

BACKGROUND AND IMPORTANCE

Monitoring of levetiracetam is necessary for treatment optimization due to their wide interindividual pharmacokinetic **variability**. Age, clinical situation and pregnancy contribute greatly to its pharmacokinetic alterations.



AIM AND OBJECTIVES

To evaluate the **impact** and **usefulness** in clinical practice of pharmacokinetic monitoring of levetiracetam in a tertiary university hospital carried out by the pharmacy service.



MATERIAL AND METHODS

- Retrospective observational study in 53 patients between **02/2016** ← → **05/2023**
- Pharmacokinetic and patient data (sex, age, weight, concomitant antiepileptic, creatinine value and hepatic insufficiency diagnosis) were obtained from **Gestlab®** and **Orion Clinic®**.
- Patients classification: **pediatric** (0-14 years), **pregnant**, **critical ill** or **outpatients**.
- Clinical relevance of levetiracetam monitoring assessed by whether the **first levetiracetam level** of patients was within or outside the **therapeutic range (12-46 mcg/mL)** and the pharmacokinetic recommendation made by the pharmacy service.

RESULTS

- The distribution of patients in the study is shown in Table 1.

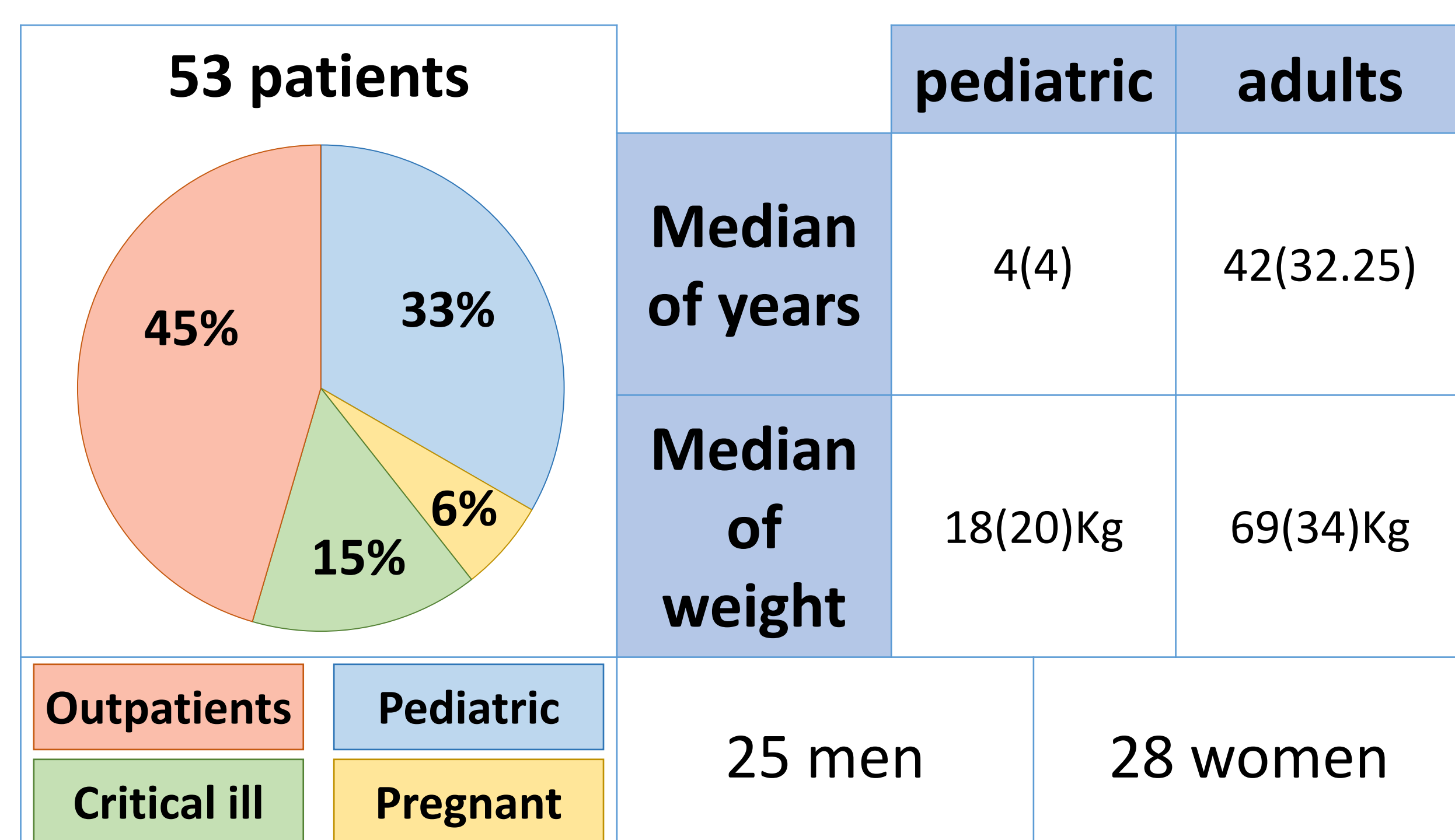
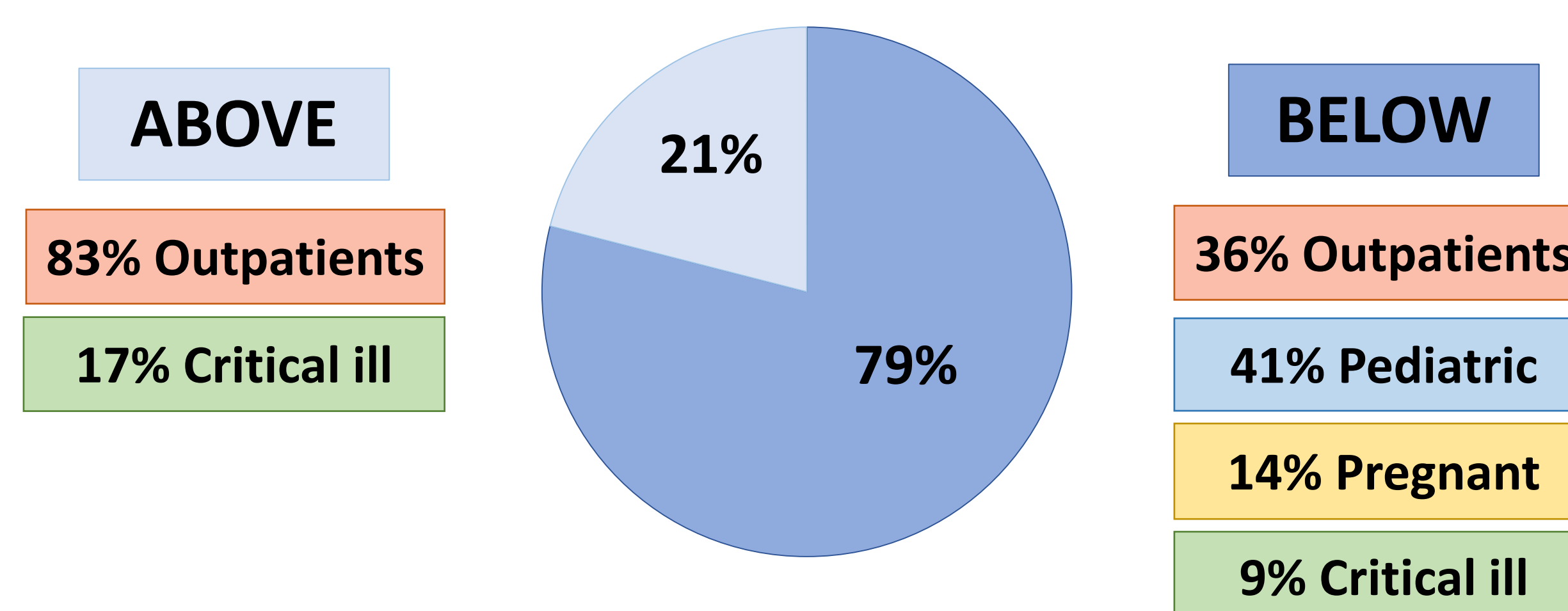


Table 1: patient distribution in the study.

- 53% of patients had levetiracetam level **out of range**:



	Adjusted	Not adjusted
BELOW	68%	32%
ABOVE	50%	50%

- 2 patients had creatinine levels above 1.3mg/dL, 2 diagnosed with liver failure and **43%** had **concomitant antiepileptic treatment**.

- Treatment was adjusted in 2 patients despite they were within range due to poor renal function or by decision of the physician.

CONCLUSION AND RELEVANCE

Monitoring of levetiracetam levels has been shown to be clinically relevant for better **individualization** of treatment since **more than half** of the patients were out of range. This has allowed pharmacokinetic adjustment in most cases to maintain the drug in therapeutic range and **optimize treatment**, especially in pregnant, critical ill and pediatric patients.

