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Characterizing the Timeline and Rates of Drug Resistant Epilepsy Surgery.

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Introduction: Epilepsy¹

- Predisposition to spontaneous epileptic seizures
- 70 million people worldwide
- Stigmatized
- Many subtypes
 - Drug Resistant Focal Epilepsy



Introduction: Surgery Timeline

- Epilepsy surgery
 - Increases quality of life, seizure freedom, decreases healthcare costs, is safe and effective.^{2,3}
 - <1% of qualifying individuals receive it in the US.⁴
 - 20+ years delay⁵
 - Complex navigation⁶

Objectives & Hypothesis

- **Question:** Why do some DRE patients who undergo complete pre-surgical assessment at the Jefferson Comprehensive Epilepsy Center end up not receiving surgery?
- **Hypothesis:** The patients' choices of not receiving surgery stem from their lack of interest in the procedure and desire to wait. Furthermore, insufficient pre-surgical testing is the main reason for surgeons not performing the procedure.

- Retrospective clinical analysis of DRE surgery rates at the Jefferson Comprehensive Epilepsy Center using 211 EPIC Charts
 - From conference to surgery
- 2017-2019
- Methods:
 - Characterization of the timeline
 - Determine average time from conference to surgery
 - Investigate reasons for patients not receiving surgery
 - Identify timing of those decisions

	Total (211)	Surgery (130)	Non-Surgery (81)
Sex, n (%)			
Male	114 (54)	70 (54)	44 (54)
Female	97 (46)	60 (46)	37 (46)
Age at date of surgical conference, y, median (IQR)	37 (29/50)	35 (27/46)	37 (28/51)

Table 1. Demographics of the patients reviewed.

Surgery Types	Total (211)	Surgery (130)	Non-Surgery (81)
Resection & Ablation, n (%)	105 (50)	73 (56)	32 (40)
Phase 2 Monitoring, n (%)	64 (30)	39 (30)	25 (31)
Neuromodulation, n (%)	27 (13)	13 (10)	14 (17)
Disconnection, n (%)	11 (5)	5 (4)	6 (7)
Undetermined, n (%)	4 (2)	0 (0)	4 (5)

Table 2. Breakdown of surgery types.

Reasons for patients not receiving DRE surgery	Total (81)	No Neurosurgery Visit (19)	Post Neurosurgery Visit (58)
Patient not interested in surgery, n (%)	29 (36)	19 (66)	10 (34)
Conference decision of another AED trial, n (%)	12 (15)	12 (100)	0(0)
Unclear, n (%)	10 (12)	7 (70)	3 (30)
High risk procedure, n (%)	9 (11)	8 (89)	1 (11)
Conference decision that more testing is needed, n (%)	8 (10)	6 (75)	2 (25)
Patient seizure free*, n (%)	6 (7)	4 (67)	2 (33)
Insurance Denial, n (%)	4 (5)	1 (25)	3 (75)
Patient seeking second opinion, n (%)	2 (3)	1 (50)	1 (50)
Deceased**, n (%)	1 (1)	1 (100)	0 (0)

Table 3. Reasons behind surgical rate dropout.

*includes self and physician reported

**seizure related death.

- Main reasons for patients not receiving life-improving DRE surgery:
 - Patient's lack of interest in the procedure even after full evaluation and planning;
 - Inadequate pre-surgical evaluation of cases.
- This data suggests that a more robust patient education and better determination of DRE surgery candidates is needed.

Future Directions

- We hope this information gets us a step closer to targeting DRE surgical rates and helps physicians better guide their patients through the surgery process, delivering earlier surgeries, and improving outcomes



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