

Introduction

Painful diabetic neuropathy (PDN) is a common diabetes complication causing chronic pain and reduced quality of life. Conventional treatments often have limited effectiveness and side effects, prompting interest in alternatives like magnetic peripheral nerve stimulation (mPNS). This non-invasive technique uses pulsed magnetic fields to activate peripheral nerves and modulate pain. This review examines current evidence on the efficacy, mechanisms, and clinical outcomes of mPNS as a potential therapy for managing PDN.

Methods

A comprehensive scientific literature search was conducted through specialized databases such as MEDLINE, EMBASE, CINAHL, PubMed, MedlinePlus, PsycINFO, and Cochrane Library. The search terms used to retrieve the relevant literature in each of these databases were “neuropathic pain” AND “mPNS” AND ”chronic pain”.



Magnetic Peripheral Nerve Stimulation for Treatment of Painful Diabetic Neuropathy– A Literature Review

Michael Sposito M.D. PGY-3
Panayotis Jusakos M.D. PGY-3
Daniel Sanchez M.D. PGY-3
Charlene Canales D.O. PGY-3
Roberto Andrade M.D. PGY-2
Samuel Thampi M.D.



References



Results/Evidence Table

Study	Treatment Groups	Key Findings
Retrospective Observational Study	mPNS	24 patients with neuropathic post-traumatic or post-op pain, two-thirds of patients showed an 87% reduction in pain 3 months after treatment with mPNS
Multicenter Randomized Controlled Trial	mPNS	71 painful diabetic neuropathic subjects undergoing mPNS showed an 81.4% responder rate with 75.7% average pain reduction at 3 months
Randomized Controlled Trial	mPNS + Conventional Medical Management (CMM)	65 patients with post-surgical neuropathy, resulting in 71% responders at 3 months with >50% reduction in pain with the combination of CMM and mPNS vs CMM alone
Pilot Clinical Trial	mPNS	9 participants with diabetic neuropathy receiving mPNS resulted in a 78% significant reduction in pain immediately post-treatment and up to 7 days post-treatment

Discussion

Magnetic peripheral nerve stimulation shows promise as a non-invasive treatment for painful diabetic neuropathy, with studies reporting sustained pain relief and improved quality of life. While responses vary, evidence supports its potential. Larger, diverse studies are needed to confirm long-term efficacy, optimize protocols, and establish mPNS as a reliable option in neuropathic pain management.