

ORIGINAL RESEARCH

A clinical and epidemiological investigation of a facial hyperpigmentation disease

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ABSTRACT

Aim: A clinical and epidemiological investigation of a facial hyperpigmentation disease.

Material and methods: A total of 100 patients diagnosed with face hyperpigmentation were included in this research. Upon receiving ethical permission from the institutional ethics committee and gaining agreement from the patient, all patients seeking treatment for face pigmentation problems in the out-patient department were included in the research. Following the collection of demographic data, a comprehensive clinical history was recorded, including information on the age at which the condition was first seen, the age at which symptoms began, the length of time the illness has been present, and any relevant family medical history.

Results: The average age of the participants in the research was 29.01 ± 3.25 years. Among the 100 patients, the majority, namely 75%, were females, while just 25% were men. A higher proportion of females was observed, with a female to male ratio of 3:1. The predominant form of face hyperpigmentation seen in our research was melasma, accounting for 52% of cases. Post-inflammatory hyperpigmentation (PIH) occurs in 15% of cases, whereas ephelides occur in 7%. Rehl's melanosis and drug-induced melanosis were seen in 6% of the patients each. Thirteen percent of patients had thyroid problems. In our analysis, post-inflammatory hyperpigmentation accounted for 13% of cases with changed face pigmentation, making it the second most prevalent cause. There was a small majority of females. The primary cause in the majority of cases was acne vulgaris. In our research, 14% of patients had a family history of PIH.

Conclusion: The most often reported age group was between 20 to 40 years old, with a higher proportion of females. The most frequently detected types of face hyperpigmentation were melasma (52%), post-inflammatory hyperpigmentation (15%), and ephelides (7%).

Keywords: PIH, Face hyperpigmentation, Melasma, Ephelides

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INTRODUCTION

Facial pigmentary diseases refer to a diverse collection of conditions characterized by changes in the pigmentation of the face, which are immediately noticeable and may cause esthetic deformity. The skin may have pigmentation abnormalities that are either characterized by excessive melanin production (hyper-melanotic) or insufficient melanin production (hypo-melanotic). Hyper-melanotic illnesses include a wide range of conditions, such as melasma, lichen planus pigmentosus (LPP), Riehl's melanosis, and periorbital hyperpigmentation (POH).¹ Dark skin phenotypes have a greater concentration of melanin, a higher ratio of eumelanin to pheomelanin, and a more efficient distribution of melanin for shielding against ultraviolet (UV) radiation. The quantity and

distribution of melanin in individuals with darker skin tones are significant biological characteristics. Melanin is not a single substance, but rather a combination of biopolymers that are produced by melanocytes found in the basal layer of the epidermis. Melanins are categorized into two categories, eumelanin and pheomelanin, based on their chemical makeup. Various studies have shown that persons with darker skin possess a greater quantity of total melanin and a higher concentration of eumelanin compared to those with lighter skin.²⁻⁵ 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.⁶The melanin content and melanosomal dispersion patterns is thought to confer protection from damage induced by UV radiation.^{1,3}While the heightened presence of melanin offers defense against the detrimental impacts of UV radiation, such as photodamage and skin malignancies, it also renders darkly pigmented skin more susceptible to post-inflammatory dyspigmentation. The current research aimed to assess the clinical characteristics of individuals with face hyperpigmentation.

MATERIAL AND METHODS

This research was done at the dermatology department in partnership with the community medicine department. It was an observational study conducted in a hospital setting. A total of 100 patients diagnosed with face hyperpigmentation were included in this research. Upon receiving ethical permission from the institutional ethics committee and gaining agreement from the patient, all patients seeking treatment for face pigmentation problems in the out-patient department were included in the research. Following the collection of demographic data, a comprehensive clinical history was recorded, including information on the age at which the condition was first seen, the age at which symptoms began, the length of time the illness has been present, and any relevant family medical history. The data on several predisposing variables, including sun exposure, pregnancy, cosmetic usage, ovarian tumor, atopy, iron deficiency, and other endocrine illnesses, were documented. Relevant tests were conducted as necessary to exclude the possibility of these causes.

STATISTICAL ANALYSIS

The data thus collected was entered in M S excel sheet and analysed by using SPSS 25.0 version. The

qualitative data was presented as percentages and quantitative data was presented as mean and standard deviation.

RESULTS

We included a total of 100 individuals diagnosed with face hyperpigmentation for our research. Among the 100 patients, the largest proportion, namely 32%, belonged to the age group of 20 to 30 years, while the next largest proportion, 24%, belonged to the age group of 30 to 40 years. 17% of the individuals belonged to the age range of 40 to 50 years. The youngest individual belonged to the age group of less than 10 years. The average age of the participants in the research was 29.01 ± 3.25 years. Among the 100 patients, the majority, namely 75%, were females, while just 25% were men. A higher proportion of females was observed, with a female to male ratio of 3:1. The predominant form of face hyperpigmentation seen in our research was melasma, accounting for 52% of cases. Post-inflammatory hyperpigmentation (PIH) occurs in 15% of cases, whereas ephelides occur in 7%. Rehl's melanosis and drug-induced melanosis were seen in 6% of the patients each. Exposure to sunlight and the use of cosmetics were often described as factors that trigger melasma, post-inflammatory hyperpigmentation (PIH), ephelides, lichen planus pigmentosus (LPP), and Rehl's melanosis. In our investigation, we discovered a familial history of pigmentary disorders, including melasma, post-inflammatory hyperpigmentation (PIH), and ephelides. Thirteen percent of patients had thyroid problems. In our analysis, post-inflammatory hyperpigmentation accounted for 13% of cases with changed face pigmentation, making it the second most prevalent cause. There was a small majority of females. The primary cause in the majority of cases was acne vulgaris. In our research, 14% of patients had a family history of PIH.

Table1: Distribution according to age

Age group(in years)	Frequency	%
<10	4	4
10to 20	11	11
20to 30	32	32
30to 40	24	24
40to 50	17	17
>50	12	12

Table2: Distribution according to gender

Gender	Frequency	%
Male	25	25
Female	75	75

Table 3: Distribution according to types of facial melanosis.

Types official melanosis	Frequency	%
Melasma	52	52
PIH	15	15
Ephelides	7	7

LPP	5	5
Rehl'smelanosis	6	6
Drug induced	6	6
Naevus	3	3
Contactdermatitis	4	4
Acanthosisnigricans	1	1
Others	1	1

PIH: post inflammatory hyperpigmentation

Table4: Clinical characteristics of facial hyperpigmentation.

Types of facial hyperpigmentation	Predisposing factors	Associated co morbid condition	Family history(%)
Melasma	Sunlight,cosmetics, pregnancy	Hypothyroidism	20
PIH	Sunlight,dermatitis, pyoderma,trauma	Anemia	14
Ephilides	Sunlight		35
LPP	Cosmetics	-	-
Rehl's melanosis	Sunlightand cosmetics	-	-
Druginduced	ATT	-	-
Naevus	-	-	-
Contact dermatitis	-	-	-
Acanthosisnigricans	-	Diabetes	-
Others	-	-	-

DISCUSSION

We included a total of 100 participants diagnosed with face hyperpigmentation in our research. We included a total of 100 participants diagnosed with face hyperpigmentation in our research. Among the 100 patients, the largest proportion, namely 32%, belonged to the age group of 20 to 30 years, while the next largest proportion, 24%, belonged to the age group of 30 to 40 years. 17% of the individuals belonged to the age range of 40 to 50 years. The youngest individual belonged to the age group of under 10 years. The average age of the participants in the research was 29.01 ± 3.25 years. Among the 100 patients, the majority, namely 75%, were females, while just 25% were men. Hassan et al comprised of 208 patients of altered facialpigmentation. ⁷The 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. 52%. It is followed by post inflammatory hyperpigmentation (PIH) in 15% and ephilides in 7%. Rehl's melanosis and drug induced melasma was seen in 6% each of the patients. The average age of melasma patients was 31.78 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 25% involvement of men. It is comparable to 19.87% and 10% in different studies. ^{8,10} About 70% of our patients with melasma described sun exposure as a sex aggravating factor, similar to previous studies. ¹¹ Thyroid

dys function was seen in 13% of patients, hypothyroidism being commonest which was comparable to previous studies. ⁸ In 69% of patients, there was a history of association with the application of various cosmetic products and to 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. 13%. 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 14% of patients in our study. Ranu et al and Sheth et al reported 42.2% and 63% patients with positive family history of POH respectively. ^{14,15} PIH was the second most common cause of altered facial pigmentation in our study i.e. 15%. Acanthosis nigricans is characterized by dark, coarse, thickened skin with a velvety texture.

CONCLUSION

The most often reported age group was between 20 to 40 years old, with a higher proportion of females. The most frequently detected types of face hyperpigmentation were melasma (52%), post-inflammatory hyperpigmentation (15%), and ephilides (7%).

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