ROSE trial

To compare stereotactic radiosurgery (SRS) versus anterior temporal lobectomy (ATL) for patients with pharmacoresistant unilateral mesial temporal lobe epilepsy (MTLE).

This randomized, single-blinded, controlled trial recruited adults eligible for open surgery among 14 centers in the USA, UK, and India. Treatment was either SRS at 24 Gy to the 50% isodose targeting mesial structures, or standardized ATL. Outcomes were seizure remission (absence of disabling seizures between 25 and 36 months), verbal memory (VM), and quality of life (QOL) at 36-month follow-up.

A total of 58 patients (31 in SRS, 27 in ATL) were treated. Sixteen (52%) SRS and 21 (78%) ATL patients achieved seizure remission (difference between ATL and SRS = 26%, upper 1-sided 95% confidence interval = 46%, P value at the 15% noninferiority margin = .82). Mean VM changes from baseline for 21 English-speaking, dominant-hemisphere patients did not differ between groups; consistent worsening occurred in 36% of SRS and 57% of ATL patients. QOL improved with seizure remission. Adverse events were anticipated cerebral edema and related symptoms for some SRS patients, and cerebritis, subdural hematoma, and others for ATL patients.

These data suggest that ATL has an advantage over SRS in terms of proportion of seizure remission, and both SRS and ATL appear to have effectiveness and reasonable safety as treatments for MTLE. SRS is an alternative to ATL for patients with contraindications for or with reluctance to undergo open surgery [1)].

1)
Barbaro NM, Quigg M, Ward MM, Chang EF, Broshek DK, Langfitt JT, Yan G, Laxer KD, Cole AJ, Sneed PK, Hess CP, Yu W, Tripathi M, Heck CN, Miller JW, Garcia PA, McEvoy A, Fountain NB, Salanova V, Knowlton RC, Bagić A, Henry T, Kapoor S, McKhann G, Palade AE, Reuber M, Tecoma E. Radiosurgery versus open surgery for mesial temporal lobe epilepsy: The randomized, controlled ROSE trial. Epilepsia. 2018 Jun;59(6):1198-1207. doi: 10.1111/epi.14045. Epub 2018 Mar 30. PubMed PMID: 29600809.