

EFFICACY OF 30% SALICYLIC ACID AND JESSNER SOLUTION CHEMICAL PEELING IN PATIENTS WITH EPIDERMAL MELASMA

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ABSTRACT;

Background; Melasma has a significant impact on appearance, causing psychosocial and emotional distress, and reducing the quality of life of the affected patients. In this context, it has a negative impact on the quality of life of patients, affecting their psychological and emotional well-being, which often motivates them to search for a dermatologist. **Objective;** To compare mean MASI score of in patients with epidermal melasma treated with 30 % salicylic acid versus Jessner solution chemical peeling. **Material and methods;** A total of 396 patients were taken in our study. Patients was randomly allocated in to two groups by lottery method. Group A, having 198 patients, were treated with 30 % salicylic acid while group B, having 198 patients, with Jessner solution chemical peeling in patients. After two weeks of priming, which was comprised of nightly application of 0.05% tretinoin and daytime sunscreen with a sun protection factor of 60, treatment according to the group was started. Night-time use of moisturizer was applied in all patients and asked for follow up visits after 2 weeks till 12 weeks to document final outcome. Baseline and post-treatment MASI scores was calculated and patients were followed weekly till 12 weeks from the beginning of therapy to document efficacy. **Results;** Of these 396 study cases, 126 (31.8 %) were male patients while 270 (68.2 %) were female patients. Mean age of our study cases was 27.20 ± 5.08 years. Mean body mass index of our study cases was 24.82 ± 2.51 kg/m² and obesity was present in 28 (7.1 %) of our study cases. Fitzpatrick Skin type III was noted in 270 (68.2%) and skin type III was noted in 126 (31.8%) of our study cases. Mean disease duration was 10.62 ± 5.92 months and 293 (74 %) had duration of illness up to 1 year. Mean post treatment MASI score in our study was noted to 9.31 ± 2.93 while mean MASI in group A was 7.59 ± 3.02 while in group B mean MASI was 11.03 ± 1.48 ($p = 0.000$). **Conclusion;** Our study results have indicated that 30 % salicylic acid is more effective in treatment of epidermal melasma as compared with Jessner solution as there was significant reduction of mean MASI score in our patients and it provides rapid and sustained clinical improvement in the treatment of melasma. The results of this study support use of 30 % salicylic acid among targeted population which had significant impact on the improvement of quality of life of these patients and relieved them from psychological stress of this disease. Proper management of melasma helps improve productivity of the patients as it hits main working force of the society, hence plays important role in the national productivity and health economy.

Keywords; Melasma, Salicylic acid, Jessner Solution, MASI.

INTRODUCTION;

Melasma is an acquired pigment disorder showing symmetrical hyperpigmentation of the face characterized by light to dark brown patches with indistinct borders on both cheeks. Melasma is prevalent in middle-aged women with harmless hormone imbalances. It is also known as the mask of pregnancy and is prevalent in most child-bearing women¹⁻³. Three clinical presentations of melasma were identified based on histopathologic findings: epidermal melasma, when the pigment is deposited in the basal and suprabasal layer; dermal melasma, when melanophages filled with melanin are found in the superficial and middle dermis; mixed melasma, when findings of the two previous types of melasma are present. The examination in Wood's light contributes to differentiate the epidermal from dermal melasma in types I-IV of Fitzpatrick scale. Considering its recalcitrant characteristics, treatment can rarely keep the individual free of melasma for a long time, despite the many proposals available.^{4,5} Melasma is reported to account for 4%–10% of new dermatology hospital referrals. It is shown to be more common in people of Hispanic origin and among Asians. Treatment of melasma is unsatisfactory most of the times, even by tolerating various side effects such as contact dermatitis, irritation, and scarring.^{6, 7} According to the most recent Cochrane review, evidence shows insufficiency to provide robust guidance for practice, and more randomized clinical trials are needed in the field of melasma treatment.⁸ The range of treatments investigated for melasma covers all systemic, procedural, and topical modalities. Topical treatments have their own advantage over systemic therapies being among the most common interventions investigated and used for treating melasma.⁹ Superficial chemical peeling as a treatment modality in epidermal melasma is a new weapon in the therapeutic armamentarium. Salicylic acid is among the commonest and most successful superficial chemical peeling agents used in epidermal melasma. It has keratolytic, comedolytic and anti-inflammatory properties. It solubilizes intercellular cement, reduces corneocytes adhesion, and sloughs off the superficial layers of skin. Although, the literature is replete with the use of alpha hydroxyl acids as peeling agents, there is a dearth of published data regarding the efficacy and safety of salicylic acid peels in Asian skin¹⁰.

Jessner's peel is a combination of salicylic acid 14%, lactic acid 14%, and resorcinol 14% in alcohol. Jessner's solution has been used for over 100 years and thus has an extremely long history of safety and efficacy. Traditionally, it has been used as a penetration enhancing agent, by sloughing off the keratin layer, in combination with 35% trichloroacetic acid for medium depth chemical peeling. Recently, it has been shown to be an effective superficial chemical peeling agent when used alone¹¹.

Ejaz et al from Kharian¹² has reported mean pretreatment MASI score was 6.5 ± 3.84 which reduced to 2.9 ± 3.03 in patients treated with Jessner's solution while in patients treated with 30 % salicylic acid it was 5.9 ± 3.11 which dropped to 2.1 ± 2.63 after 12 weeks of therapy.

Melasma is associated with certain psychological and social implications for the sufferers and there is a scarcity of data comparing effectiveness of these treatments.

MATERIAL AND METHODS;

Patients meeting inclusion criteria criteria was enrolled in this study from OPD of Department of Dermatology, Nishtar Hospital Multan. Patients with age ≥ 20 and ≤ 40 years having epidermal melasma on Wood's lamp examination (spots are light brown with well-defined margins and hyperpigmentation is clearly visible) with baseline MASI score > 12 of either sex were enrolled in our study. Fitzpatrick skin type III, IV and V were taken only. Dermal and mixed melasma, Fitzpatrick skin type I, II and VI, already taking treatment for melasma within 3 months, history of hypertrophic scars, hirsutism and menstrual dysfunction, pregnant ladies, known cases with diabetes and hypertension, and females taking oral contraceptives.

Melasma Assessment Severity Index (MASI): Melasma area severity index (MASI) is the severity of the melasma in each of the four regions (forehead, right malar region, left malar region and chin) is assessed based on three variables: percentage of the total area involved (A), darkness (D), and homogeneity (H), attached as annexure "II" to this synopsis.

A total of 396 patients were taken in our study. Patients was randomly allocated in to two groups by lottery method. Group A, having 198 patients, were treated with 30 % salicylic acid while group B, having 198 patients, with Jessner solution chemical peeling in patients. After two weeks of priming, which was comprised of nightly

application of 0.05% tretinoin and daytime sunscreen with a sun protection factor of 60, treatment according to the group was started. Night-time use of moisturizer was applied in all patients and asked for follow up visits after 2 weeks till 12 weeks to document final outcome. Baseline and post-treatment MASI scores was calculated and patients were followed weekly till 12 weeks from the beginning of therapy to document efficacy. All the data was entered and analyzed using SPSS-18. Mean and standard deviation for the age, BMI of patient and duration of disease was calculated. Frequencies and percentage were calculated for the categorical variables like gender, Fitzpatrick skin type, age groups and Obesity (Obese/Non-obese). Paired sample t – test was applied for comparison of post – treatment MASI score.

RESULTS;

Our study comprised of a total of 396 patients meeting inclusion criteria of our study. Of these 396 study cases, 126 (31.8 %) were male patients while 270 (68.2 %) were female patients. Mean age of our study cases was 27.20 ± 5.08 years (with minimum age of our study cases was 20 years while maximum age was 40 years). Mean age of the male patients was noted to be 28.02 ± 4.25 years while that female patients was 26.81 ± 5.39 years ($p=0.028$). Our study results have indicated that majority of our study cases i.e. 286 (72.2 %) were aged up to 30 years. Of these 396 study cases, 155 (39.1 %) belonged to rural areas and 241 (60.9%) belonged to urban areas. Of these 396 study cases, 155 (39.1%) were illiterate while 241 (60.9%) were literate. Mean body mass index of our study cases was 24.82 ± 2.51 kg/m² and obesity was present in 28 (7.1 %) of our study cases. Fitzpatrick Skin type III was noted in 270 (68.2%) and skin type III was noted in 126 (31.8%) of our study cases. Mean disease duration was 10.62 ± 5.92 months and 293 (74 %) had duration of illness up to 1 year. Mean post treatment MASI score in our study was noted to 9.31 ± 2.93 while mean MASI in group A was 7.59 ± 3.02 while in group B mean MASI was 11.03 ± 1.48 ($p = 0.000$).

Table No. 1
Distribution of post treatment MASI score among study cases in both groups.
 (n = 396)

Groups	Post Treatment MASI		P value
	Mean	SD	
Group A	7.59	3.02	0.000
Group B	11.03	1.48	

DISCUSSION;

Melasma is a human melanogenesis dysfunction that results in localized, chronic acquired hypermelanosis of the skin. It occurs symmetrically on sunexposed areas of the body, and affects especially women in menacme¹³⁻¹⁵. Patients commonly report feelings of shame, low self-esteem, anhedonia, dissatisfaction, and the lack of motivation to go out. Suicidal ideas have also been reported in the literature. There is also a clear genetic predisposition, since over 40% of patients reported having relatives affected with the disease¹⁶.

Our study comprised of a total of 396 patients meeting inclusion criteria of our study. Of these 396 study cases, 126 (31.8 %) were male patients while 270 (68.2 %) were female patients. Similar results have been reported in many different studies indicating high female gender preponderance over male patients. A study conducted by Ejaz et al¹² from Kharian has also reported high female gender predominance with 85 % female patients which is in compliance with our study results. An Indian study conducted by Puri et al¹⁷ has reported 6.5 : 1 female gender predominance which is in compliance with our study results.

Mean age of our study cases was 27.20 ± 5.08 years (with minimum age of our study cases was 20 years while maximum age was 40 years). Mean age of the male patients was noted to be 28.02 ± 4.25 years while that female patients was 26.81 ± 5.39 years ($p=0.028$). Our study results have indicated that majority of our study cases i.e. 286 (72.2 %) were aged up to 30 years. A study conducted by Ejaz et al¹² from Kharian has reported 30.4 ± 5.8 years mean age of the patients with epidermal melasma which is in compliance with our study results. Ali et al¹⁸

from Lahore reported similar mean of patients in which majority of them were young with melasma i.e. 29.90 ± 7.18 years. Their findings are close to our study findings. Similar results have been reported by Halder et al¹⁹. Of these 396 study cases, 155 (39.1 %) belonged to rural areas and 241 (60.9%) belonged to urban areas. Of these 396 study cases, 155 (39.1%) were illiterate while 241 (60.9%) were literate. Mean body mass index of our study cases was 24.82 ± 2.51 kg/m² and obesity was present in 28 (7.1 %) of our study cases. Fitzpatrick Skin type III was noted in 270 (68.2%) and skin type III was noted in 126 (31.8%) of our study cases. A study conducted by Ejaz et al¹² reported similar results. Mean disease duration was 10.62 ± 5.92 months and 293 (74 %) had duration of illness up to 1 year. Mean post treatment MASI score in our study was noted to 9.31 ± 2.93 while mean MASI in group A was 7.59 ± 3.02 while in group B mean MASI was 11.03 ± 1.48 ($p = 0.000$). Ejaz et al from Kharian¹² has reported mean pretreatment MASI score was 6.5 ± 3.84 which reduced to 2.9 ± 3.03 in patients treated with Jessner's solution while in patients treated with 30 % salicylic acid it was 5.9 ± 3.11 which dropped to 2.1 ± 2.63 after 12 weeks of therapy. These findings are in compliance with our study results.

CONCLUSION;

Our study results have indicated that 30 % salicylic acid is more effective in treatment of epidermal melasma as compared with Jessner solution as there was significant reduction of mean MASI score in our patients and it provides rapid and sustained clinical improvement in the treatment of melasma. The results of this study support use of 30 % salicylic acid among targeted population which had significant impact on the improvement of quality of life of these patients and relieved them from psychological stress of this disease. Proper management of melasma helps improve productivity of the patients as it hits main working force of the society, hence plays important role in the national productivity and health economy.

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