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CyberKnife radiosurgery for idiopathic trigeminal neuralgia.

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OBJECT: Gamma knife surgery is an accepted treatment option for trigeminal neuralgia (TN). The safety and efficacy of CyberKnife radiosurgery as a treatment option for TN, however, has not been established.

METHODS: Forty-one patients were treated between May 2002 and September 2004 for idiopathic TN at Stanford University and the Rocky Mountain CyberKnife Center. Patients with atypical pain, multiple sclerosis, or previous radiosurgical treatment or a follow-up duration of less than 6 months were excluded. Patients were evaluated for the level of pain control, response rate, time to pain relief, occurrence of hypesthesia, and time to pain recurrence with respect to the length of the nerve treated and the maximum and the minimum dose to the nerve margin. Thirty-eight patients (92.7%) experienced initial pain relief at a median of 7 days after treatment (range, 24 hours-4 months). Pain control was ranked as excellent in 36 patients (87.8%), moderate in two (4.9%), and three (7.3%) reported no change. Six (15.8%) of the 38 patients with initial relief experienced a recurrence of pain at a median of 6 months (range 2-8 months). Long-term response after a mean follow-up time of 11 months was found in 32 (78%) of 41. Twenty-one patients (51.2%) experienced numbness after treatment.

CONCLUSIONS: CyberKnife radiosurgery for TN has high rates of initial pain control and short latency to pain relief compared with those reported for other radiosurgery systems. The doses used for treatment were safe and effective. Higher prescribed doses were not associated with improvement in pain relief or recurrence rate. The hypesthesia rate was related to the length of the trigeminal nerve treated.

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