Clinical Characteristics of a First Seizure Evaluation Clinic

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BACKGROUND

- Evaluation by an epileptologist can help distinguish epileptic seizures from seizure mimickers
- Proper diagnosis of a seizure/epilepsy is of critical importance due to implications regarding treatment, prognosis, quality of life, morbidity, and mortality.
- Studies outside of the United States have shown that establishing a first seizure clinic is feasible, cost effective, and useful way to provide patients with possible seizure expedited care[1,2]
- There is a paucity of studies evaluating the use and demographic data for patients evaluated in a first seizure clinic within the United States
- The goal of our study is to describe the demographics and clinical characteristics of patients referred to a first seizure clinic at an academic center within the city of Chicago, Illinois
- By studying this patient population, we hope to understand what factors indicate a higher risk for seizure recurrence and subsequent development of epilepsy

METHODS

- Retrospective cohort study of adult patients referred to first seizure evaluation clinic at Northwestern's Neurologic Comprehensive Epilepsy Center
- Research participants were identified through Epic from March 2021 to March 2022
- Charts were reviewed to assess pertinent clinical characteristics and patient demographic data
- All of the data was ascertained from the first clinic visit and subsequent 2 clinic visits (if available)
- Patients with prior EEG data were offered same day routine (30 minute) EEG

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RESULTS

Table 1: Patient Demographics

Clinical Characteristics	Results
Average Age	Mean 35.4 years old (SD=16.1)
Gender	Male: 67 (54.5%)
	Female: 56 (45.5%)
Ethnicity	Non-Hispanic or Latino: 93 (75.6%)
	Unknown: 18 (14.6%)
	Hispanic or Latino: 12 (9.8%)
Race	White or Caucasian: 77 (62.6%)
	Unknown: 18 (15.4%)
	Black or African American: 17 (13.8%)
	Other: 8 (6.5%)
	Asian: 1 (0.8%)
	Multiracial: 1 (0.8%)
Insurance Type	Private: 90 (73.2%)
	Medicare or Medicaid: 29 (23.6%)
	Uninsured: 4 (3.3%)

Figure 1: Visit Diagnoses

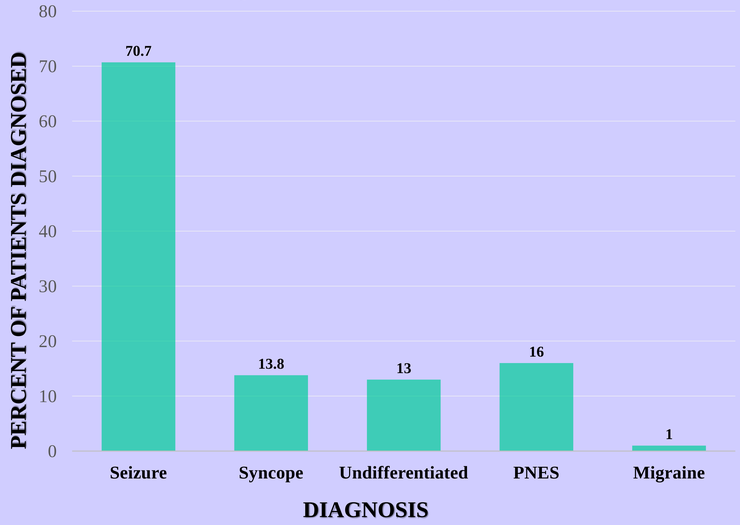


Figure 2: EEG Findings

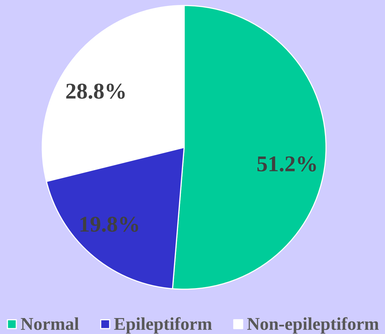


Figure 3: Imaging Findings

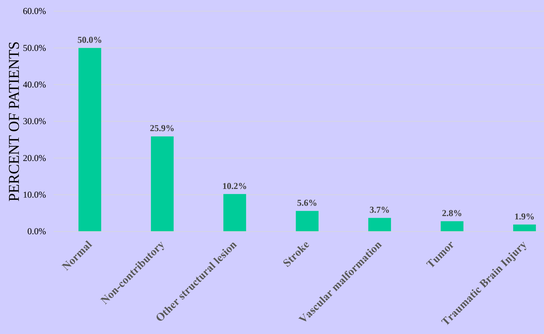
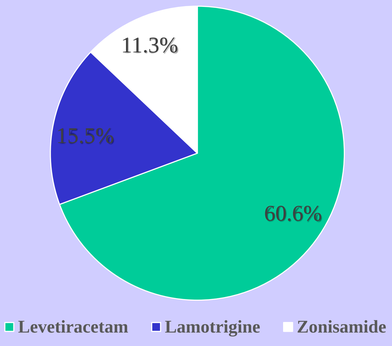


Figure 4: ASM Prescription Rate



DISCUSSION

- The vast majority of patients (89%) showed up for their scheduled visit proving there is a need for this patient population to be evaluated
- The majority of patients were diagnosed with seizure; most had an unprovoked seizure (83.9%) and the minority had a provoked seizure (16.1%)
- The most common cause of provoked seizure was alcohol withdrawal
- Routine EEG testing detected epileptiform abnormality in a minority of patients raising the question as to whether a follow up ambulatory EEG would have a higher yield[3]
- Imaging contributed to the cause of epilepsy in 24.1% of patients highlighting the need for advanced imaging
- About half (52.8%) of the patients were prescribed an anti-seizure medication within the first three office visits with levetiracetam as the most common agent.
- A small portion (5.7%) of patients had an abnormal QTc or PR interval on screening EKG, it is important to check for baseline interval abnormalities given that some ASMs can impact cardiac conduction

CONCLUSION

- A first seizure evaluation clinic in an urban setting is an achievable and efficient way to evaluate patients with paroxysmal events concerning for seizure
- The majority of patients in this clinic were diagnosed with epileptic seizures
- Expedited ancillary testing with head imaging and EEG can help contribute to the diagnosis of epilepsy

REFERENCES

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3. Hernandez-Ronquillo L, Thorpe L, Feng C, Hunter G, Dash D, Hussein T, Dolinsky C, Waterhouse K, Roy PL, Jette N. Diagnostic Accuracy of Ambulatory EEG vs Routine EEG in Patients With First Single Unprovoked Seizure. Neurol Clin Pract. 2023 Jun;13(3):e200160. doi: 10.1212/CPJ.0000000000200160. Epub 2023 May 8. PMID: 37197370; PMCID: PMC10184557.