International Journal of Research in Dermatology
Raikar D et al. Int J Res Dermatol. 2020 Mar;6(2):183-186
http://www.ijord.com

DOI: http://dx.doi.org/10.18203/issn.2455-4529.IntJResDermatol20200207

Original Research Article

A clinical and epidemiological study of hyperpigmentary disorder of face

Dayanand Raikar[1], Mohammed Waseem Javed[2]*, Anant A. Takalkar[3]

[1]Department of Dermatology, GIMS, Kalaburagi, Karnataka, India
[2]Department of Dermatology, Khaja Banda Nawaz Institute of Medical Sciences, Kalaburagi, Karnataka, India
[3]Department of Community Medicine, MIMSR Medical College, Latur, Maharashtra, India

Received: 28 December 2019
Accepted: 14 January 2020

***Correspondence:**
Dr. Mohammed Waseem Javed,
E-mail: drwj001@gmail.com

ABSTRACT

Background: Facial pigmentary disorders are a group of heterogenous entities, sharing a common clinical feature of altered pigmentation of the face and thus easily visible cosmetic disfigurement. Although the increased melanin provides protection from harmful effects of UV radiation, including photodamage and skin cancers, it also makes darkly pigmented skin more vulnerable to post-inflammatory dyspigmentation. The importance of these disorders is growing, as they form the major percentage of dermatology consultations. The objective of the study was to assess the clinical profile of patients with facial hyperpigmentation.
Methods: The present cross-sectional hospital based observational study was conducted at Dermatology Department of during the period of June 2017 to December 2017 including patients with diagnosis of facial hyperpigmentation. Data analysed with SPSS 24 version.
Results: 29% were from 21 to 30 years age group followed by 25% from 31 to 40 years age group. Mean age of the study population was 28.4±11.8 years. 76% were female patients. Commonly observed facial hyperpigmentation type was melasma in our study i.e. 46%. It is followed by post inflammatory hyperpigmentation (PIH) in 16% and ephilides in 8%. Rehl's melanosis and drug induced melanosis was seen in 7% each of the patients. Ephilides, Rehl's melanosis and drug induced was seen in 7% each of the patients. Family history of pigmentaory disorder was found in melasma, PIH and ephilides in our study.
Conclusions: Commonly reported age group was 20-40 with female preponderance. Commonly observed facial hyperpigmentation type was melasma (46%), PIH (16%) and ephilides (8%).

Keywords: Face, Hyperpigmentation, Melanosis

INTRODUCTION

Facial pigmentary disorders are a group of heterogenous entities that share a common clinical feature of altered pigmentation of the face that easily visible as cosmetic disfigurement. Pigmentation disorders of the skin can either be hyper-melanotic or hypo-melanotic. Hyper-melanotic disorders include a diverse group of disorders including melasma, lichen planus pigmentosus (LPP), Riehl's melanosis and periorbital hyperpigmentation (POH).[1]

Darker skin phenotypes are characterized by higher content of melanin, higher eumelanin to pheomelanin ratio, and more effective distribution of melanin for protection against ultraviolet (UV) radiation.[2]

In skin of colour, the amount and epidermal distribution of melanin is an important biological feature.[3-5] Melanin

is not a single compound; rather, it is a mixture of biopolymers synthesized by melanocytes located in the basal layer of the epidermis.[2] Based on their chemical composition, melanins are broadly classified into two types: eumelanin and pheomelanin.[2] Different studies have reported that individuals with darker skin have higher total melanin content, and a higher amount of eumelanin than lighter-skinned individuals.[2]

Melanin is the key factor of colour in the skin. The concentration of epidermal melanin in melanosomes is double in darker skin types compared with lightly pigmented skin types.[5] In addition, melanosome degradation within the keratinocyte is slower in darkly pigmented skin when compared with lighter skin types.[6] The melanin content and melanosomal dispersion pattern is thought to confer protection from damage induced by UV radiation.[1,3]

Although the increased melanin provides protection from harmful effects of UV radiation, including photodamage and skin cancers, it also makes darkly pigmented skin more vulnerable to post-inflammatory dyspigmentation.

So, the present study was conducted to evaluate the clinical profile of patients with facial hyperpigmentation attending Dermatology OPD.

Objectives

The objective of the study was to assess the clinical profile of patients with facial hyperpigmentation.

METHODS

The present cross-sectional hospital based observational study was conducted at Dermatology department of Department of Dermatology, Khaja Banda Nawaz Institute of Medical Sciences, Kalaburagi. The study was conducted during the period of June 2017 to December 2017 (6 months).

Inclusion criteria

Patients with diagnosis of facial hyperpigmentation were included in this study.

After obtaining ethical clearance from the institutional ethical committee and consent from the patient, all the patients attending the out-patient department for facial pigmentation disorders were enrolled in the study. After collecting demographic data, detailed clinical history regarding age at presentation, age of onset, duration of the disease, and family history was noted. The data of different predisposing factors such as sun exposure, pregnancy, cosmetic use, ovarian tumor, atopy, iron deficiency and other endocrine diseases were recorded, and relevant investigations carried out to rule out the same when required.

Statistical analysis

The data thus collected was entered in MS excel sheet and analysed by using SPSS 24.0 version. The qualitative data was presented as percentages and quantitative data was presented as mean and standard deviation.

RESULTS

We included total 100 patients with diagnosis of facial hyperpigmentation in our study. Out of 100 patients, majority i.e. 29% were from 21 to 30 years age group followed by 25% from 31 to 40 years age group. 16% were from 41 to 50 years age group. Least was from less than 10 years age group. Mean age of the study population was 28.4±11.8 years.

Table 1: Distribution according to age.

		Frequency	%
Age group (in years)	<10	5	5.0
	10 to 20	12	12.0
	21 to 30	29	29.0
	31 to 40	25	25.0
	41 to 50	16	16.0
	>50	13	13.0
	Total	100	100.0

Table 2: Distribution according to gender.

		Frequency	%
Gender	Male	24	24.0
	Female	76	76.0
	Total	100	100.0

Out of 100 patients, majority were females i.e. 76% and only 24% were males. Female predominance was found with female to male ratio as 3.2:1.

Table 3: Distribution according to types of facial melanosis.

		Frequency	%
Types of facial melanosis	Melasma	46	46.0
	PIH	16	16.0
	Ephilides	8	8.0
	LPP	5	5.0
	Rehl's melanosis	7	7.0
	Drug induced	7	7.0
	Naevus	2	2.0
	Contact dermatitis	5	5.0
	Acanthosis nigricans	2	2.0
	Others	2	2.0
	Total	100	100.0

PIH: post inflammatory hyperpigmentation

Commonly observed facial hyperpigmentation type was melasma in our study i.e. 46%. It is followed by post inflammatory hyperpigmentation (PIH) in 16% and ephilides in 8%. Rehl's melanosis and drug induced melanosis was seen in 7% each of the patients.

Table 4: Gender wise distribution of type of hyperpigmentation.

Types of facial melanosis	Male		Female	
	Frequency	%	Frequency	%
Melasma	4	40.0	42	46.7
PIH	4	40.0	12	13.3
Ephilides	1	10.0	7	7.8
LPP	1	10.0	4	4.4
Rehl's melanosis	0	0.0	7	7.8
Drug induced	0	0.0	7	7.8
Naevus	0	0.0	2	2.2
Contact dermatitis	0	0.0	5	5.6
Acanthosis nigricans	0	0.0	2	2.2
Others	0	0.0	2	2.2
Total	10	100.0	90	100.0

Table 5: Clinical characteristics of facial hyperpigmentation.

Types of facial hyperpigmentation	Predisposing factors	Associated co morbid condition	Family history (%)
Melasma	Sunlight, cosmetics, pregnancy	Hypothyroidism	18.2
PIH	Sunlight, dermatitis, pyoderma, trauma	Anemia	15
Ephilides	Sunlight		38
LPP	Cosmetics	-	-
Rehl's melanosis	Sunlight and cosmetics	-	-
Drug induced	ATT	-	-
Naevus	-	-	-
Contact dermatitis	-	-	-
Acanthosis nigricans	-	Diabetes	-
Others	-	-	-

Out of 10 males involved, 6 i.e. 40% each had melasma and PIH in our study. 1 patient each i.e. 10% had ephilides and lichen planus pigmentosus (LPP).

Out of 90 females involved, 42 i.e. 46.7% had melasma, 12 (13.3%) had PIH, 7 (7.8%) each had ephilides, Rehl's melanosis and drug induced melanosis.

Sunlight exposure and use of cosmetics was commonly reported precipitating factor in melasma, PIH, ephilides, LPP and Rehl's melanosis. Family history of pigmentary disorder was found in melasma, PIH and ephilides in our study.

DISCUSSION

We included total 100 patients with diagnosis of facial hyperpigmentation in our study. Out of 100 patients, majority i.e. 29% were from 21-30 years age group followed by 25% from 31-40 years age group. 16% were from 41-50 years age group. Least was from less than 10 years age group. Mean age of the study population was 28.4±11.8 years. Out of 100 patients, majority were females i.e. 76% and only 24% were males. Female predominance was found with female to male ratio as 3.2:1 (Table 1 and 2).

Hassan et al comprised of 208 patients of altered facial pigmentation.[7] The youngest patient was a 4-year-old male, and the oldest was 58-year-old female, with a mean age of 27.40 years. The maximum number of patients that is, 118 (56.73%) belonged to 21 to 40 years age group, followed by 54 (25.96%) to <20 years and 36 (17.30%) to >40 years of age group. There were 71 males and 137 females, with a female to male ratio of 1.92:1.

Commonly observed facial hyperpigmentation type was melasma in our study i.e. 46%. It is followed by PIH in 16% and ephilides in 8%. Rehl's melanosis and drug induced melanosis was seen in 7% each of the patients (Table 3).

The average age of melasma patients was 31.2 years in our study, which was similar to 33.45 years in a study by Achar et al.[8] It is against 42.3 years reported in a study from Singapore.[9] We found about 17.2% involvement of

men. It is comparable to 19.87% and 10% in different studies.[8,10]

About 69.8% of our patients with melasma described sun exposure as exaggerating factor, similar to previous studies.[11]

Thyroid dysfunction was seen in 12.6% of patients, hypothyroidism being commonest which was comparable to previous studies.[8]

In 63.5% of patients, there was a history of association with the application of various cosmetic products and topical steroids, available as over the counter fairness creams, leading to typical steroid facies. This association of melasma with these cosmetic products has also been reported by Achar et al and Grimes.[8,12]

Post-inflammatory hyperpigmentation was the second most common cause of altered facial pigmentation in our study i.e. 12%. It showed a slight female predominance. Most common etiology was secondary to acne vulgaris. This finding was similar to a study by Taylor et al who evaluated acne in skin of colour and found that 65.3% of African-American, 52.7% of Hispanic and 47.4% of Asian patients developed acne induced PIH.[13]

PIH family history was seen in 15% of patients in our study. Ranu et al and Sheth et al reported 42.2% and 63% patients with a positive family history of POH respectively.[14,15]

PIH was the second most common cause of altered facial pigmentation in our study i.e. 16%. Acanthosis nigricans is characterized by dark, coarse, thickened skin with a velvety texture.

CONCLUSION

Commonly reported age group was 20-40 with female preponderance. Commonly observed facial hyperpigmentation type was melasma (46%), PIH (16%) and ephilides (8%).

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the institutional ethics committee

REFERENCES

1. Pichardo R, Vallejos Q, Feldman SR, Schulz MR, Verma A, Quandt SA, et al. The prevalence of melasma and its association with quality of life in adult male Latino migrant workers. Int J Dermatol. 2009;48:22-6.
2. Sharma VK, Sahni K, Wadhwani AR. Photodermatoses in pigmented skin. Photochem Photobiol Sci. 2013;12:65-77.
3. Taylor SC. Skin of color: biology, structure, function, and implications for dermatologic disease. J Am Acad Dermatol. 2002;46(2):41-62.
4. Seiji M, Fitzpatrick TB, Simpson RT, Birbeck MS. Chemical composition and terminology of specialized organelles (melanosomes and melanin granules) in mammalian melanocytes. Nature. 1963;197:1082-4.
5. Iozumi K, Hoganson GE, Pennella R, Everett MA, Fuller BB. Role of tyrosinase as the determinant of pigmentation in cultured human melanocytes. J Invest Dermatol. 1993;100:806-11.
6. Ranu H, Thng S, Goh BK, Burger A, Goh CL. Periorbital hyperpigmentation in Asians: an epidemiologic study and a proposed classification. Dermatol Surg. 2011;37:1297-303.
7. Hassan I, Aleem S, Bhat YJ, Anwar P. A clinico-epidemiological study of facial melanosis. Pigment Int 2015;2:34-40.
8. Achar A, Rathi SK. Melasma: A clinico-epidemiological study of 312 cases. Indian J Dermatol. 2011;56:380-2.
9. Goh CL, Dlova CN. A retrospective study on the clinical presentation and treatment outcome of melasma in a tertiary dermatological referral centre in Singapore. Singapore Med J. 1999;40:455-8.
10. Katsambas AD, Stratigos AJ, Lotti TM. Melasma. In: Katsambas AD, Lotti TM, editors. European Handbook of Dermatological Treatments. 2nd ed. Berlin: Springer; 2003: 336-341.
11. Sanchez NP, Pathak MA, Sato S, Fitzpatrick TB, Sanchez JL, Mihm MC Jr. Melasma: A clinical, light microscopic, ultrastructural, and immune-fluorescence study. J Am Acad Dermatol. 1981;4:698-710.
12. Grimes PE. Melasma: Etiologic and therapeutic considerations. Arch Dermatol. 1995;131:1453-7.
13. Taylor S, Grimes P, Lim J, Im S, Lui H. Postinflammatory hyperpigmentation. J Cutan Med Surg. 2009;13:183-91.
14. Ranu H, Thng S, Goh BK, Burger A, Goh CL. Periorbital hyperpigmentation in Asians: An epidemiologic study and a proposed classification. Dermatol Surg. 2011;37:1297-303.
15. Sheth PB, Shah HA, Dave JN. Periorbital hyperpigmentation: A study of its prevalence, common causative factors and its association with personal habits and other disorders. Indian J Dermatol. 2014;59:151-7.

Cite this article as: Raikar D, Javed MW, Takalkar AA. A clinical and epidemiological study of hyperpigmentary disorder of face. Int J Res Dermatol 2020;6:183-6.