

Correlation between Sensory Loss and Ulcers among Leprosy-affected Individuals

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ABSTRACT

Introduction: Leprosy is a chronic infectious disease caused by *Mycobacterium leprae* that primarily affects the skin and peripheral nerves. Sensory impairment is one of the earliest and most significant neurological manifestations of the disease. Loss of protective sensation predisposes affected individuals to repeated trauma, leading to ulcer formation, deformities, and long-term disability, particularly in weight-bearing regions of the body.

Aim: To determine the correlation between sensory loss and ulcer occurrence among individuals affected by leprosy.

Materials and Methods: A cross-sectional study was conducted among 300 adults affected by leprosy in Delhi. Sensory assessment was performed using monofilament testing, along with evaluation of light touch, pinprick, pain, and pressure sensations. Information regarding ulcer history, site of ulceration, demographic profile, and WHO disability grading was collected. Statistical analysis was performed using descriptive statistics, Chi-square test, and logistic regression analysis, with a significance level set at $p < 0.05$.

Results: Overall, sensory loss was observed in 255 participants (85.0%), while ulcer history was present in 187 participants (62.3%). A highly significant association was found between sensory loss and ulcer history ($p < 0.001$). Participants with ulcer history demonstrated markedly higher prevalence of sensory impairment than those without ulcers [97.3% vs. 64.6%]. Logistic regression analysis revealed that sensory loss was a strong independent predictor of sensory loss, with an odds ratio of 7.78 (95% CI: 2.72-22.24). Extremity involvement was significantly higher than facial involvement, with the plantar surface of the foot identified as the most common ulcer site (52.9%).

Conclusion: Sensory impairment is strongly associated with ulcer development in individuals affected by leprosy. Early sensory screening and preventive foot care strategies are essential to reduce ulceration, disability progression, and long-term complications.

Keywords: Cross-sectional studies, Foot ulcer, Leprosy, Peripheral nervous system diseases, Sensory disorders.

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