Lateralization of Mesial Temporal Lobe Epilepsy with Chronic Ambulatory Electrocntorigraphy


SUMMARY

- Chronic ambulatory ECoG monitoring as performed by the RNS® System may provide clinically meaningful information about lateralization of mesial temporal lobe seizures.
- For patients with bilateral mesial temporal onsets, the length of time to record the first bilateral seizure was, on average, more than 5 weeks after implant.

METHODS

**Study Design:** Retrospective analysis of ambulatory ECoG data in patients with mesial temporal epilepsy implanted with bilateral mesial temporal lobe electrodes.

**Population:** 82 patients enrolled in the RNS® System randomized controlled trial. Average follow-up was 4.7 years (1 month - 7 years).

**Primary Outcomes:** ECoG data were reviewed to determine lateralization of electrographic seizures and time interval required to confirm bilateral seizures.

KEY RESULTS

In patients with bilateral seizures, it took an average of 41.6 days (median 13, range 0–376) to record the first bilateral electrographic seizures in the ambulatory setting.

![Days to record bilateral temporal onsets](image-url)
In 20% of patients, the originally presumed lateralization determined by prior diagnostic testing changed after chronic ambulatory ECoG monitoring:

- Of 11 patients originally presumed to have unilateral onsets, 64% had bilateral electrographic seizures
- Of 71 patients originally presumed to have bilateral onsets, 13% had only unilateral electrographic seizures

Reasons why bilateral leads were implanted in the 11 presumed unilateral patients:

- Memory concerns per Wada testing (5)
- Bilateral hippocampal atrophy or mesial temporal sclerosis (3)
- Prior contralateral temporal lobectomy (2)
- Discordant EEG and PET lateralization (1)

For subjects who ultimately had bilateral onsets compared with those who had only unilateral seizures, there was no difference in:

- History of treatment with vagus nerve stimulation or epilepsy surgery
- Duration of epilepsy
- Seizure frequency
- Number of AEDs at enrollment
- Frequency of mesial temporal sclerosis or hippocampal atrophy

Footnotes
1. 18 yrs. or older, refractory to 2 or more AEDs and with no more than 2 foci localized by diagnostic testing
2. All patients who eventually had bilateral electrographic seizures (n=69) irrespective of original classification
3. Average follow up of 3.9 years (median 4.1 years; range 0.4 - 7.0 years)
4. Average follow up of 5.0 years (median 4.8 years; range 2.9 - 6.5 years)

See important prescribing and safety information in the RNS® System labeling. This is intended as supplementary information and should be used in conjunction with the labeling. Refer to the labeling for a description of the RNS® System and its components, indications for use, contraindications, warnings, cautions, adverse events and instructions for use. The manuals are available at www.NeuroPace.com.

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