



## SUDEP cases require thorough post-mortem work-up to eventually detect an underlying cause



### Letter to the Editor

We read with interest the work of Sebera et al., about a study of mortality from sudden unexpected death in epilepsy (SUDEP) in 235 epilepsy patients from Rwanda [1]. Probable SUDEP was diagnosed in 3/235 patients of whom none underwent autopsy. We have the following comments and concerns.

SUDEP is defined as “death in a patient with epilepsy that is not due to trauma, drowning, status epilepticus, or other known causes but for which there is often evidence of an associated seizure” [2]. SUDEP is a leading cause of death in epilepsy patients [2]. SUDEP accounts for approximately one-third of deaths in epilepsy patients, equivalent to approximately one death per 1000 epilepsy patients [2,3]. SUDEP is typically diagnosed post-mortem since it is often unwitnessed [2]. To delineate SUDEP from other causes of mortality in epilepsy, sub-categorization of SUDEP into four major categories (definite, probable, possible, and unlikely SUDEP) has been proposed. Definite SUDEP can be diagnosed only if autopsy is carried out and the findings are normal. Not performing autopsy is thus a major shortcoming of the study allowing diagnosing only probable SUDEP in the three patients. Without pathological analysis or intervention classification of SUDEP is hampered. However, we have to take into context difficulties associated in obtaining pathological evaluations from developing countries in Africa where cultural ideas and access to care are a source of limitation. Probable SUDEP becomes less likely with better seizure control and the strict compliance. Interestingly, possible SUDEP was diagnosed in none of the 7 fatalities during their observational period.

A further shortcoming of the study is that the dosages and serum levels of anti-seizure drugs (ASDs) in the 3 patients with probable SUDEP at the time of death were not provided. Since some of the ASDs are cardiotoxic causing arrhythmias and ventricular arrhythmias evolving into ventricular fibrillation or cardiac arrest is one suspected pathophysiological mechanism of SUDEP, it is crucial to know if the type of ASD or dosage were potentially causative. We also should know the other drugs these 3 patients were taking in addition to their ASDs. Knowing the current medication would not only allow assessing if the three patients had chronic disease but also if they were taking drugs potentially cardiotoxic. Furthermore, we should know if the patients with probable SUDEP were smokers or were drinking alcohol.

Unfortunately, no data about the previous individual and family history, clinical exam, and instrumental findings were provided. Particularly from the three patients with probable SUDEP we should know seizure types, seizure frequency, epilepsy onset, epilepsy classification, adherence, accessibility to drugs, concomitant disease, results of cerebral imaging, result of electroencephalography (EEG) recordings, results of cardiac and pulmonary investigations (echocardiography, standard and long-term ECG recording, lung function tests, X-ray or CT-scans of lungs), and blood chemical values prior to death. Missing is the information about how many had comorbid tropical disease, tuberculosis, HIV, or hepatitis.

Overall, the interesting study by Sebera et al. has a number of limitations which should be solved before drawing final conclusions. Patients with SUDEP need to be thoroughly investigated post-mortem, including autopsy, to eventually elucidate the enigma of SUDEP. Generally, it is important to gain additional information about epilepsy and its mortality to minimize the consequences of epilepsy throughout the world in developed as well as developing countries and resource impoverished areas.

### Conflict of interest

There are no conflicts of interest.

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### Author contribution

JF: design, literature search, discussion, first draft, critical comments.

The study was approved by the institutional review board.

### References

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