



Effectiveness of Repeat Radiofrequency Thermocoagulation in the Treatment of Recurrent Trigeminal Neuralgia

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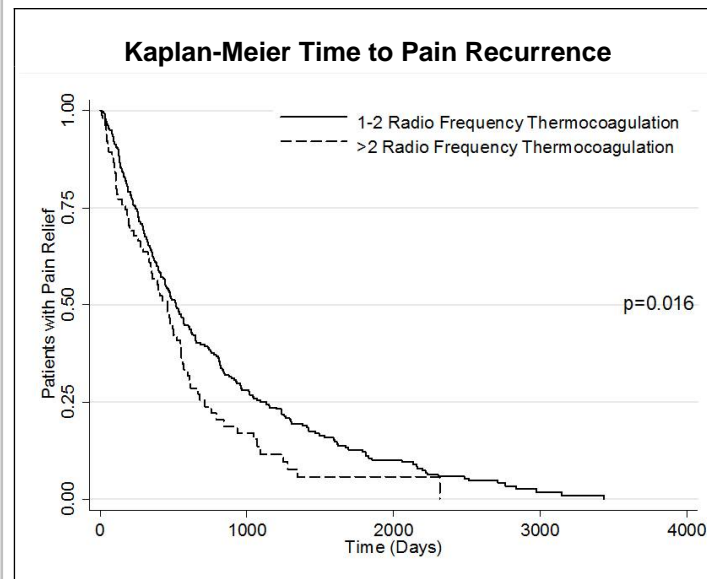


Introduction

Radiofrequency thermocoagulation (RFTC) is routinely used in the treatment of trigeminal neuralgia (TN). Pain relief achieved lasts 2-5 years in most patients after the first treatment but the outcomes of subsequent RFTC interventions have not been sufficiently studied.

Methods

Between 1998 and 2010, 412 patients with TN underwent 728 RFTC procedures. Outcomes were available for 638 RFTCs (87.6%), 90 RFTCs (12.4%) were excluded due to limited follow-up. Comparisons were made between 502 first and second RFTC (RFTC 1&2) and 136 third or additional RFTCs (RFTC 3+). Pain relief was assessed using the Boulder-Stanford (B-S) pain scale where 1 is excellent (>90% pain relief, completely off pain medications), 2 is moderate (>50% pain relief but <90% reduction in use of pain medications), 3 is mild (50% relief, no change in use of pain medications), and 4 indicates no change in symptoms, and compared with a Fisher's exact test. Durability was assessed by determining median time to recurrence for all procedures that achieved good pain relief outcomes (B-S 1 or 2, n=510; 315 failures, 195 censored). Predictors of treatment failure were assessed by multivariate Cox-regression analyses adjusting for multiple procedures within same patient.



Results

Pain relief outcomes after RFTC 1&2 were excellent in 346 (68.9%), moderate in 67 (13.4%), mild in 38 (7.6%), and unchanged in 51 (10.1%), while after RFTC3+ excellent pain relief was achieved in 80 patients (58.8%), moderate in 17 (12.5%), mild in 11 (8.1%), and unchanged in 28 (20.6%) ($p = 0.015$). Median time to RFTC failure was 17 months in RFTC1&2 (95% CI 15-20) compared with 456 months in RFTC3+ (95% CI 11-18, Chi-square = 0.016). Prior RFTC and male gender were associated with a 44.5% (HR 1.445, 95% CI 1.094-1.908) and a 27.7% (HR 1.277, 95% CI 1.014-1.607) increase in risk of failure, respectively.

Conclusions

Pain relief and durability after RFTC significantly decreased in patients undergoing a third or subsequent RFTC as compared with patients undergoing a first or second procedure in the cohort studied. Male gender and previous RFTC were associated with poor pain relief and early treatment failure.

Learning Objectives

To describe the indications for radiofrequency thermocoagulation in the treatment of trigeminal neuralgia. To understand the efficacy of repeated radiofrequency thermocoagulation in patients with recurrent trigeminal neuralgia.