I and group II respectively. Badabagni et al[11] in their comparative study done on 100 cases of Melasma, divided them into two groups with 50 patients each. One group received topical modified Kligman's formula (MKF) daily and the other group received 35% glycolic acid peels once in 4 weeks for 12 weeks. Response was assessed by MASI score. At the end of 12 weeks good to very good response was seen i.e. 95% on MKF treated patients where as 85% on glycolic acid peel patients. Burning sensation and redness was observed in many patients in glycolic acid group whereas cuneiform eruptions in MKF group.

We observed that pre- treatment mean MASI score in group I was 10.5 and in group II was 8.7 and post- treatment score was 3.2 in group I and 2.6 in group II. Kim et al[12] have found that biopsy specimens of lesional melasma skin had greater expression of the vascular endothelial growth factor in keratinocytes compared to nearby non-lesional skin. Three distinct facial patterns have been traditionally identified for melasma: Malar, centrofacial and mandibular. Although melasma of the arms and forearms has also been described, the entity is relatively uncommon and less characterised than facial melasma. Regarding the histological classification of melasma, three histologic patterns have been identified based on the primary location of pigment accumulation: Epidermal, dermal and mixed.

Basil et al[13] compared the therapeutic efficacy of 35% glycolic peel and triple combination cream in the treatment of melasma in 60 diagnosed cases which were randomly enrolled equally to two groups P and Q. Group P patients given serial 35% Glycolic acid peel and group Q patients given Triple combination cream to be applied topically once at night daily. Followed up on 4th, 8th and 12th week. At each visit clinical response to treatment was calculated using MASI score. At 4th, 8th and 12th week post treatment evaluation, Triple combination cream had an overall superiority to serial 35% glycolic acid peel as a topical hypopigmenting agent. The results of the study show that Triple combination cream is a better hypopigmenting agent with rapid rate of clinical improvement when compared to 35% glycolic acid peel.

Conflict of Interest: Nil
Source of support: Nil

Sarkar et al[14] conducted a study on 40 Indian patients who were divided into two equal groups of 20 each where one of was treated with a combination of serial Glycolic acid peels combined with Triple combination cream and a second group treated with only Kligman's triple combination cream. The results showed a significant decrease in the MASI score from 0 to 12 weeks in both groups.

Conclusion

Authors found that melasma patients were well managed with both glycolic acid peels and modified Kligman's formula.

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