

Surgical treatment of Trigeminal Neuralgia in Patients with Multiple Sclerosis

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Learning Objectives

To understand trigeminal neuralgia symptoms in patients with multiple sclerosis. To evaluate the outcomes of patients with MS and TN treated with glycerol rhizotomy and radiofrequency thermocoagulation.

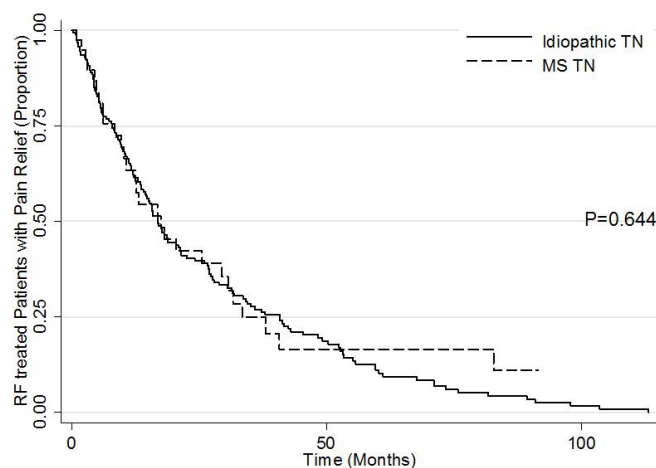
Introduction

Trigeminal neuralgia (TN) is a common pain syndrome in multiple sclerosis. Because of the primary demyelinating as opposed to compressive pathology, microvascular decompression has typically been avoided in these patients and percutaneous ablative therapies are the cornerstone of surgical treatment of TN-MS. Despite being first-line procedures, there is a limited literature on GR and RF as treatments for TN-MS.

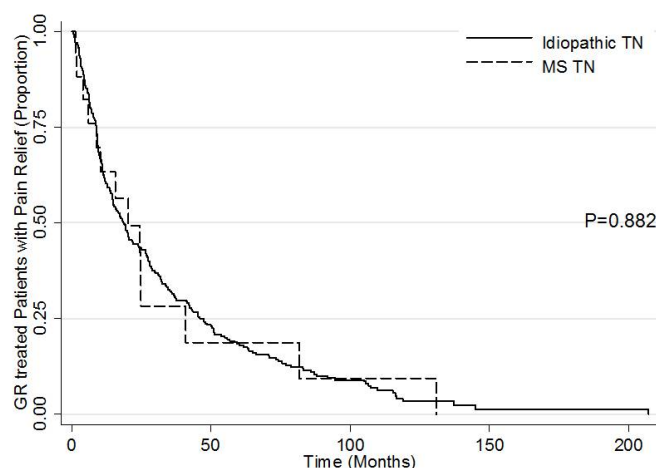
Methods

Between 1998-2010, 548 TN patients underwent GR and 386 underwent RFTC. Outcomes were available for 503 GR (91.8%) and 349 RFTC (90.4%). Twenty-three patients with TN-MS (4.6%) and 480 with ITN (95.4%) who underwent GR, were compared to 53 TN-MS (15.2%) and 296 ITN (84.8%) who underwent RFTC. Fisher's exact test assessed initial pain relief by Boulder-Stanford (B-S) 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. Durability was assessed by median time to pain recurrence for patients who achieved initial good outcomes (B-S 1 or 2; GR n=386, 265 failures; RFTC n=285, 179 failures). Failure predictors were assessed by multivariate Cox-regression.

Kaplan-Meier Time to Recurrence after Radiofrequency Thermocoagulation



Kaplan-Meier Time to Recurrence after Glycerol Rhizotomy



Results

Pain relief post-GR for TN-MS was excellent: 14 (60.9%), moderate: 4 (17.4%), mild: 2 (8.7%), and unchanged: 3 (13.0%). Pain relief post-GR for ITN was excellent: 313 (65.2%), moderate: 55 (11.5%), mild: 49 (10.2%), and unchanged: 63 (13.1%) ($p=0.825$). Post-RFTC TN-MS pain relief was excellent: 36 (67.9%), moderate: 9 (17.0%), mild: 5 (9.4%), and unchanged: 3 (5.7%), and after GR for ITN was excellent: 197 (66.6%), moderate: 43 (14.5%), mild: 21 (7.1%), and unchanged in 35 (11.8%) ($p=0.522$). Median time to GR failure was 20 months (95% CI 6-41) in TN-MS compared with 19 months (95% CI 15-24) in ITN (Chi-square=0.882). Median time to RFTC failure was 18 months (95% CI 10-31) in TN-MS compared with 17 months (95% CI 14-22) in ITN (Chi-square value=0.644). Multivariate analysis showed age >50 predicted 87% reduced risk of failure (HR 0.110, 95% CI 0.020-0.674, $p=0.016$) in TN-MS patients undergoing GR. Age, gender, time since onset, distribution, and previous surgery were not predictive of failure in TN-MS patients undergoing RFTC.

Conclusions

Patients with TN-MS and patients with idiopathic TN experience similar pain relief and duration of effect as a result of GR or RFTC treatments of TN symptoms.