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A COMPARATIVE STUDY OF 35% GLYCOLIC ACID VERSUS 50% SALICYLIC ACID PEEL IN MELASMA IN A TERTIARY HEALTH CARE CENTRE

Dermatology

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ABSTRACT

This study compares the efficacy of 35% Glycolic acid versus 50% Salicylic acid peel in the treatment of melasma through a prospective , comparative study involving 60 diagnosed cases of melasma attending OPD in tertiary care centre . Participants were randomly assigned to either Glycolic acid or Salicyclic acid group and were evaluated for 12 weeks using MASI (Melasma area severity index). Statistical analysis showed that while both treatments significantly reduced MASI scores , Glycolic acid group had slightly better outcome. Adverse reactions included erythema, burning/stinging , hyperpigmentation and post peel cracking . Observed adverse reactions were minimal , transient and tolerable .

KEYWORDS

Melasma, MASI score, Glycolic acid, Salicylic acid

INTRODUCTION:

Melasma is a dysfunction in human melanogenesis, leading to the development of localized, persistent hypermelanosis on the skin. It typically appears symmetrically on sun-exposed areas of the body, with women of reproductive age being particularly affected .[1]

Melasma, previously known as chloasma, is an acquired pigmentation disorder primarily affecting the face. It is more common in females and individuals with darker skin tones and is largely attributed to ultraviolet (UV) exposure and hormonal influences. Clinically, melasma presents as symmetric reticulated hypermelanosis in three main facial patterns: centrofacial, malar, and mandibular . The centrofacial pattern, affecting forehead, nose, and upper lip, is the most common, observed in 50-80% of cases, while philtrum, cheeks and chin are typically spared .[2,3]

The prevalence of melasma varies widely, ranging from 1 to 50%, as calculations are often specific to certain ethnic populations within geographic regions. Histologically, melasma may exhibit increased pigmentation in the epidermis and/or dermis, enlarged melanocytes, elevated levels of melanosomes, solar elastosis, dermal blood vessel proliferation, and occasional perivascular lymphohistiocytic infiltrates.

Various treatment options, including topical, oral, and procedural therapies, have been effective in managing melasma . Managing melasma is complex and necessitates a long-term treatment strategy. Alongside avoiding exacerbating factors like oral medications and UV exposure, topical therapy remains the cornerstone of treatment. There are numerous topical treatment options available, with hydroquinone (HQ) being the most frequently prescribed agent.

Chemical peeling is a procedure, where a chemical agent of a defined strength is applied to the skin, which causes a controlled desquamation of the layers of the skin that is followed by regeneration and remodelling, with improvement in the texture and surface abnormalities. The objective of chemical peeling is to cause destruction at the required depth, followed by remodelling without scarring .[4] Salicylic acid and glycolic acid are some of the superficial agents that are reported to be safe and effective in treating melasma and post- inflammatory hyperpigmentation in skin .

OBJECTIVES:

1. To study the clinical and epidemiological features of melasma among patients attending Navodaya medical college Hospital and Research centre, Raichur.

2. A comparative study of 35% glycolic acid peel versus 50% salicylic acid peel in melasma.

MATERIALS AND METHODS:

A Single centric, Prospective, comparative study was conducted on 60 clinically diagnosed cases of melasma attending Out Patient Department of Department of Dermatology in Navodaya medical college Hospital and Research Centre Raichur who were willing to participate in the study from July-2022 to December-2023.

Patients age, sex, occupation and other data was collected. A detailed history was taken. MASI score was calculated before start , during and at the end of study period.

Two groups were created and each group is assigned with 30 people randomly.

One group was treated with 35% Glycolic acid and the other group with 50% Salicylic acid . Patients were followed up for 12 weeks with every 2 weekly visit .

Inclusion Criteria :

1. Melasma patients.
2. Patients willing to use sunscreen and sun-protection.
3. Patients willing to participate in the study.

Exclusion Criteria:

1. Pregnancy and lactation.
2. Patients with systemic illness.
3. Active infection on the face.

Ethical Clearance :

Prior to the commencement of the study, ethical clearance was obtained from Ethics and Research committee.

RESULTS:

Baseline MASI score of participants from Glycolic acid group was 20.12 ± 2.56 and that of Salicylic acid group was 14.62 ± 1.96. When we compared the baseline MASI score between two groups, the difference was found to be statistically significant ($p < 0.05$).

The Mean MASI score for Glycolic acid group was 20.12 ± 2.56 at baseline, 16.83 ± 1.81 at 2 weeks, 14.18 ± 1.77 at 4 weeks, 11.71 ± 2.25 at 6 weeks was, 9.95 ± 2.50 at 8 weeks, 8.74 ± 2.35 at 10 weeks and 7.03 ± 2.58 at 12 weeks. When we compared the baseline MASI score at different time intervals, the difference was found to be statistically significant ($p<0.001$).

Mean MASI score for Salicylic acid was 14.62 ± 1.96 at baseline, 13.66 ± 1.95 at 2 weeks, 12.67 ± 2.02 at 4 weeks, 11.97 ± 1.98 at 6 weeks was, 10.79 ± 2.16 at 8 weeks, 9.94 ± 2.16 at 10 weeks and 9.35 ± 2.17 at 12 weeks. When we compared the baseline MASI score at different time intervals, the difference was found to be statistically significant ($p<0.001$).

Complications were transient , tolerable and minimal.

DISCUSSION:

Melasma is more common in women of child-bearing age,[5] although men also suffer from the condition and account for 10% of the cases [6]. Melasma affects all races, but is observed more frequently among individuals with skin type IV–VI, especially in women of Hispanic, Caribbean, and Asian origin, who live in areas of intense ultraviolet

radiation . There are three clinical patterns – centrofacial, malar, and mandibular – depending upon the area of localization. Chemical peeling aims at production of controlled chemical burns of epidermis and/or dermis, resulting in exfoliation and subsequent resurfacing of the epidermis and remodelling of collagen and elastic fibers with deposition of glycosaminoglycans in dermis. The exfoliative effect of chemical peels stimulates new epidermal growth and collagen with more evenly distributed melanin. The presence of very few studies evaluating chemical peels is probably due to the fact that melasma is more prevalent in darker complexioned individuals in whom there is a higher tendency for pigmentary changes to develop and thus the reluctance to perform these procedures.

In this study, Salicylic acid peels proved as effective as Glycolic acid in reducing MASI scores, being well-tolerated and preferred by patients. Glycolic acid peels exhibited better sustained efficacy and fewer side effects than salicylic acid, likely due to the greater hydrophilicity & the smallest molecular weight which easily penetrates the skin & has diverse effects.

Table 1 . Age Distribution Of Study Population.

Age group (Years)	Glycolic Acid		Salicylic Acid	
	Frequency	Percentage	Frequency	Percentage
18-30	5	16.67	6	20.00
31-40	8	26.67	10	33.33
41-50	9	30.00	9	30.00
51-60	6	20.00	4	13.33
61-70	2	6.67	1	3.33
Total	30	100.00	30	100.00

Table 2 : Gender Distribution Of Study Population

Gender	Glycolic Acid		Salicylic Acid	
	Frequency	Percentage	Frequency	Percentage
Male	15	50	13	43.3
Female	15	50	17	56.7
Total	30	100	30	100

Table 3 : Comparison Of MASI Scores In Study Population

MASI	Group	N	Mean	Std. Deviation
Baseline MASI	Glycolic Acid	30	20.12	2.56
	Salicylic Acid	30	14.62	1.96
at 2 Weeks	Glycolic Acid	30	16.83	1.81
	Salicylic Acid	30	13.66	1.95
at 4 Weeks	Glycolic Acid	30	14.18	1.77
	Salicylic Acid	30	12.67	2.02
at 6 Weeks	Glycolic Acid	30	11.71	2.25
	Salicylic Acid	30	11.76	1.98
at 8 Weeks	Glycolic Acid	30	9.95	2.50
	Salicylic Acid	30	10.79	2.16
at 10 Weeks	Glycolic Acid	30	8.74	2.35
	Salicylic Acid	30	9.94	2.16
at 12 Weeks	Glycolic Acid	30	7.03	2.58
	Salicylic Acid	30	9.35	2.17

Figure 1 : Pre and post images following 35% Glycolic acid peel (12 weeks)

Figure 2: Pre and post images following 50% Salicylic acid peel (12 weeks)

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