TONIC HEAD- AND CYCLING-SEIZURES IN IDIOPATHIC GENERALIZED EPILEPSY (IGE): A NEW MARKER OF SODIUM CHANNEL BLOCKER RESPONSIVENESS?

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AIMS

Tonic-head versive- and cycling- seizures were rarely reported in idiopathic generalized epilepsy (IGE) as early clinical phenomena preceding the onset of classic tonic-clonic seizures [1]. We aim to investigate if classic sodium channel blockers (SCBs) may be beneficial among the anti-seizure medications (ASMs) for this cohort of individuals with IGE with tonic head- and/or cycling- seizures ('IGE-plus').

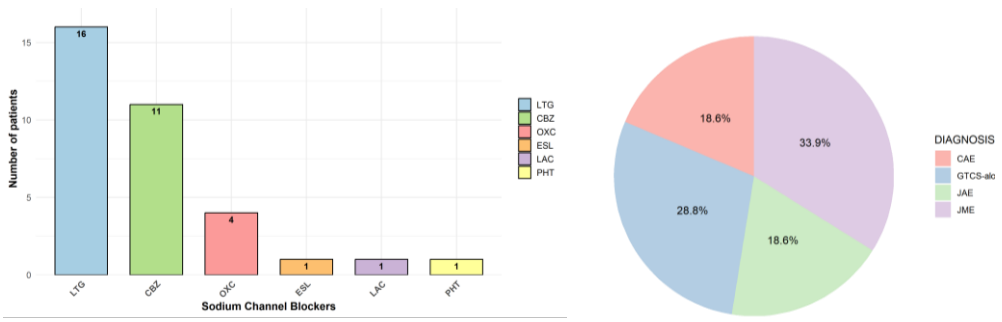
METHODS

This is a single-center retrospective study conducted in 2025 at outpatient epilepsy clinic of Catanzaro. Inclusion criteria were: 1) electroclinical diagnosis of IGE according with the latest International Against Epilepsy League (ILAE) recommendations [2] belonging to at least one of the following categories: CAE, JAE, JME or GTCS-Alone; 2) semiology consisting with tonic-head versive seizures and/or cycling seizures; 3) unremarkable brain MRI. Additionally documented exposure for at least six months and efficacy of the following ASMs was tracked: phenytoin (PHT), lamotrigine (LTG), carbamazepine (CBZ) or oxcarbazepine (OXC) or eslicarbazepine (ESL), lacosamide (LAC) or cenobamate (CEN). Efficacy was evaluated as ≥50% responder rate and seizure freedom rate.

RESULTS

We finally included 59 people with IGE-plus [female: 35/59(59.3%)]. Specifically, 51/59 (86.4%) reported tonic-head versive seizures and 8/59 (13.6%) had cycling seizures. Epilepsy diagnosis was as follows: 11/59 (18.6%) had a diagnosis of CAE, 11/59 (18.6%) had a diagnosis of JAE, 20/59 (33.9%) had JME, and 17/59 (28.8%) had GTCS-alone. Twenty-three out of 59 (38.9%) people with IGE-plus took SCBs for at least six months. The average number of ASMs at SCB administration was 1.8 ± 2.31. The administration of a SCBs was helpful for 16/23 individuals: for 13/23 (56.5%) leading to seizure freedom and for 3/23 (13.0%) solving the tonic-head versive tonic-clonic seizures.

Figure 1: Distribution of Sodium Channel Blockers and epilepsy diagnosis in individuals with IGE with tonic head- and/or cycling- seizures ('IGE-plus').



LTG: lamotrigine; **CBZ:** carbamazepine; **OXC:** oxcarbazepine; **ESL:** eslicarbazepine; **LAC:** lacosamide; **PHT:** phenytoin.

DISCUSSION AND CONCLUSION

The pipeline of anti-seizure medications for idiopathic generalised epilepsy (IGE) is very limited compared to that for focal epilepsy syndromes, especially in specific populations such as females of childbearing age. Therefore, identifying markers of drug responsiveness is essential. Our results suggest that a specific population of individuals with IGE (i.e. those with early versive or cycling seizures) may specifically benefit of sodium channel blockers. Thus, deep phenotyping of IGE syndromes is paramount to identify markers of drug responsiveness.

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