

Patient Characteristics and Antiepileptic Drug Treatment Pathways in Newly Diagnosed Epilepsy: Feasibility and Pilot Results Using the Common Data Model in a Single Center Electronic Medical Record Database

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Key Points

- Efforts to compare epilepsy pharmacotherapy treatment pathways are limited by available data sources and standards.
- We designed an OMOP CDM epilepsy phenotype for adult epilepsy patients and validated it by chart review and cross-linking.
- Levetiracetam replaced phenytoin as the most common first-line antiepileptic drug (AED). There was variability in subsequent antiepileptic drug (AED) choices.

Background

Epilepsy affects more than 50 million people worldwide. The number of available AEDs and supporting evidence is constantly changing. We characterized the AED treatment pathway for adult epilepsy patients with real-world data from Columbia University Irving Medical Center.

Methods

Table 1: Phenotype criteria (≥1 must be met for inclusion)

First epilepsy diagnosis during an inpatient hospitalization or ED visit

≥2 outpatient seizure or epilepsy diagnoses within 5 years that are ≥30 days apart

≥1 epilepsy or seizure diagnosis that first occurred within 2 years antecedent to a first AED exposure

Methods

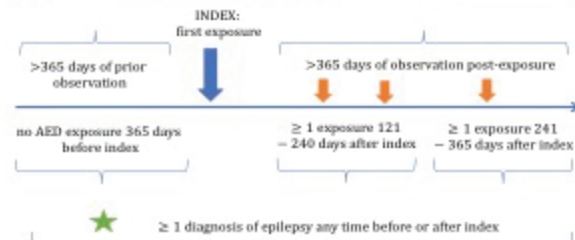


Figure 1. Pharmacotherapy Treatment Pathway Inclusion Criteria

Results

Phenotype Positive Predictive Value: 81.3%
Phenotype Sensitivity: 78.3%
Phenotype n = 22,486

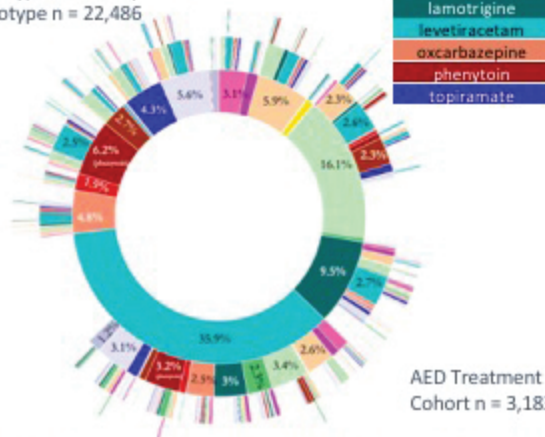


Figure 2. Antiepileptic Drug (AED) Treatment Pathways

AED Treatment Cohort n = 3,183

Results

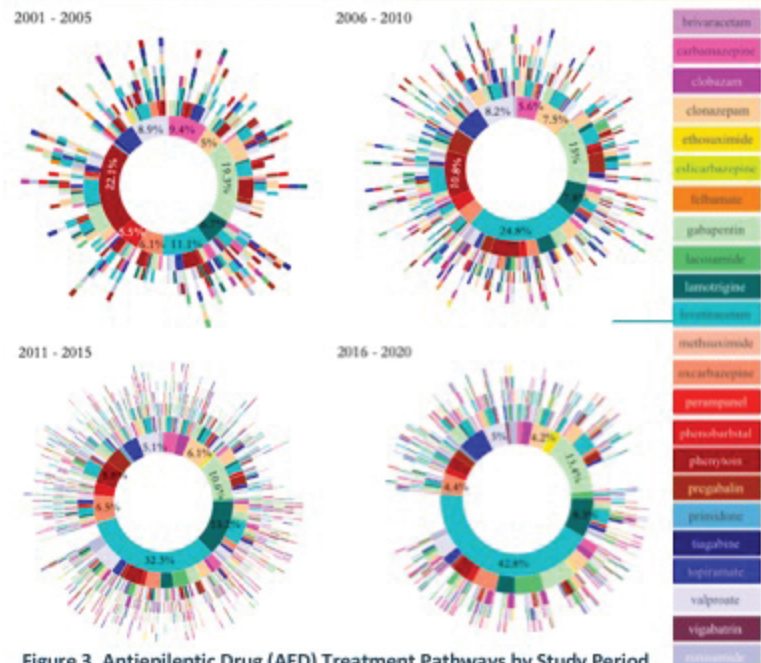


Figure 3. Antiepileptic Drug (AED) Treatment Pathways by Study Period

Conclusions

The OMOP CDM was used to characterize the antiepileptic drug (AED) treatment pathways with data from our medical center. Levetiracetam replaced phenytoin as the most common first-line agent over time. There was substantial variability in subsequent agents. A multi-center OHDSI study may characterize global experience with AED use.