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A RETROSPECTIVE CLINICO-EPIDEMIOLOGICAL STUDY ON THE SPECTRUM OF PHOTODERMATOSES IN PATIENTS ATTENDING A TERTIARY CARE CENTRE OF JHARKHAND

Dermatology

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ABSTRACT

Background: Photodermatoses are a heterogeneous group of skin disorders precipitated or exacerbated by ultraviolet (UV) radiation and/or visible light. Their prevalence, clinical spectrum, and demographic distribution vary considerably across geographic regions and skin phototypes. **Objectives:** To determine the incidence and demographic pattern of idiopathic photodermatoses among patients attending the dermatology outpatient department (OPD) of a tertiary care hospital in Jharkhand over one year, and to characterise the clinical features, site distribution, and aggravating factors of each entity.**Methods:** A retrospective cross-sectional observational study was conducted at the Department ofDermatology, Venereology & Leprosy,at a tertiary care centre of Jharkhand from November 2023 to November 2024. A total of 271 confirmed cases of idiopathic photodermatoses were analysed out of total skin OPD visits. **Results:** The overall frequency of idiopathic photodermatoses was 0.59% of total skin OPD cases. Polymorphous Light Eruption (PMLE) was the most common condition (73.1%), followed by Solar Urticaria (SU, 23.6%), Chronic Actinic Dermatitis (CAD, 2.2%), and Actinic Prurigo (AP, 1.1%).No case of Hydroa Vacciniforme (HV) was recorded. Females predominated overall (F:M = 1.4:1). The peak age group was 21–30 years. Sunlight was the most frequent aggravating factor (45.7%). **Conclusion:** PMLE is the most prevalent idiopathic photodermatosis in this Jharkhand-based cohort. The demographic and clinical profile broadly corroborates findings from other Indian studies, with certain regional variations attributable to high outdoor agricultural activity and intense sun exposure in this region

KEYWORDS

Photodermatoses, Polymorphous Light Eruption, Solar Urticaria, Chronic Actinic Dermatitis, Actinic Prurigo, Jharkhand, Uv Radiation

INTRODUCTION

Solar radiation constitutes the primary source of natural light on Earth, of which ultraviolet (UV) radiation (UVA: 320–400 nm and UVB: 290–320 nm) accounts for approximately 2–3% of the total spectrum reaching the surface. [1] Despite its small proportion, UV radiation exerts profound biological effects on the skin, ranging from beneficial vitamin D synthesis to deleterious photocarcinogenesis and photodermatosis. Photodermatoses are a diverse and heterogeneous group of cutaneous disorders triggered or exacerbated by exposure to electromagnetic radiation, predominantly in the UV range. [2] They are broadly classified into four major categories: (i) Immunologically mediated photodermatoses (IMP) — encompassing Polymorphous Light Eruption (PMLE), Solar Urticaria (SU), Chronic Actinic Dermatitis (CAD), Actinic Prurigo (AP), and Hydroa Vacciniforme (HV); (ii) Drug- and chemical-induced photosensitivity; (iii) Defective DNA nucleotide excision repair disorders such as Xeroderma Pigmentosum; and (iv) Photoaggravated dermatoses (PAD). [2,3] India, by virtue of its tropical location, intense solar irradiation, and predominantly Fitzpatrick type IV–V skin phototype population, represents a unique geographic context for studying photodermatoses. [4] Jharkhand, located in east-central India, is characterised by a hot and humid climate, high outdoor agricultural occupational exposure, and a predominantly rural population — factors that may predispose to a distinct spectrum of photodermatoses.

Despite several Indian studies documenting the clinical epidemiology of photodermatoses, [5,6,7] data from the tribal-belt and agricultural heartlands of Jharkhand remain sparse. The present retrospective study was undertaken to document the clinical spectrum, incidence, demographic patterns, site distribution, and aggravating factors of idiopathic photodermatoses at a tertiary care hospital in Ranchi, Jharkhand.

AIMS AND OBJECTIVES

1. To determine the overall frequency of idiopathic photodermatoses in relation to total skin OPD cases.

2. To analyse the incidence of specific photodermatoses and identify the most prevalent entity.

3. To examine the age and sex distribution of patients with various photodermatoses.

4. To document site-wise distribution and aggravating factors for each photodermatosis.

MATERIAL AND METHODS

Study Design: A retrospective cross-sectional observational study at the Department of Dermatology, Venereology & Leprosy, RIMS, Ranchi, Jharkhand.

Study Duration: 1 year (November 2023 – November 2024).

Sample Size: 271 patients with idiopathic photodermatoses out of 45,890 total skin OPD attendances.

Inclusion Criteria: All patients of all age groups and both sexes attending the Skin & VD OPD, including those referred from other departments, diagnosed with a specific idiopathic photodermatosis.

Exclusion Criteria: Patients on systemic steroids or any photosensitising drug were excluded.

Methodology: Diagnosis was based on detailed history and clinical assessment. Investigations including histopathology and blood/urine examination were performed in selected cases to exclude lupus erythematosus and porphyrias. [8] Detailed general and cutaneous examination was documented in a standardised proforma. Results were tabulated and statistically analysed using descriptive statistics.

RESULTS

A total of 271 cases of idiopathic photodermatoses were recorded over one year from 45,890 total skin OPD visits, giving an overall

frequency of 0.59%. PMLE was the most common diagnosis (73.1%), followed by SU (23.6%), CAD (2.2%), and AP (1.1%). No case of HV was recorded. [3]

Gender Distribution

Among 271 patients, 159 (58.7%) were female and 112 (41.3%) were male (F:M = 1.4:1). Females predominated in PMLE (F:M = 1.5:1) and SU (F:M = 1.5:1). CAD showed a striking male predominance (M:F = 5:1). [9,10] In PMLE, females outnumbered males in all age groups except 5–10 and 11–20 years, where sex incidence was nearly equal. [5]

Age Distribution

The overall peak age group was 21–30 years (n=86, 31.7%), followed by 31–40 years (n=60, 22.1%).PMLE peaked in the 21–30 year group (n=67, 33.8%). [5,11] CAD predominantly affected the 51–60 year age group (66.7%) with male preponderance. [9] All AP cases (100%) belongedto the 11–20 year group, consistent with its juvenile-onset character. [12]

Site-wise Distribution

The face was universally involved (100% across all diagnoses). In PMLE, the face and upper limbs were involved in all cases; V-chest (59.6%) and neck (55.6%) were also frequently affected. [5] In SU, face, neck, and upper limbs were all involved in 100% of cases. CAD characteristically involved face, neck, and upper limbs universally, with V-chest (83.3%) and feet (50%) also affected. In AP, face and upper limbs were invariably involved.

Aggravating Factors

Sunlight was the most common single aggravating factor (45.7%), followed by sweat (23.6%), sunlight + sweat combination (11.4%),heat (7.4%), and unknown (6.3%). These findings align with Sharma et al., who also identified sunlight as the primary aggravating factor. [5]

DISCUSSION

The overall frequency of idiopathic photodermatoses in our study was 0.59% (271/45,890 skin OPD cases), broadly comparable to figures from other Indian tertiary care studies. [4,11]

PMLE constituted the majority (73.1%), consistent with its global status as the most common photodermatosis. [2,3] Female predominance in PMLE (60.1%) mirrors multiple Indian and international reports. [5,7] The peak incidence in the 21–30 year group, with relative male-female parity among those under 20, may reflect hormonal influences on UV sensitivity in reproductive-age women. [5]

SU accounted for 23.6%, higher than the 14% reported by Stratigos et al. [13] but consistent with rates from Indian subtropical populations where intense solar radiation and outdoor work-patterns increase cumulative photosensitisation. Female predominance in SU may relate to oestrogen-mediated modulation of mast cell reactivity. [14]
CAD prevalence was 2.2% (6/271), markedly lower than the 10.2% reported by Stratigos et al.

[13] but consistent with Indian data from Somani et al. [10] and Yap et al. from Australia. [9] The distinctly male-predominant pattern of CAD (M:F = 5:1) and predilection for the 51–60 age group is attributable to occupational UV exposure and chronic actinic damage in older males. [15]

AP was seen exclusively in the 11–20 year age group (3 cases), consistent with its characteristic early onset. [12] No case of HV was recorded, consistent with its extreme rarity globally. [3]

Sunlight alone was the predominant aggravating factor (45.7%), closely mirroring findings from Sharma et al. [5] The notable proportion of combination triggers (sunlight + sweat, 11.4%) suggests that thermal co-factors further amplify photosensitivity in this high-agricultural-activity population. [7]

Limitations include the retrospective, single-centre, hospital-based design. Prospectivecommunity-based studies and standardised phototesting (photopatch testing, monochromator phototesting) would strengthen future epidemiological data. [8]

CONCLUSION

PMLE is the most prevalent idiopathic photodermatosis in patients attending this Jharkhand-based tertiary care hospital (73.1%), followed by SU (23.6%), CAD (2.2%), and AP (1.1%). Females predominate overall, with the exception of CAD where males are significantly over-represented. The 21–30 year age group is most commonly affected. Sunlight exposure is the foremost identified aggravating factor. These findings provide baseline epidemiological data for photodermatoses in the tribal and agricultural heartland of Jharkhand and underscore the need for targeted sun-protection awareness programmes.

Figure 1: Distribution of Idiopathic Photodermatoses (n=271)

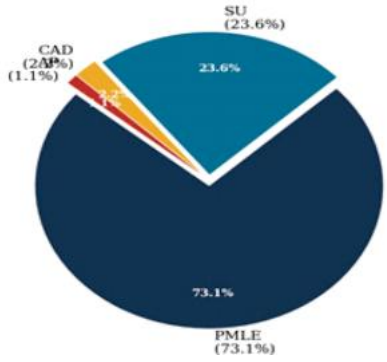


Figure 2: Gender-wise Distribution of Photodermatoses

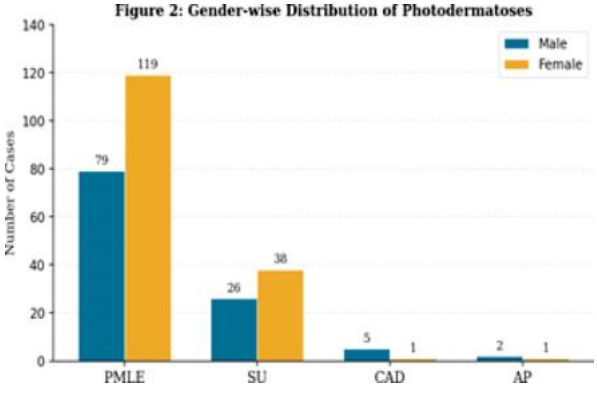


Figure 3: Age-wise Distribution of Photodermatoses

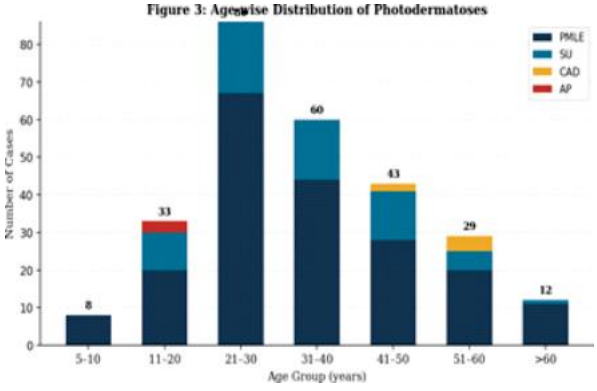


Figure 4: Site-wise Distribution of Photodermatoses (All Cases)

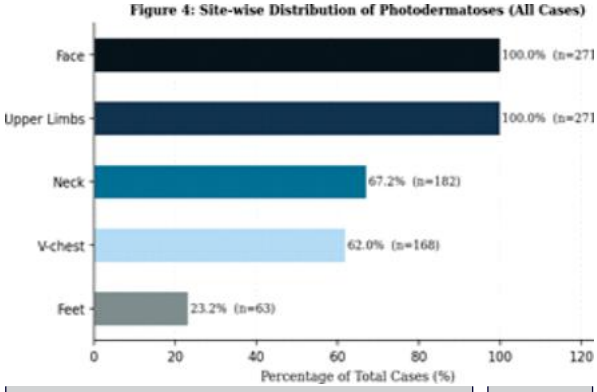
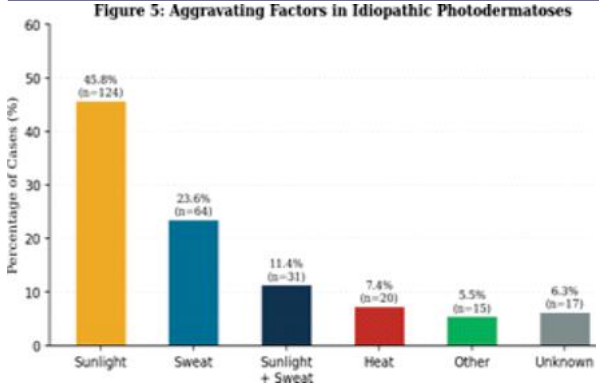


Figure 5: Aggravating Factors in Idiopathic Photodermatoses



REFERENCES

[1] Hawk JLM, Norris PG. Abnormal responses to ultraviolet radiation: idiopathic. In: Fitzpatrick TB, et al., eds. Fitzpatrick's Dermatology in General Medicine. 5th edn. New York: McGraw-Hill; 1999:1573–89.
[2] Lehmann P, Schwarz T. Photodermatoses: Diagnosis and treatment. Dtsch Arztebl Int. 2011;108(9):135–41.
[3] Honigsmann H. Polymorphous light eruption. PhotodermatolPhotoimmunolPhotomed. 2008;24(3):155–61.
[4] Dogra S, Kanwar AJ. Photodermatoses in pigmented skin. Indian J Dermatol Venereol Leprol. 2004;70(4):262–7.
[5] Sharma L, Basnet A. A clinicoepidemiological study of polymorphic light eruption. Indian J Dermatol Venereol Leprol. 2008;74(1):15–7.
[6] Verma KK, Srivastava P, Minz A. Pattern of photodermatoses in northern India. Indian J Dermatol Venereol Leprol. 2010;76(5):566–8.
[7] Singh SK, Jha PK, Kumar P. Clinicoepidemiological profile of photodermatoses in a tertiary care hospital. Indian Dermatol Online J. 2018;9(4):247–51.
[8] Lim HW, Hawk JLM. Photodermatologic disorders. In: Bologna JL, et al., eds. Dermatology. 3rd edn. London: Mosby-Elsevier; 2012:1467–91.
[9] Yap LM, Foley P, Crouch R, Baker C. Chronic actinic dermatitis: A retrospective analysis of 44 cases referred to an Australian photobiology clinic. Australasian J Dermatol. 2003;44(4):256–62.
[10] Somani VK. Chronic actinic dermatitis — A study of clinical features. Indian J Dermatol Venereol Leprol. 2005;71(6):409–13.
[11] Naleway AL. Polymorphous light eruption. Int J Dermatol. 2002;41(7):377–83.
[12] Grabczynska SA, McGregor JM, Hawk JLM. Actinic prurigo presenting in adulthood. Clin Exp Dermatol. 1999;24(4):328–30.
[13] Stratigos AJ, Antoniou C, Katsambas AD. Polymorphous light eruption. J Eur Acad Dermatol Venereol. 2002;16(3):193–206.
[14] Botto NC, Warshaw EM. Solar urticaria. J Am Acad Dermatol. 2008;59(6):909–20.
[15] Stephansson E, Ros AM. Expression of intercellular adhesion molecule-1 (ICAM-1) and OKM5 in UVA- and UVB-induced lesions in patients with lupus erythematosus and polymorphous light eruption. Arch Dermatol Res. 1993;285(6):328–33.