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Treatment of Trigeminal Neuralgia with Radiofrequency Ablation: A Review

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Key Points

Question:
Can Radiofrequency Ablation (RFA) effectively and safely manage refractory Trigeminal Neuralgia?

Findings:
RFA achieves a success rate of ~94% with long-term relief and low recurrence (5-10%). CRF and PRF modalities enable targeted neurodestruction with minimal damage. High patient satisfaction due to its minimally invasive nature and efficacy.

Meaning:
RFA offers a reliable alternative for TN treatment, especially for patients unresponsive to medications or unsuitable for invasive surgeries.

Abstract

Importance:
Trigeminal Neuralgia (TN) is a debilitating condition characterized by acute facial pain that significantly impacts the quality of life. Current pharmacological treatments may lose effectiveness or cause side effects, necessitating alternative approaches like Radiofrequency Ablation (RFA).

Objective:
To evaluate the efficacy, safety, and procedural aspects of RFA as a treatment for refractory TN, focusing on its modalities: Continuous Radiofrequency (CRF) and Pulsed Radiofrequency (PRF).

Evidence Review
This review synthesizes data on RFA from clinical studies and expert analyses, detailing its mechanism, procedural techniques, and outcomes in managing TN.

Findings
RFA provides targeted neurodestruction at the trigeminal ganglion, effectively disrupting pain signals. CRF involves sustained high temperatures for nerve ablation, while PRF applies intermittent, lower-temperature pulses to minimize tissue damage. Performed under fluoroscopic guidance with high precision, RFA achieves a success rate of ~94% and long-term relief with a recurrence rate of 5-10%. High due to its minimally invasive nature, efficacy, and safety profile, making it suitable for patients contraindicated for surgery.

Conclusions and Relevance:
RFA is a highly effective, minimally invasive treatment for TN, offering significant pain relief and a favorable safety profile. Its low recurrence rate and non-intrusive procedure make it an essential alternative for managing refractory TN, especially when surgical options are unsuitable.

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