

## SHOULD EPILEPSY BE DIAGNOSED AFTER A SINGLE SEIZURE HAS OCCURRED: NO

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The diagnosis of epilepsy is mostly a clinical one, with ancillary procedures to corroborate the same. Epilepsy is essentially an inherent predisposition and propensity to have recurrent unprovoked seizures.

Now in some instances seizures may be separated by a period of normal neurological and cognitive function, independent of the duration of this period. It is rather difficult to predict this interval unless one becomes a soothsayer. This implies that most people with normal neurological examination and cognitive functions may not have a seizure recurrence. Most seizures with normal imaging and EEG are unlikely to recur with a high chance so much, so as to justify a clinician in starting antiepileptic's resulting in exposure to adverse effects of the same specially in vulnerable populations (children, women ,etc.)

Moreover the diagnosis of seizure may not be always held confidently at its first occurrence. It may have not been witnessed. It is not uncommon in clinical practice to falsely label the first spell as a seizure only to be clear about the true nature of spell when it has recurred. EEG is frequently done after a single seizure to assess the risk of recurrence. A false positive EEG in such situations may add to the bias of the exact risk assessment. In addition, the recent change in definition suggesting that epilepsy should be diagnosed after a single seizure, may be easy to understand by epileptologists, but may not be so to physicians and other health care providers. It may not be easy in the everyday clinical practice to calculate the probability of future seizures in those who present with a single unprovoked seizure. The enduring tendency for recurrence can only absolutely certain when second seizure has occurred. Having a high risk means nothing to a patient who wants to know specifically his or her chance of having a repeat episode and does not want to see oneself as a part of medical statistical semantics.

When a low risk person is told that there is a 25-30% risk of not having future seizures in their lifetime. Do these patients of single seizure now defined as having epilepsy wait for at least for 10 years to be told that they have epilepsy resolved? Inter-rater variability in the assessment of risk is another factor that needs to be considered in saying that one unprovoked seizure is epilepsy. Based on the new proposed definition, a patient may be diagnosed with epilepsy by one physician but another physician may choose to call it a single seizure. This will lead to confusion in the patients mind specially where patients are seen by multiple varied health care providers and heterogeneous settings. There will be a tendency to lose faith in the medical system if confusing labels are applied.

There is also the fact that people with acute symptomatic seizures may have an abnormal EEG and imaging when they have a single seizure they run the risk of now being labelled as epilepsy and getting treatment for the same. A single *unprovoked* seizure does not carry a diagnosis of epilepsy because the probability of further seizures may not be high enough. Similarly, a single *provoked* seizure should not carry a diagnosis of epilepsy because the probability of further seizures may not be high.

The main reason for making the definition of epilepsy wider in the proposed operational clinical definition appears to be presumed inadequate treatment for patients with high risk of recurrence after a single unprovoked seizure. If this is so we need data to show that patients with one unprovoked seizure and a brain lesion/abnormal EEG which is associated with high recurrence risk of 70-75% are not adequately treated as of the current practice . "labelling" of a person with a single unprovoked seizure may be a disservice to people as change of label from seizure to epilepsy has psychological, legal and/or employment, matrimonial implications resulting in more harm than good to such patients specially in the developing world and in resource limited settings where majority of people with epilepsy exist.

Hence in order to avoid the consequence of giving the diagnosis of epilepsy it would be best to let the single seizure be defined as a) .Single seizure (probable low recurrence ),b) Single seizure (probable high recurrence ) and term epilepsy be used only if it actually ever recurs.

This will not only help PWE but also epidemiologists to collect better robust data. It will help PWE as having epilepsy automatically prevents them applying for certain jobs, marriage prospects- specially in developing countries where women are disadvantaged anyway and adding epilepsy is like taking a double hit. Significant impact on the patients QOL can be avoided by avoiding this early pre-emptive definition.

Our aim should be to first identify precise recurrence risks (in different patient, population, comorbid, and risk factor scenarios and the likely benefit and hazards from anti-epileptic treatment. Moreover the evidence of treating every single seizure as epilepsy needs to be gathered keeping in mind the adverse effects of antiepileptic's (cost, side effects, social effects etc.).

Instead of applying statistical probabilities to individual risks, and trying to convert every physician to be a statistical or a neuroepidemiological sleuth the physician should tell the person that the risk for further seizures is increased, what he or she can personally perhaps do to prevent seizures, and tell him or her that if, however, further seizures occur, then it's time to re-think the diagnosis and treatment.

Epilepsy is a dynamic chronic brain disorder with episodic manifestations with a tendency to relapse, remit and also no longer be present. It should be made clear that most persons with epilepsy have only brief episodic manifestations and are normal the rest of the time and that is it is not all prevailing and pervasive 24 x 7 phenomenon.

I conclude by saying that it will be good not to define a person as having epilepsy after a single seizure knowing fully well that it may never recur in many.