TITLE: Outcomes using linear accelerator for treatment of trigeminal neuralgia – a single center retrospective study.

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ABSTRACT:

Objective: Gamma knife (GK) radiation treatment for trigeminal neuralgia (TN) has been studied far more closely than linear accelerator (LINAC)-based treatment (Tuleasca et al., 2018). However, LINAC is significantly less costly and does not require maintaining cobalt sources as is the case in GKS. In this study, we retrospectively analyze outcomes for LINAC-based treatment of TN in a group of patients at our institution.

Methods: We retrospectively analyze data from the EMR for patients at our institution who underwent LINAC-based radiation treatment for TN from 2012 to the present. Nonparametric statistics were used for the analysis.

Results: N=30 patients were treated at the University of Utah from 2012 to 2018 (mean age 69 years, 43% male). 17/30 (57%) of patients had classical TN, 2/30 (7%) had Burchiel type 2 TN, 7/30 (23%) had MS related TN, 4/30 (13%) had otherwise atypical TN. 15 patients had left-sided symptoms, and 2 had bilateral symptoms. 10 patients had V2 and V3 distribution pain. 7 patients had V1 and V2 distribution pain. 6/30 (20%) received prior microvascular decompression (MVD) and 13/30 (43%) received other procedures such as glycerol rhizotomy. All patients received 90 cGy radiation dosed using a 4 mm collimator for 1 fraction. Prior to treatment, the median BNI pain intensity score was 5 (range 4-5). Follow up data was available for 20 patients. The follow-up period varied from 1 month to 52 months (mean 11.4 months). 15/20 (75%), were responders, with a post-procedure BNI pain score of 1-3, which was a significant improvement (z(153)=3.71, p<0.001, Wilcoxon signed rank test, Figure 1). One patient had hypesthesia post-radiation. There was no relationship between prior MVD surgery and change in BNI score pre- to post-treatment (z(68)=0.45, p=0.65, Wilcoxon rank sum test, Figure 2).

Conclusion: LINAC-based stereotactic radiosurgery is an effective means to treat trigeminal neuralgia. Prior MVD surgery did not affect efficacy of SRS in lowering the BNI score from pre-to post-treatment in this cohort of patients.

References