



CLINICAL EFFICACY AND SAFETY OF 20% SALICYLIC ACID PEEL IN PATIENTS OF MELASMA

Dr Anup Kumar Dubey	MBBS Department of Dermatology, Venereology & Leprology, Mayo Institute of Medical Sciences Ayodhya Road, Gram Gadia, Uttar Pradesh, India 225001
Dr K. K. Singh	MD Department of Dermatology, Venereology & Leprology, Mayo Institute of Medical Sciences Ayodhya Road, Gram Gadia, Uttar Pradesh, India 225001
Anurag Verma	MD Department of Dermatology, Venereology & Leprology, Mayo Institute of Medical Sciences Ayodhya Road, Gram Gadia, Uttar Pradesh, India 225001
Suyash Singh Tomar	MBBS Department of Dermatology, Venereology & Leprology, Mayo Institute of Medical Sciences Ayodhya Road, Gram Gadia, Uttar Pradesh, India 225001
Alam Afroz*	MD Department of Dermatology, Venereology & Leprology, Mayo Institute of Medical Sciences Ayodhya Road, Gram Gadia, Uttar Pradesh, India 225001 *Corresponding Author

ABSTRACT **Background & Objectives** Melasma is a common dermatological disorder resulting in the hyperpigmentation of most commonly face. Approximately 90% of all cases are female. Chemical peeling is a procedure, where certain chemicals of a particular strength is applied to the skin surface to produce controlled destruction of portions of epidermis and/or dermis that results in improvement of the color, skin texture, and superficial wrinkles due to regeneration of the epidermis and dermis. Chemical peels are the second line treatment of choice for melasma.

KEYWORDS :

INTRODUCTION

Melasma a term derived from the Greek word 'melas' meaning black.¹ Melasma is an acquired symmetric hypermelanosis characterized by light-to-deep brown pigmentation over cheeks, forehead, upper lip, and nose.² The exact prevalence of melasma is unknown in most of the countries. Melasma is a very common cutaneous disorder, accounting for 0.25 to 4% of the patients seen in Dermatology Clinics in South East Asia, and is the most common pigment disorder among Indians. The disease affects all races, but there is a particular prominence among Hispanics and Asians. Although women are predominantly affected, men are not excluded from melasma, representing approximately 10% of the cases. It is rarely reported before puberty.¹ Melasma is dysfunction of this pigmentary system.³

Etiology of melasma is multifactorial.⁴ Genetic backgrounds, exposure to UV, and female sex hormones are implicated as the main causes of melasma. Melanocytes undoubtedly play a critical role in melasma development and/or aggravation. However, increasing lines of evidence suggest that paracrine factors from neighboring keratinocytes or fibroblasts play a role in the pathogenesis of melasma.⁵

Different therapeutic modalities, especially the gold standard hydroquinone have been used in the treatment of melasma. However, the disorder is difficult to treat, particularly in dark skinned individuals. The existing modalities which are used include hydroquinone, retinoic acid, kojic acid, azelaic acid, and peeling agents like glycolic acid, trichloroacetic acid, salicylic and lactic acid. Physical agents like lasers and dermabrasion have also been tried with limited success.⁶

Chemical peeling or chemical exfoliation is a procedure, where chemical agent of a defined strength is applied to the skin surface, to produce controlled destruction of the portion of epidermis and/or dermis which resultant improvement of skin texture, color, superficial wrinkles due to regeneration of epidermis and dermis by the migration of the uninvolved adjacent epithelium and adnexal structures.⁷ The objective of chemical peeling is to cause destruction at the required depth, followed by remodeling without scarring.⁸ Chemical peels are a well known modality of treatment and forms the secondline of management in melasma. The important category of peels being considered are AHA peels (e.g., GA, mandelic acid) and Beta Hydroxy acids (BHA) peels (e.g., salicylic acid (SA) and combination peels like

Jessner's) and Tretinoin peels. SA peels are useful in most cases of melasma.⁹

Salicylic acid is a beta-hydroxy acid. It is a hydroxyl derivative of benzoic acid and represents a carboxylic acid attached to an aromatic alcohol, phenol. Salicylic acid is the only member of the beta-hydroxy acid family, so named because the aromatic carboxylic acid has a hydroxyl group in the beta position. Salicylic acid is derived from willow bark, wintergreen leaves and sweet birch.¹³ Salicylic acid, being lipophilic acts as a keratolytic agent by dissolving the intercellular lipids, surrounding the keratinized epithelial cells. Due to its lipophilic nature, it preferentially acts on the sebaceous follicle, has excellent comedolytic activity and hence is useful for acne. It also has anti-inflammatory and antimicrobial properties.¹⁴

AIMS AND OBJECTIVES

To study the clinical efficacy and safety of 20% Salicylic acid peel in melasma.

MATERIAL AND METHODS SOURCE OF DATA

Patients of melasma attending the OPD of Dermatology, Venereology and Leprosy at Mayo Institute of Medical Sciences, Barabanki from December 2020 to June 2022. The patients were randomly selected. The study was approved by the ethical committee of the institution.

TYPE OF STUDY

Prospective interventional study

SAMPLE SIZE

66 consecutive patients

METHODOLOGY

All the patients presented with melasma were included in our study

The method of study consists of:

- Informed written consent was obtained from all the selected patients
- A structured pre-prepared case proforma was used to enter the patient details
- Details of duration, onset, use of cosmetics, systemic medication, history of occupation and duration of sun exposure were recorded.
- After a detailed history, clinical examination under natural light,

hand lens and Wood's light examination, melasma area and severity index was calculated and base line photographs were taken.

- Patients were selected by simple random method
- The procedure was done once 2 weeks & at the end of follow up period (3months) after the last peel, the degree of improvement in pigmentation was assessed by re-measuring MASI and post peel photographs. Side effects, if any were recorded.

INCLUSION CRITERIA

- Patients of either sex having melasma
- Patients willing for follow up

EXCLUSION CRITERIA

- Pregnancy and lactation.
- Patients on immunosuppressive therapy.
- Patients with systemic illness like uncontrolled diabetes, hypertension, mental disorders and malignancy.
- Active bacterial infections and viral infections.
- HIV & HBs Ag positive patients
- Open wounds on the area to be peeled.
- History of drug intake like isotretinoin, photosensitive drugs and oral contraceptives.
- History of tendency to keloid formation, abnormal scarring, atrophic skin
- Patients with unrealistic expectations and non-cooperative patients.

Chemical peeling procedure was divided in to three steps:

1. Prepeel: skin preparation and test peel.
2. Peel
3. Post peel

Pre peel program

Test peel:

1-1 1/2 inch circular or square area in post auricula region weeks prior to full face peel

To:

- Detect any adverse reaction
- Make the pt. familiar with the sequelae of the procedure
- This time was used to prime the skin before peeling.
- Patients were subjected to priming for 2 weeks with daily sunscreen (SPF 30) in the morning and tretinoin 0.025% at night.
- Priming speeds re-epithelialization & decreases wound healing time ,aids in better, uniform penetration and as skin lightening effect.

Actual peeling

Skin preparations before peeling

- The patients were asked to wash the face with soap and water.
- The patients lied down with head elevated to 45° with the eyes closed.
- The hair was pulled back with a hair band or cap.
- Using gauze pieces, the skin was cleaned with alcohol and degreased with acetone.

Procedure.

- The required strength of the peeling agent was poured into a bowl and neutralizing agents were kept ready.
- Sensitive areas like the inner canthus of the eyes and nasolabial folds were protected with vaseline.
- The peeling agent was then applied either with a brush or cotton applicator or gauze.
- The chemical is applied quickly as cosmetic units on the entire face,



Beginning from forehead àRight cheek àChinàLeft cheekà GlabellaàNose.

If required, the perioral, upper and lower lids were treated last. Feathering strokes were applied at the edges to blend with surrounding skin and prevent the demarcation lines.

- Salicylic acid 20% peel was used for all patients, it crystallized forming a pseudo-frost. Generally, 1-3 coats were applied to get an even frost. It was then washed with water after 3-5 minutes, or after burning sensation subsided.
- The skin was gently dried with gauze and the patient was asked to wash with water until burning subsided

Post peel care:

- The patients were asked to use mild soap.
- The patients were advised to use sun screens SPF (30) and moisturizers.
- The patients were asked to avoid peeling and scratching of the skin.
- If there was crusting; a topical antibacterial ointment was used to prevent bacterial infection. The procedure was done once 2 weeks total 4 times. At regular time intervals (every 2weeks) and at the end of follow up period (3months) after the last peel, the degree of improvement in pigmentation was assessed by re-measuring MASI and post peel photographs. Side effects, if any were recorded.

STATISTICAL ANALYSIS : Carried out using SPSS 23.0 version software.

RESULTS

Following results were drawn:

- Majority of the patients 21(31.8%) were in the age group of 30 to 34 years with female predominance 57 (86.4%) with female to male ratio of 6.3:1.
- In the present study the duration of disease was found to be 3-5 years in 38(57.6%). The average duration of disease was 2.95 years.
- Sun exposure was present as an exacerbating factor in 23(34.85%) cases .
- Melasma was seen in first degree relatives in 12 (18.2%) patients.
- Centrofacial type was seen in maximum number of patients, which constituted 38(57.57%) .
- The most common histological variant was epidermal type 33 (50%).
- The percentage improvement of the final score from that of baseline was 44.77%.
- At completion of 20 weeks, the response was graded: very good response in 3 (4.5%) patients, good response in 23 (34.9%), moderate response in 33 (50%) patients, mild response was seen in 7 (10.6%) patients.

ADVERSE EFFECTS :

Burning

In the present study burning was seen in 38 (57.6%) patients.

Erythema

Erythema was noted in 20 (30.3%) patients.

Desquamation

It was seen in 2 (3%) patients.

Pigmentation

It was seen in 2 (3%) patients.

CONCLUSION

- Melasma is a common disorder of hyperpigmentation affecting millions people worldwide, often difficult to treat. Salicylic acid peel is found to be effective.
- The complications like burning, erythema, postinflammatory hyperpigmentation and mild desquamation are noted ,which are minimal, transient and tolerable.
- 20% Salicylic acid peel is safe, effective and promising therapeutic agents for the treatment of Melasma.

So 20% Salicylic acid peel can be safely employed in the treatment of melasma with minimal side effects. It is also cost effective. Long term

follow up of the patients is necessary in order to know the relapse rates. It is consistently shown that 20% Salicylic Acid peel produced good results in Melasma.

Conflict of interest - Nil
Before



After



Before



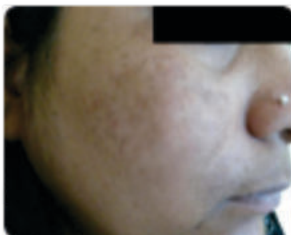
After



Before



After



Before



After



Acknowledgment: The patients in this manuscript have given written informed consent for publication of their case details.

REFERENCES

- 1) Achar A, Rathi SK. Melasma: A clinicoepidemiological study of 312 cases. *Indian J Dermatol.*2011;56:380-
- 2) Sarkar R, Garg V, Bansal S, Sethi S, Gupta C. Comparative Evaluation of Efficacy and Tolerability of Glycolic Acid, Salicylic Mandelic Acid, and Phytic Acid Combination Peels in Melasma. *Dermatol Surg.* 2016;42:384-91.
- 3) Gupta AK, Gover MD, Nouri K, Taylor S. The treatment of melasma. A review of clinical trial. *J Am Acad Dermatol.* 2006;55:1048-65.
- 4) Oluwatobi A, Ogbegie-Godec, Nada Elbuluk. Melasma: an Up-to-Date Comprehensive Review. *Dermatol Ther*2017; 7: 305-18.
- 5) Lee AY. An updated review of melasma pathogenesis. *Dermatologica Sinica*2014;32:233-9.
- 6) Sarkar R, Chugh S, Garg VK. Newer and upcoming therapies for melasma. *Indian J Dermatol, Venereol& Leprol* 2012;78:417-28.
- 7) Kohli M, Thakkar C. Chemical Peeling and Microdermabrasion. In: Sacchidanand S, Oberai C, Inamadar AC, editors. *IADVL Textbook of Dermatology.* 4th ed, Mumbai: Bhalani Publishing House;2015.p.2411-23.
- 8) Khunger N. Step by step chemical peels. New Delhi : Jaypee Brothers Medical Publishers (P) Ltd; 2009 .p.1-338.
- 9) Sarkar R, Arsiwala S, Dubey N, Sonthalia S, Das A, Arya L, et al. Chemical peels in melasma: A review with consensus recommendations by Indian pigmentary expert group. *Indian J Dermatol* 2017;62:578-84. Bibliography Page 78
- 10) Khunger N, Taneja D, Khunger M. Glycolic Acid Peels. In: Venkataram M, editor. *ACS (I) Textbook of Cutaneous & Aesthetic Surgery.* 1 st ed, New Delhi: Jaypee Brothers Medical Publishers(P) Ltd; 2012.p.580-6.
- 11) Lewis AB, Lee SM. α -Hydroxy acids. In: Wolverten SE, editor. *Comprehensive Dermatologic Drug Therapy.* 3rd, Edinburgh: Elsevier Saunders; 2013; 571-8
- 12) Mary E. Hurlley, Ian L. Guevara, Rose Mary Gonzales, Amit G. Pandya. Efficacy of glycolic acid peels in the treatment of melasma. *Arch Dermatol* 2002;138:1578-82.
- 13) Vedamurthy M. Salicylic acid peels. *Indian J Dermatol Venereol Leprol* 2004;70:136-8.
- 14) Raghunath A, Venkataram M, Khunger N. Non-Glycolic Acid Peels—Salicylic Acid And Trichloroacetic Acid Peels. In: Venkataram M, editor. *ACS(I) Textbook of Cutaneous & Aesthetic Surgery .* 1st ed, New Delhi : Jaypee Brothers Medical Publishers(P) Ltd; 2012.p.587-9