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A CLINICAL STUDY OF MELASMA OF FACE IN WOMEN AND COMPARISON OF DIFFERENT TREATMENT MODALITIES OF MELASMA (GLYCOLIC ACID - 35% AND TCA 15% PEELS)

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ABSTRACT

Summary:

Background: Though hyperpigmentary disorders are common in India, few have studied the clinico-epidemiological profile these disorders.

Aims: To study the clinical pattern of melasman in women, to evaluate the different etiological factors in hyperpigmentary disorders, to assess the efficacy of glycolic acid peels (20 -30%) and TCA (10 -20%) and their respective side effects.

Material & Methods: A study was conducted on female patients with melasma disorders between January 2013 to January 2014. A proforma containing detailed information on each patient was prepared according to the protocol designed for the study. Informed consent was taken from all the patients included in the study. Patients with Melasma by method of randomization, were allocated alternately into groups A and B and treated with Glycolic and TCA PEEL. Modified Masi score for melasma will be evaluated at the start of treatment and again at the end of three months

Results: Total number of 315 patients with hyperpigmentary disorders of face attended our DVL OPD out of which 150 patients presented with melasma of which 50 patients with melasma who satisfied our criteria were enrolled in the study. The most common hyperpigmentary disorder affecting observed was melasma followed by post inflammatory hyperpigmentation.The maximum incidence of melasma was found in age group of 31-40 (64.00%) followed by 41-50 (20.00%) , 21-30(12.00%), 51-60 (4%).Mean age for presentation of melasma was 37.7 years. The mean duration was 5.3 years. History of aggravating melasma with sun exposure was present in 28 patients and 22 patients gave no such association. Family history of melasma was positive in 18% of our patients .In our study 18 % of patients gave a history of occurrence of melasma during pregnancy.The centrofacial pattern was observed in the majority of cases (58%) followed by malar pattern was seen in 42% of the patients.On woods lamp examination the most common type was epidermal 40.00% followed by indeterminate type 32.00%, mixed type was seen in 18 % and least incidence was seen in dermal 5 (10.00%).In our study group A out of 25, greater than 75% improvement in modified MASI score that was seen in 3(12.00%) 50-74% was seen in 5 (20.00%, and 26-49% was seen 14(56.00%), and less than 25% was seen 3 (12.00%)In group B out of 25 greater than 75% improvement of masi score is seen in 1 patient (4.00%), 50-74% was seen 14 (56.00%) , 26-49% was in 9 (36.00%,) and less than 25% was seen 1(4.00%).

Conclusions: Our study is a detailed analysis of the clinico-etiological factors of melasma compare the efficacy of Glycolic and TCA peels in melasma at a tertiary hospital

KEYWORDS :

Introduction:

Hyperpigmentation disorders of the skin occur commonly and manifest in a variety of different forms.Common hyperpigmentation disorders include melasma and postinflammatory hyperpigmentation.

Chemical peeling is a process of causing controlled destruction of the superficial layers of the skin to the required depth, by the application of a chemical agent, followed by subsequent resurfacing, remodeling and replacement by normal tissue.

Hence, the present study is taken up to know the clinical patterns, eitiological factors of melasma in women and know the clinical efficacy of glycolic acid peels and TCA peels and note any note their side effects.

Materials & Methods:

This study has an approval of Ethics committee of Rangaraya Medical College, Kakinada.

A study was conducted on female patients with melasma attending DVL OPD of Government General Hospital attached to Rangaraya Medical college, Kakinada.

Selection criteria for patients

Female patients with melasma and patients willing to undergo treatment and come for follow up

EXCLUSION CRITERIA: Patients with known hypersensitivity to the drugs used in the regimens. History of herpes simplex viral infection, keloid, hypertrophic scars. Concurrent active disease to facial area (i.e. acne), Pregnant and lactating women, patients with unrealistic expectations. Patients with Melasma by method of randomization, were allocated alternately into groups A and B. Patients in both groups were matched according to age and sex.GROUP A: 35% GLYCOLIC ACID GROUP B 15 % TCA. Modified masi score was calculated at the start of treatment.Modified MASI total score = 0.3A(f)D(f)+ 0.3 A(lm) D(lm)+ 0.3 A(rm) D(rm) + 0.1 A(c) D(c) (AREA=A, D=DARKNESS).The range of the total score is 0 to 24.PEELS were every fortnightly for a period of 3 months.

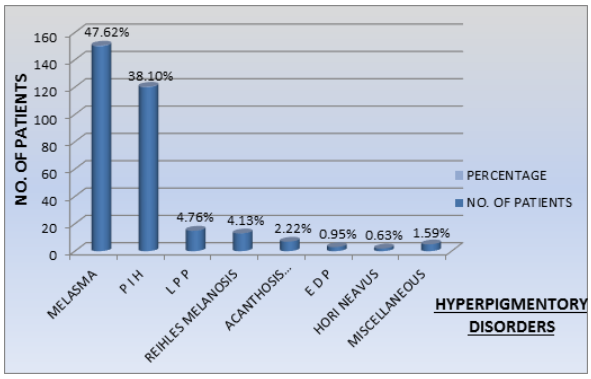
During this period they will be advised to use broad spectrum sunscreens, avoid sun exposure etc. Preprocedure treatment –Priming helps to reduce wound healing time, facilitates uniform penetration of peeling agent, detects intolerance to any agent, and reduces the risk of complications. It was done with tretinoin 0.025%.The chemical is applied quickly as cosmetic units on the entire face, beginning from the forehead, then the right cheek, nose, left cheek and chin in that order. For glycolic acid peels, the peel was neutralized after the predetermined duration of time (usually three minutes).

However, if erythema or epidermolysis occurs, seen as grayish white appearance of the epidermis or small blisters, the peel was neutralized immediately irrespective of the duration. Neutralization was done with 10-15% sodium bicarbonate solution or neutralizing lotion and then, washed off with water Post-peel care was advised to use mild soap or non-soap cleanser, Sun exposure avoided and broad spectrum sunscreen were used meticulously Patients should was clearly informed to recognise complications like excessive redness, swelling, burning to report immediately, so that preventive actions could be taken promptly any adverse reactions due to therapy are noted and treated accordingly. The results will be compiled, tabulated and analysed

Results:

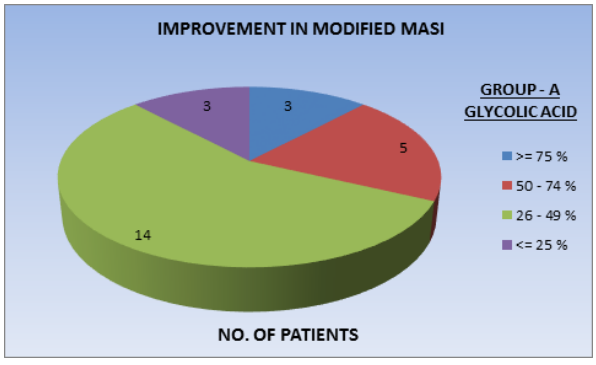
In our study the most common cause of Hyperpigmentory Disorder was Melasma 150 (47.62%), followed by Post Inflammatory

Hyperpigmentation - 120(38.10%), followed by Lichen Planus Pigmentosis - 15(4.76%), Riehl's Melanosis-13(4.13%), Acanthosis Nigricans-7(2.22%), Erythema Dischromicum Perstans - 3(0.95%), Hori Neavus – 2(0.63%), Miscellaneos – 5(1.59%)(figure1)

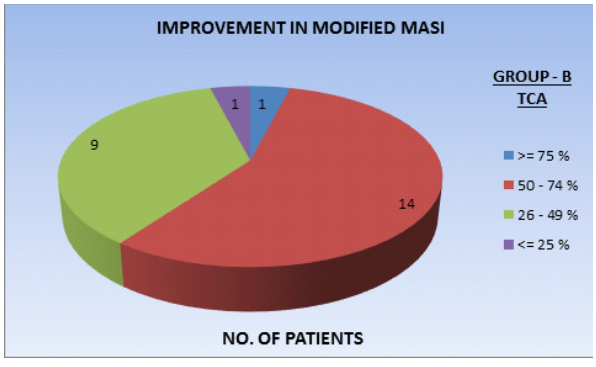


The maximum prevelance of Melama was seen in Age group of 31-40 which is 32(64.00%) followed by 41-50 is 10(20.00%) and 21-30 which is 6(12.00%). The minimum prevelance was seen in age 51-60 which is 2(4.00%). Out of 50 patients, about 31(62.00%) patients had Sun Exposure less than 1 hour, and about 14(28.00%) patients had 1-3 Hours, and the greater than 3 hours was present in 5(10.00%).In our study, Only 6(12.00%) patients had history of Precipetation of Melasma during Pregnancy. In our study, about 9(18.00%) patients had history of Melasma in Family. Out of 50 patients, the most common pattern seen was Centrofacial in about 29(58.00%) patients, followed by Malar Pattern seen in 21(42.00%) patients and Mandibular Pattern was seen in none.

In our study, based on Woods Lamp examination Epidermal Melasma was seen in 20(40.00%), followed by Indeterminate – 16(32.00%), Mixed – 9(18.00%), Dermal – 5(10.00%). In our study, in group A greater than 75% improvement in modified masi score was seen in 3(12.00%), 50-74% was seen in 5(20.00%), 26-49% was seen in 14(56.00%), and below 25% was seen in 3(12.00%) patients objectively (figure 2)



In our study, group B greater than 75% improvement in modified masi score was seen in 1(4.00%), 50-74% was seen in 14(56.00%), 26-49% was seen in 9(36.00%), and below 25% was seen in 1(4.00%) patients(figure 3)



There was statistically insignificant difference in the efficacy between the two groups for the treatment of melasma.

Discussion:

Hyperpigmentary disorders affecting the face can have a significant psychological impact on the sufferers. In our study the most common cause of Hyperpigmentary disorder was Melasma 150 (47.62%), followed by Post Inflammatory Hyperpigmentation - 120(38.10%), followed by Lichen Planus Pigmentosis - 15(4.76%), Riehl's Melanosis - 13(4.13%), Acanthosis Nigricans - 7(2.22%), Erythema Dischromicum Perstans - 3(0.95%), Hori Neavus – 2(0.63%), Miscellaneous – 5(1.59%) Here in our study we found melasma is a commonly seen entity in clinical practice followed by post inflmmatory hyperpigmentation. Few studies show that melasma accounts for 4 – 10% of the new cases in the dermatology hospital, as a referral[1]. Similarly it is found to be the third most common pigmentary disorder of the skin, confirmed in a survey of 2000 black people, at a private clinic in Washington Dc[2].

The most common age group presenting with melasma was 31-40 (64.00%) followed by 41-50 (20.00%), 21-30(12.00%),51-60 (4%) in decreasing order .Minimum incidence was observed in 50-60 age group. This is similar to other studies done by kalla et al[3] and N puri 18[4].Mean age was 37.7 years. In a clinco epidemological study carried out by Arun achar , sanjay rathi the mean age of melasma was 33.4 years[5].This was similar to the study by Vazquez et al. where the mean age of onset was 38.8 years[6].

The mean duration was 5.3 years . This was consistent with previous studies done by DM thappa et el where mean was 4.3 ± 2.5 years[7].similarly in a clinco epidemiological study carried out by Arun achar , sanjay the mean age of onset of 29.99 years, ranging from 11 years to 49 years[5]. However the duration varied. 62 % patients had < 1 hour of sun exposure, 28 % patients had 1-3 hours of sun exposure, and 10% patients had > 3 hours of sun exposure.

Griffiths CEM .in their study showed that sunlight was an exacerbating factor in 98% cases[8].But history of aggrevating melasma with sun exposure was present in 28 patients and 22 patients gave no such association. This was consist with a epidemological study done in melasma by Arun achar, sanjay[5].

There was no significant association between a positive family history and occurrence of melasma in our patients. Only 18% of our patients gave a positive family history of melasma. In the study by Griffiths CEM et al, 47% patients gave a positive family history of first degree relative being affected[8]. Vazquez M et al showed 70.4% occurrence of positive family history. A Cross-Sectional, Multicentric Clinico Epidemiological Study of Melasma in India by devasthanam Sundara Rao KrupaShankar et al family history of melasma was observed in 31.1% of the patients. ($p>0.05$)[9]. In our study 18 % of patients gave a history of occurrence of melasma during pregnancy No history of association melasma and oral contraceptives was found in our study.

In a indian clinico epidemological study of melasma pregnancy as precipitating factor was seen in 22.4 % patients. These figure were lower than earlier reported by pathak et al[10]. In another indian study it was found 51% of the women with multiple pregnancies had a history of melasma as compared to women with single (25%) or no pregnancy (24%) indicating Thus, there is a possibility that pregnancy might be a precipitating factor in melasma .

Three clinical patterns of melasma are recognized on the basis of clinical examination: (1) a centrofacial pattern, (2) a malar pattern, and (3) a mandibular pattern. The centrofacial pattern was observed in the majority of cases (58%), malar pattern in 42 and mandibular type in none.These findings are consistent with the known facts that the frontal area (forehead), nose, top of the ears, upper lip, infra- and supraorbital margins, zygomatic process, and anterior and neck areas receive maximum ultraviolet exposure from the sun. In a Indian study by devasthanam Sundara Rao KrupaShankar et al the predominant patterns observed in the patients was centrofacial melasma (42%)followed by malar (39%) melasma[9].

In two international studies Lim et [11] and Chan[12] where majority of patients had malar pattern.Studies done by R.Sarkar et al concluded that centrofacial was the commonest pattern similarly Griffiths CEM et al showed that centrofacial was the predominant pattern of involvement[8].In our study on woods lamp examination the most commom type was epidermal 40.00% followed by indeterminate

type 32.00%, mixed type was seen in 18 % and least incidence was seen in dermal 5 (10.00%). This was similar to study conducted by sanchez et al epidermal was seen in 72% followed by dermal, mixed, indeterminate or in apparent 13% 5% 9% respectively.

In an Indian study done by bhushan kumar et al the most common pattern observed was mixed followed by epidermal and then dermal[14].In our study we used Glycolic acid 35% in group A and TCA 15% for group B both are superficial peels. peels are defined as those causing injury to the dermis and dermoepidermal interface.In our study in group A out of 25, greater than 75% improvement in modified MASI score was seen in 3(12.00%) 50-74% was seen in 5 (20.00%, and 26-49% was seen 14(56.00%), and less than 25% was seen 3 .In a study done by DM thappa and kumari the percentage of glycolic acid was 20-35% and interval between peels was 2weeks the subjective response was greater than 50% and reduction in MASI score of 50 -75 % was seen in 10 patients[15] .

In a study done by jawahari et al the concentration of glycolic acid used was 50% and peels were done every 4 weeks greater than 50% subjective response was seen in 60% patients with improvement of MASI of 47%[16]In another study conducted by Grover et al the concentration of peel used was 10-30% and peels were done every 2 weeks subjective response of greater than 60% in was in 90% however MASI score was not calculated[17].In study done by Sarkar et al the concentration of peel used was 30 to 40% and done every 3 weeks and subjective response calculated was >80% excellent.

The lower reduction in modified MASI score in our study in group A might be due more number of mixed and indeterminate cases of melasma on woods lamp examination and as epidermal melasma responds more than dermal melasma .In group B out of 25 greater than 75% improvement of masi score is seen in 1 patient (4.00%), 50-74% was seen 14 (56.00%) , 26-49% was in 9 (36.00%,) and less than 25% was seen 1(4.00%).In a study done Saloni sachedeva it was found the end of four peels, TCA produced good response in 23.4%, moderate response in 50% and mild response in 26.6% patients[18].

In our study, very few side effects were observed of which Burning was seen in 2(8.00%), Erythema was seen in 3.In another study carried by Alka dogra sunil gupta the concentration of TCA peel used was 20 % and peels were done every 3 weeks mild improvement was (<25%) in 3 (12%) ,Moderate (25-50%) was seen 19 (76%) , Good (50-75%) was seem in 3 (12%) Very Good (>75%) was seen is 0[19].In our study, on comparing both group for objective improvement significant P value was seen only in a group of 50-74% the rest were not significant and on comparing the subjective improvement significant P value was not seen in any group.In this study done by neerja puri [4] subjective response as graded by the patient showed good or very good response in 70% participants in the glycolic acid group and 64% in the TCA group. There was statistically insignificant difference in the efficacy between the two groups for the treatment of melasma. These finding were consistent with our study.In a study done by kalla et al [3] more than 75% improvement was seen in 30%, and 50-75% improvement in 24% patients. Response with TCA was more rapid as compared to GA. Chronic pigmentation responded more favourably to TCA.

Conclusion:

The most common hyperpigmentory disorder affecting observed was melasma followed by post inflammatory hyperpigmentation.The maximum incidence of melasma was found in age group of 31-40 (64.00%) followed by 41-50 (20.00%) , 21-30(12.00%), 51-60 (4%).

Mean age for presentation of melasma was 37.7 years.The duration of melasma ranged from less than 1 yr to 10 years. Most common duration of disease was 1-5 years was seen in 29 (58.00%) followed by less than 1 year was in 16 patients (32.00%), and 6-10 years in 5(10.00%).The mean duration was 5.3 years.The history of using topical medications or cosmetics was present in 13 patients 26.00%.History of aggrevating melasma with sun exposure was present in 28 patients and 22 patients gave no such association.All our patients had history of sun exposure. 62 % patients had < 1 hour of sun exposure, 28 % patients had 1-3 hours of sun exposure, and 10% patients had > 3 hours of sun exposure.Family history of melasma was positive in 18% of our patients .

18 % of patients gave a history of occurrence of melasma during pregnancy. The centrofacial pattern was observed in the majority of cases (58%) followed by malar pattern 42% of the patients. On woods lamp examination the most commom type was epidermal 40.00% followed by indeterminate type 32.00%, mixed type was seen in 18 % and least incidence was seen in dermal 5 (10.00%).In our study group A out of 25, greater than 75% improvement in modified MASI score that was seen in 3(12.00%) 50-74% was seen in 5 (20.00%, and 26-49% was seen 14(56.00%), and less than 25% was seen 3 (12.00%).In group B out of 25 greater than 75% improvement of masi score is seen in 1 patient (4.00%), 50-74% was seen 14 (56.00%) , 26-49% was in 9 (36.00%,) and less than 25% was seen 1(4.00%) Side effects observed in both groups were very low less than 20% in both groups.

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