

## **Therapeutic drug monitoring of newer generation antiepileptic drugs**

**Institution:** Service de neurologie, service de pharmacologie, CHUV, Lausanne

### **Goals :**

To assess the benefits of therapeutic drug monitoring of newer generation antiepileptic drugs (lamotrigine, levetiracetam, zonisamide, topiramate, lacosamide, perampanel, brivaracetam) in the management of patients with epilepsy. Other goals are to assess the correlations between the response to these treatments and their blood levels as well as the usefulness of saliva therapeutic drug monitoring. Subsequent goals are to explore potential serum biomarker(s) of the response to antiepileptic medication.

### **Methods :**

Benefit of therapeutic drug monitoring is assessed through a randomised controlled trial comparing systematic (routine) versus rescue (in case of treatment failure) therapeutic drug monitoring. Outcome is measured with the retention in the follow-up of the study (12 months) without reaching any predefined endpoints of inefficacy or tolerability issues. Sample size is 151 patients.

A second cross-sectional study assesses the correlation between the response (measured by a statistically validated definition) and medication plasma levels. Sample size is 170 patients. In the cross-sectional study, plasma samples were collected for further analyses (proteomic/metabolomics).

In both studies, saliva samples are collected.

**IRB approval:** Approved (CER-VD 2015-00079), participants gave approval for further analyses

**Current status:** Data collected, currently analysing data

**In search for partners:** potentially, samples are available for further analyses

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