Radiofrequency Ablation for Treating Headache Related Pericranial Neuralgia

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Background: Pericranial neuralgias are painful and often longstanding disorders that can result in headache.[1] Commonly chronic and daily, the related headaches can be debilitating and difficult to treat.[2] First-line pharmacologic monotherapy must be taken chronically and often is unable to achieve satisfactory levels of pain management.[3] Surgical intervention can achieve headache cessation but also carry an increased cost and risk profile.[4] Here, we evaluate the efficacy and safety of radiofrequency ablation (RFA) as a treatment for patients with pericranial neuralgia and associated headache conditions.

Objective/Hypothesis: RFA is an effective method for treating headache conditions associated with pericranial neuralgia measured by reduction in pain scores, headache-related emergency room (ER) visits, and percent improvement in headache condition.

Methods: This is a retrospective analysis which includes patients who received RFA of pericranial nerves to treat headache conditions relating to pericranial neuralgias from January 1, 2015 to January 31, 2018. Outcomes were patient-reported percent improvement in headache condition (including pain, severity, duration, frequency, and associated symptoms), pain relief duration in days, pain scores as measured on a visual analog scale (0-10), and number of headache-related ER visits pre- and post-RFA procedure.

Results: Of the 214 RFAs with reported follow up, 89.3% of RFAs resulted in a numeric or descriptive improvement in headache condition after procedure. RFA of pericranial nerves resulted in a patient-reported numeric headache improvement of 62.6% ± 33.7 (n=165, range 0-100). In addition, RFA resulted in an average duration relief of 182.8 days ± 154.5 days (n=152, range 0-730 days). Pain scores decreased from 5.69 ± 2.23 pre-procedure to 2.86 ± 2.29 post-procedure (n=207, $P<0.001$) and ER visits decreased from 4.20 ± 1.70 pre-procedure to 1.81 ± 0.47 post-procedure (n=244, $P<0.001$).

Conclusion: Our study finds RFA is a safe and effective treatment for patients with headache conditions associated with pericranial neuralgias. RFA may be a promising alternative for providing long lasting symptomatic and pain relief through a minimally invasive procedure.

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