## Abstract

**Title**
European Registry of Anti-Epileptic Drug Use in Patients with Lennox-Gastaut Syndrome (LGS)

**Keywords**
Rufinamide, Registry, Anti-Epileptic, Seizures, LGS

**Rationale and background**
A non-interventional EU registry study entering patients (aged ≥4 years) with LGS who required a modification in anti-epileptic therapy (either the addition of another AED or the change of one drug to another); including patients who were already receiving rufinamide.

**Research question and objectives**
The primary objective was to evaluate long-term safety. Seizure control was also assessed using a 7-point generic seizure frequency scale (rated from 'very much worse' to 'very much improved').

**Study design**
Conducted at appropriately experienced epilepsy centres in the EU. Registry commenced at market launch. LGS patients were enrolled if they required modification to any AED treatment, including initiation of add-on rufinamide therapy. Patients were assessed according to local clinical practice at baseline and approximately 1, 3 and 6 months, and thereafter every 6 months.

**Setting**
Upon entry to the registry, baseline details concerning disease severity, diagnosis, prior therapy use, and developmental assessment were recorded. On each subsequent visit, the patient (or caregiver) was asked about current medication, any seizures deemed "medically significance", tolerability, AEs, general seizure profile and healthcare resource utilisation.

**Subjects and study size, including dropouts**
111 patients were enrolled and included in the Safety Analysis Set, of whom 64 (43 male/21 female) initiated rufinamide ('rufinamide' group) and 47 (28 male/19 female) were initially allocated other AEDs.

**Variables and data sources**
All data were analysed using the Safety Analysis Set, defined as all patients who received at least one dose of AED treatment after entering the study. Continuous data were summarised using descriptive statistics. Categorical data were summarised as frequency (count and percentage). Demographic and baseline characteristics were generally similar between treatment groups.

**Results**
At baseline, for patients in the rufinamide and other AEDs groups, the mean (standard deviation [SD]) age was 16.1 (9.5) and 15.9 (12.5) years; the mean (SD) time since LGS diagnosis was 5.7 (8.1) and 6.4 (9.3) years; the mean (SD) number of prior AEDs was 5.6

(3.6) and 6.3 (5.5); and the proportion of patients in residential care was 10.9% and 21.3%, respectively. Median (range) follow-up duration was 26.6 (1.3–46.4) and 23.6 (1.7–47.8) months, respectively.

At Month 12, the proportion of patients rated as 'much' or 'very much' improved in control of all seizures was 12/42 (28.6%) and 5/33 (15.2%) for rufinamide and other AEDs, respectively.

AED-related adverse events were reported for 40.6% (rufinamide) and 27.7% (other AEDs) patients, and led to discontinuation of 7.8% and 2.1% patients, respectively. The most frequently reported rufinamide-related adverse events (≥5% patients) were somnolence (7.8%) and decreased appetite (6.3%). There were no unexpected safety findings.

**Discussion**
The registry has provided useful information on LGS and the use of rufinamide and other AEDs in its management. The registry provides supportive evidence that rufinamide has a consistent and generally favourable safety profile when used in routine clinical practice across a range of European countries.

**Marketing Authorisation Holder(s)**
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