Nerve Renewal
NEUROPATHY CLINIC

Clinical Analysis Report

Evaluation of Combined Neuromodulation Therapy for Neuropathy in Bilateral Lower Extremities by Nerve Renewal Neuropathy Clinic

Abstract

This retrospective review evaluates the effectiveness of a 12-week neuromodulation therapy protocol, combining high-frequency electrical stimulation (NeuroMed electroanalgesia) and localized injections of Lidocaine and vitamin B complex on patients experiencing neuropathy-related pain and balance impairment in the bilateral lower extremities. Among 100 patients treated uniformly from May 3, 2022, to January 28, 2025, outcomes were assessed based on changes in pain level and balance scores from baseline compared to end of treatment. Results show significant reduction in both pain and balance scores, with over 90% of patients demonstrating measurable improvement. Additional subgroup analysis noted an equal response in patients above 65 years old to those below age 65.

Introduction

Peripheral neuropathy affecting the lower extremities can result in chronic pain, numbness, and impaired balance, severely affecting quality of life. Conventional treatment approaches often fail to deliver meaningful or sustained symptom relief. This study explores the impact of an evidenced based, multimodal therapy approach using the NeuroMed electroanalgesia device and injectable therapies to modulate nerve activity and improve function. Peripheral nerve stimulation (PNS) targets the nerves outside of the spinal cord that are directly producing the symptoms (Abd-Elsayed et al. 2023).

Peripheral Nerve Stimulation and Vitamin B Complex

Studies have shown that neuromodulation enhances regeneration of peripheral nerves. Peripheral nerve stimulation/Electroanalgesia for neuropathic pain can provide alternative treatment for pain symptoms (Abd-Elsayed, et al. 2023).

Combined electrochemical treatment has been shown in prior studies to be effective therapy with observable clinical improvement in function (O'Dell, 2015).

Vitamin B complex has beneficial effects on pain and paresthesia (Sun, et al. 2005).

Methods

Study Design

A retrospective analysis was conducted on 100 random patients over 5 clinics in Oklahoma, 20 per clinic, diagnosed with pain affecting both lower extremities. Patients were treated over a 12-week period and followed a standardized treatment protocol.

Treatment Protocol

Each patient received two therapy sessions per week for a total of 24 sessions:

- **Electroanalgesia:** 30-minute sessions using the NeuroMed electroanalgesia stimulation device.
- **Injections:** Subcutaneous Lidocaine and vitamin B complex injections administered to both feet.

Outcome Measures

- **Primary Outcome:** Reduction in pain score, measured using patient reported numerical 0–10 pain scale.
- **Secondary Outcome:** Improvement in balance score, measured using the Balance Tracking System, computerized posturography system that assesses balance and fall risk, with scores calculated using age, sex and individual result; then categorized in low, moderate or high.

Time Points

- **Baseline (Initial Evaluation):** Prior to first therapy.
- **Post-Treatment (End Evaluation):** After completing 12 weeks of therapy.

Clinically Meaningful Improvement

- Any decrease in pain score was considered clinically significant.

- Any improvement in balance score was noted as a secondary success.

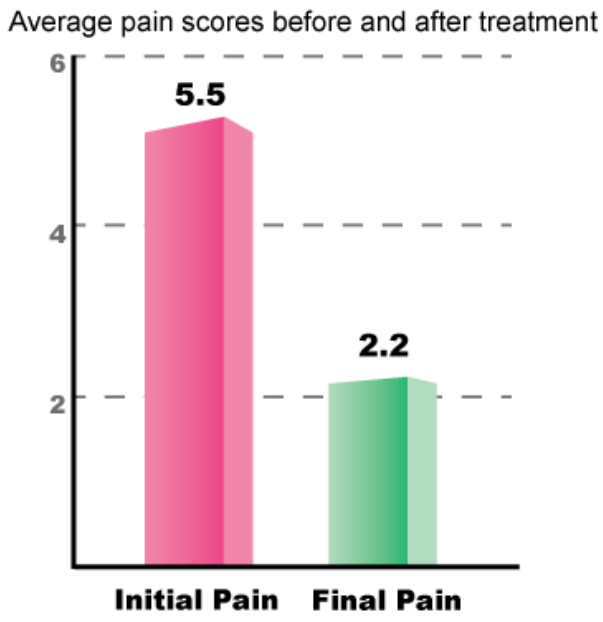
Results

Patient Demographics

- **Total Patients:** N=100, 20 patients from 5 clinics
- **Age Range:** 41 to 86 years
- **Patients Aged 65 or Older:** 65%, n=65 of 100

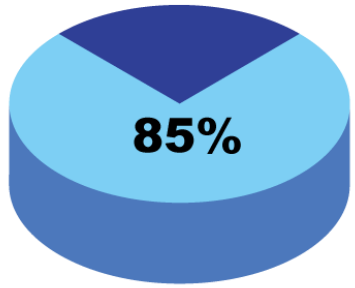
Pain Reduction

- **Average Initial Pain Score:** 5.4
- **Average Final Pain Score:** 2.2
- **Mean Pain Score Reduction:** 3.2 points
- **Mean % Change in Pain:** 59%
- **Patients with Any Pain Reduction:** n= 92 of 100



Balance Improvement

- **Average Initial Balance Score:** 44.7
- **Average Final Balance Score:** 35.4
- **Mean Balance Improvement:** 9.3 points
- **Mean % Change in Balance Score:** 20%
- **Patients with Improved Balance:** n= 85 of 100



85% Showed Improved Balance

Subgroup Analysis: Patients Aged 65+ vs. <65

Metric	65+ Group	<65 Group
Average Pain Reduction	3.1 points	3.4 points
Average Pain % Change	57%	63%
Average Balance Change	8.7 points	10.3 points
Balance % Change	19%	22%

Note: Both age groups with clinically meaningful improvement, slightly greater improvement in the under-65 cohort.

Discussion

The combination therapy of high-frequency electroanalgesia and targeted subcutaneous vitamin injections over a consistent 12-week protocol led to significant reductions in neuropathic pain and improved balance across the reviewed population. The improvements were particularly striking in pain levels, with an average 59% reduction. These findings suggest that integrating non-pharmacological neuromodulation with localized injection therapy may be a highly effective treatment for patients with chronic lower extremity neuropathy pain.

Comparable benefits observed in older adults compared to middle aged, supporting its use in elderly populations commonly affected by peripheral neuropathy.

Conclusion

This 12-week neuromodulation treatment protocol significantly improved both pain and balance outcomes for patients with neuropathy symptoms in the bilateral lower extremities. The therapy offers a promising non-surgical and non-opioid option for managing chronic neuropathic symptoms.

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References

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