

Letter to the Editor**Pulsed Radiofrequency for Neuropathic Pain: A Cross-Specialty Opportunity in Need of Standardization**

Ali Hassan¹

1. Department of Plastic Surgery, Queen Elizabeth Hospital, Birmingham, United Kingdom

Abstract: Neuropathic pain remains a therapeutic challenge in clinical practice, often refractory to conventional pharmacological management. Pulsed Radiofrequency (PRF) has emerged as a promising neuromodulatory technique that merits greater attention. Unlike conventional thermal radiofrequency ablation, PRF delivers short, high-voltage bursts of electrical current to target nerves without significant thermal damage, thereby maintaining structural neural integrity while modulating pain signaling

Keywords: Nerve pain, Pulsed radiofrequency, Neuropathic pain

How to cite: Hassan A. Pulsed Radiofrequency for Neuropathic Pain: A Cross-Specialty Opportunity in Need of Standardization. J Univ Physicians Surg Pak (JUPSP). 2026; 4–5.

Corresponding Author: Ali Hassan: Email: alijaved3693@gmail.com

To the Editor,

Neuropathic pain continues to be a major problem troubling clinicians across many branches of medicine. It may clinically present as a sequelae of trauma, cancer treatment, reconstructive surgery, spinal disease, and a range of chronic conditions. Patients suffering from neuropathic pain, even with medications, find themselves struggling with debilitating pain that limits their activity and negatively affects their well-being. To manage this condition, pulsed radiofrequency (PRF) has recently attracted interest and is emerging as a minimally invasive option that may serve more than the few specialties currently using it.^{1,2}

Pulsed radiofrequency (PRF), in contrast to the more conventional thermal radiofrequency, could be a safe option for many clinicians and patients. During PRF, high-voltage current is delivered in brief bursts while keeping tissue temperatures below levels that damage nerves. The goal is to modulate nociceptive pathways without damaging the nerve itself, which is why some clinicians view it as a reversible, relatively low-risk technique.² Evidence suggests that PRF can play a positive role in the management of a variety of neuropathic pain conditions and thus improve the lives of these patients. The meta-analysis published by Shi and Wu reported meaningful pain reduction with a good safety profile in postherpetic neuralgia in terms of pain score.³ Moreover, encouraging results were also reported

by Abd-Elsayed and colleagues, though their sample was small and without control.⁴

More recent clinical experience echoes these concerns. Haehnsen et al. found that outcomes varied widely among patients with peripheral nerve-related pain treated with PRF, highlighting the need for standardized protocols, better patient selection criteria, and more consistent reporting of the procedure itself.⁵ The lack of large randomized clinical trials continues to be a limiting factor preventing broader acceptance.

What stands out, however, is how little PRF is used in many specialties that routinely encounter neuropathic pain. Plastic and reconstructive surgeons, orthopedic surgeons, neurologists, oncologists, primary care physicians, and rehabilitation specialists all manage patients with painful conditions. Yet PRF remains an uncommon treatment modality in their management pathway.^{2,4} This presents an opportunity to increase collaboration and expand access to a safe, repeatable, and potentially helpful technique for selected patients.

To move PRF toward more consistent and evidence-based use, several steps would be valuable:

1. Studies exploring procedural parameters such as dose and parameter settings, temperature limits, pulse width, duration, and cycle number.

2. Multicenter randomized trials comparing PRF with standard medication and with surgical options for neuropathic pain.
3. Prospective cohorts focused on conditions frequently seen outside pain medicine, such as post-surgical neuropathic pain, traumatic neuromas, and cancer-related neuropathic pain.
4. Development of consensus statements involving pain specialists, surgeons, neurologists, and rehabilitation physicians.

A stronger evidence base will help clinicians understand where PRF fits and how to use it reliably. Increasing awareness about this modality across specialties may provide an additional option when conventional treatments prove insufficient.

References

1. Finnerup NB, Kuner R, Jensen TS. Neuropathic pain: from mechanisms to treatment. *Physiol Rev.* 2021;101(1):259–301. doi: 10.1152/physrev.00045.2019.
2. Vanneste T, Van Lantschoot A, Van Boxem K, Van Zundert J. Pulsed radiofrequency in chronic pain. *Curr Opin Anaesthesiol.* 2017;30(5):577–582. doi: 10.1097/ACO.0000000000000502.
3. Shi Y, Wu W. Treatment of neuropathic pain using pulsed radiofrequency: a meta-analysis. *Pain Physician.* 2016;19(7):429–44.
4. Abd-Elsayed A, Kreuger L, Seeger S, Dulli D. Pulsed radiofrequency for treating trigeminal neuralgia. *Ochsner J.* 2018;18(1):63–65.
5. Haehnsen A, Mauermann E, Kalimeris K. Treatment of peripheral nerves with pulsed radiofrequency: a retrospective analysis. *Cureus.* 2025;17(3):e79879. doi: 10.7759/cureus.79879.