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Research Article

A Study on Leprosy Reactions in a Tertiary Hospital in Northeast India

Joydeep Roy[1], Arup Paul[2], Shromona Kar[3*], Bhaskar Gupta[4]
[1,2,3*,4]Department of Dermatology, Venereology and Leprosy, Silchar Medical College and Hospital, Silchar, Assam, India.
[*]**Corresponding Author:** Dr Shromona Kar
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ABSTRACT
"Leprosy reactions are acute inflammatory episodes occurring in leprosy patients, significantly affecting morbidity and long-term disability. "The objective of this study is to assess the clinical and epidemiological profile of leprosy reactions in a tertiary care hospital in Northeast India. A retrospective analysis of medical records of leprosy patients presenting with reactions was conducted. The study categorizes cases based on age, sex, classification of leprosy, type of reaction, duration of treatment, and clinical symptoms. Prompt diagnosis and management are crucial for preventing permanent disabilities.

Keywords: Leprosy, Reaction, ENL, MDT, Hansens Disease.

INTRODUCTION

Leprosy, caused by Mycobacterium leprae, remains a significant public health concern despite India achieving leprosy elimination at the national level in 2005[1]."The disease primarily affects the skin and peripheral nerves, leading to sensory and motor impairments. "Leprosy reactions are acute episodes of heightened inflammation, disrupting the otherwise chronic course of the disease[2]."

Leprosy reactions are broadly classified into two types. "Type 1 reactions occur in borderline forms of leprosy and result from a cell mediated delayed hypersensitivity response to M. leprae antigens. "These reactions manifest as inflamed pre-existing skin lesions and neuritis[3]. Type 2 reactions occur in borderline leprosy and lepromatous leprosy and result from immune complex deposition, causing painful nodules, neuritis, and systemic symptoms such as fever and joint pain[4].

Leprosy reactions are the primary cause of disability in leprosy patients, necessitating early recognition and intervention. "This study aims to analyze the epidemiology and clinical spectrum of leprosy reactions in a tertiary care hospital in Northeast India to improve understanding and management strategies."

MATERIALS AND METHODS

A retrospective study was conducted at the dermatology outpatient department of a tertiary care hospital in Northeast India from January 2024 to December 2024."The study incorporated all patients diagnosed with leprosy reactions based on clinical and histopathological criteria using the Ridley-Jopling classification[5].

Inclusion Criteria

- Age group 18-60 years
- Patients with a confirmed diagnosis of leprosy.
- Patients presenting with signs and symptoms of leprosy reactions (Type 1 or Type 2)."

Exclusion Criteria

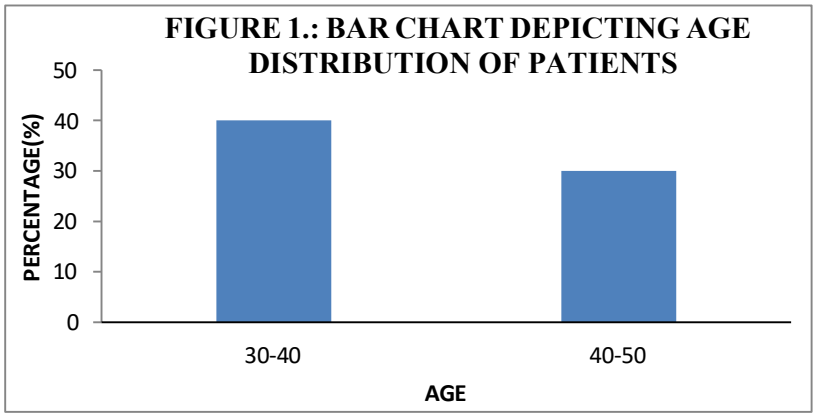
Patients with Leprosy reaction with loss to follow up.

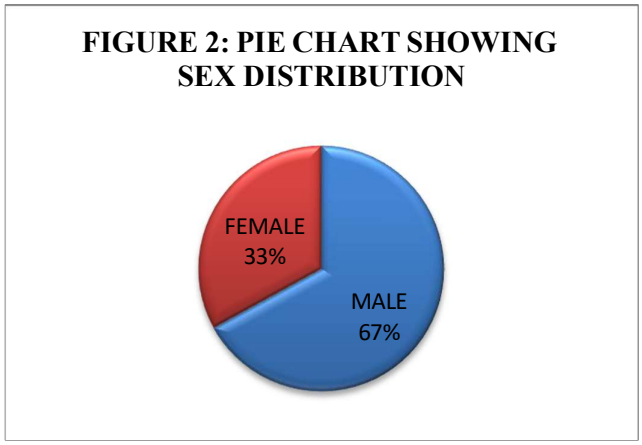
- Data on age, sex, type of leprosy, type of reaction, duration of treatment, and clinical symptoms were recorded.

RESULTS

Age and Sex Distribution"

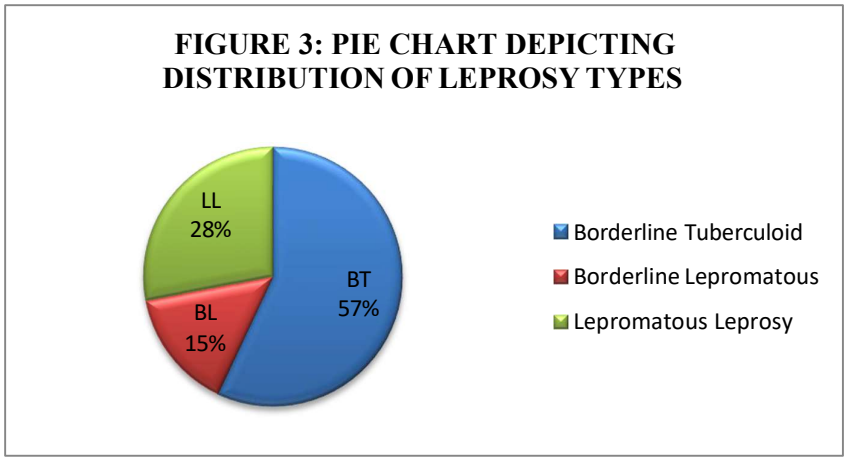
A total of 50 leprosy patients were analyzed, of which 21 (42%) presented with leprosy reactions. "The majority of cases were in the 30- 40 years age group (40%), followed by the 40-
50 years group (30%) as shown in Figure 1. The male-to-female ratio was 2:1, with 67% of cases occurring in males, as shown in Figure 2."





Distribution of Leprosy Types

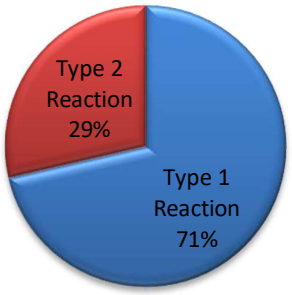
"Among the patients with reactions, 57% had borderline tuberculoid (BT) leprosy, followed by 28% with lepromatous leprosy (LL) and 15% with borderline lepromatous (BL) leprosy as shown in Figure 3."Type 1 reactions were predominantly seen in BT cases, whereas Type 2 reactions were more common in LL patients.



Types of Reactions

Of the 21 cases with reactions, 15 (71.4%) had Type 1 reactions, while 6 (28.6%) had Type 2 reactions as shown in Figure 4. Type 1 reactions were characterized by erythematous, edematous, and tender lesions, often accompanied by neuritis. Type 2 reactions presented with evanescent painful nodules, systemic symptoms like fever, and joint pain.

FIGURE 4: PIE CHART SHOWING TYPES OF REACTIONS

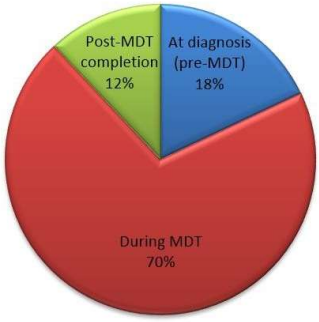


Duration of Treatment

Leprosy reactions occurred at different stages of treatment, as shown in Figure 5.

- At diagnosis (pre-MDT): 18%
- During MDT: 70%
- Post-MDT completion: 12%

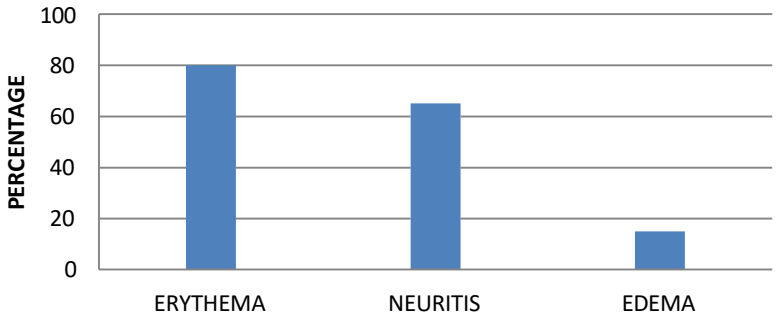
FIGURE 5: PIE CHART DEPICTING OCCURENCE OF REACTIONS WITH RESPECT TO TREATMENT



"Presentation of Type 1 and Type 2 Reactions"

- "Type 1 Reaction: Erythema (80%), neuritis (65%), edema of face/hands/feet (15%). (figure 6)"
- "Type 2 Reaction: Painful evanscent erythematous nodules (94%),fever(76%) neuritis (50%), iridocyclitis (20%), arthralgia (16%) epididymo-orchitis (5%). (figure 7)"

FIGURE 6: BAR CHART SHOWING PRESENTATION OF TYPE 1 REACTIONS



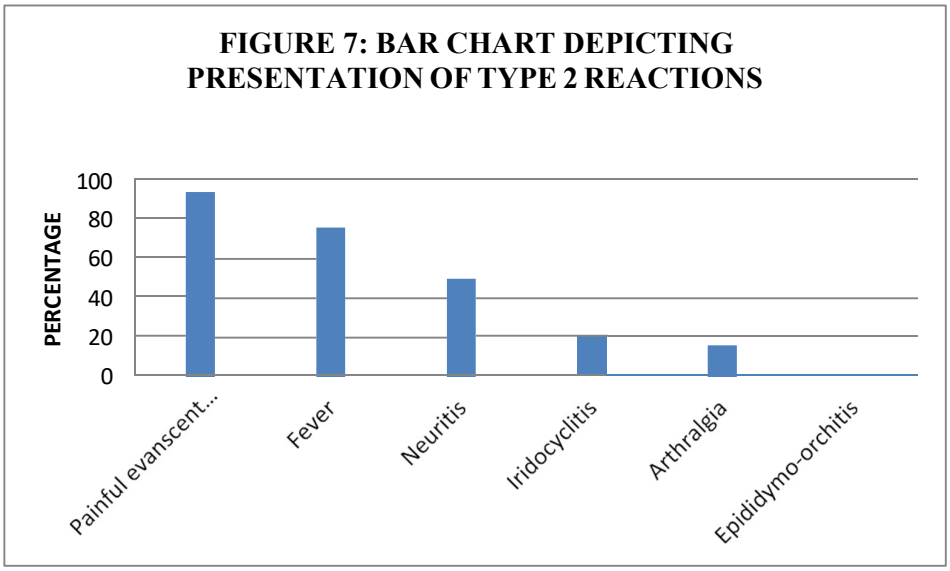


Figure 8. A Patient Presenting With Erythematous Plaque over Cheeks, Forehead and Bilateral Forearm In Type 1 Reaction

Figure 9. A Patient Presenting With Painful Evanscent Erythematous Nodules over Face, Trunk and Extremities in Type 2 Reaction

DISCUSSION

The prevalence of leprosy reactions in this study is 42%."Type 1 reactions were more common in BT patients, consistent with their association with cell-mediated immunity. Type 2 reactions, primarily seen in LL cases, resulted from immune complex deposition[3].

The male predominance observed in this study is consistent with previous findings, possibly due to greater exposure to environmental risk factors.[6] Age distribution showed that most reactions occurred in individuals aged 20-40 years, which aligns with the active disease phase in this population.

Leprosy reactions were observed at various stages of MDT. Most reactions occurred during MDT (60%), suggesting that bacterial clearance triggers immune responses[7]. However, 20% of cases developed reactions after MDT completion, reinforcing the need for post-treatment surveillance.

Corticosteroids remain the mainstay for treating Type 1 reactions, whereas Type 2 reactions may require additional immunomodulators like thalidomide[8]. Nerve function impairment remains a significant concern, highlighting the need for early intervention to prevent permanent disabilities[9].

CONCLUSION

Leprosy reactions remain a significant cause of morbidity in leprosy patients, particularly those undergoing MDT. Type 1 reactions were more common and primarily affected BT patients, while Type 2 reactions predominantly occurred in LL patients. Early recognition and prompt treatment of reactions, particularly neuritis, are crucial to preventing permanent disability. Continued surveillance, even after MDT completion, is necessary for timely management of delayed reactions.

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Conflicts of Interest: There are no conflicts of interest.

REFERENCES

1. Mendiratta V, Yadav D, Thekho AJ. A clinico-epidemiological profile of lepra reactions from a tertiary care hospital in North India. Indian J Lepr. 2023;95:253-9.
2. Sharma N, Koranne RV, Mendiratta V, Sharma RC. A study of leprosy reactions in a tertiary hospital in Delhi. J Dermatol. 2004;31(11):898-903.
3. Jha S, Ranjan A, Singh A. A clinico-epidemiological study on reactions in leprosy: a cross-sectional study from a tertiary care hospital in Eastern India. Int J Acad Med Pharm. 2024;6(4):1117-21.
4. Ridley DS, Jopling WH. Classification of leprosy according to immunity. Int J Lepr. 1966;34:255-73.
5. Sharma N, Koranne RV, Mendiratta V. Epidemiological patterns of leprosy reactions in India. J Dermatol. 2004;31(11):903-8.
6. World Health Organization. Global leprosy update 2020: moving towards interruption of transmission. Wkly Epidemiol Rec. 2021;36:421-36.
7. National Leprosy Eradication Programme (NLEP), India. Operational guidelines for leprosy management and disability prevention. 2019.
8. Mendiratta V, Yadav D, Thekho AJ. Clinical features of type 1 and type 2 lepra reactions. Indian J Lepr. 2023;95:253-9.
9. Sharma R, Koranne RV, Mendiratta V. Management of lepra reactions with corticosteroids and immunomodulators. J Dermatol. 2004;31(11):910-5.