

SHOULD AEDS BE STARTED AFTER A FIRST SEIZURE IN PATIENTS WHO HAVE PRE-EXISTING BRAIN INJURY: YES

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Antiepileptic drug (AED) treatment is indicated if the estimated benefits outweigh potential risks. The risks and benefits determined by many factors, including the presence of symptomatic etiology. Here I will argue that in most cases AED treatment should be started after the first unprovoked seizure, if there is a clear evidence of a pre-existing brain damage which can be considered as seizure etiology. This reflects the new ILAE criteria for diagnosis of epilepsy: epilepsy can be diagnosed after the first unprovoked seizure, if the risk of seizure recurrence is high. Symptomatic etiology (such as brain injury) is one of these risk factors.

There were some randomized trials involving patients who suffered the first unprovoked seizure, including two large multicenter trials (the First Seizure Trial „FIRST”, and the Europe-based Multicenter Epilepsy and Single Seizure study „MESS”). These trials compared the risk of the second seizure within 1 year in those patients who received antiepileptic drugs vs. drug naïve patients. In all of these studies the general risk for a second seizure was 2-10 times higher in the drug naïve patients than in those who received AED (26-71% vs. 5-22%). The risk for the second seizure is higher in case of EEG abnormality, focal-onset seizure, clinical or neuroimaging signs of a pre-existing brain injury, and family history of epilepsy.

Most of the above-mentioned studies were conducted (or started enrolling patients) before the introduction of the new AEDs. The risks for side effects and drug-drug interactions usually lower in the new antiepileptics compared to old drugs. Thus, it is reasonable to assume that risk/benefit ratio concerning antiepileptic treatment vs. no treatment after the first seizure has been changed probably in favor of benefits of treatment compared to 10-25 years ago, when most of these randomized first-seizure studies were conducted.

It is important to emphasize that some of the above-mentioned studies found no difference in long-term seizure- and quality of life outcome in those patients who received AED treatment after the first vs. after the second seizure. However, long-term observations may have some methodological problems: loss to follow-up patients can be a result of seizure freedom leading to lack of interest in study participation, dissatisfaction with the study due to health or psychosocial issues or even death of the patients without knowledge of the study conductors. On the other hand, Hirtis et al (2007) found that introducing AED after > 10 seizures may result more often in therapy resistance than the early AED treatment. In any case, the short term benefit of being seizure-free is also important for the patient.

The incidence of epileptic seizures is the highest in elderly population. The general risk of a second seizure >50% within 1 year and ca. 75% within 5 years in elderly subpopulation (Lawn et al, 2013). Moreover, symptomatic etiology (usually brain injury after stroke) is a high risk for seizure recurrence in elderly. Conversely, drug-resistance in elderly people seems to occur less likely than in younger age groups. Moreover, consequences of a second seizure in a post-stroke patient with polymorbidity and post-stroke gait difficulties may cause a hospitalization due to general health condition which can lead to pneumonia and other potentially fatal complications. This underlines the indication of antiepileptic treatment after the first unprovoked seizure in post-stroke patients with polymorbidity.

Leone et al (2011) found that treatment of the first seizure does not affect mortality, EXCEPT if etiological factors for epilepsy (for example brain injury) are present.

Death, however, is only one of the consequences of seizures. People have a risk of unemployment at the beginning of their epilepsy and a second seizure at their workplace may lead to losing job, especially in countries with high unemployment rate. These especially affect people who have a work with potential dangerous activities, job with „audience” (teachers, actors, politicians etc.), or simply the stigma of epilepsy can lead to unemployment even after the first or second seizure. People with driving license should also avoid the second seizure in order to shorten the period when they can safely drive.

The introduction of antiepileptic treatment should be based on individual basis considering the above-mentioned arguments. The patient and her/his physician should discuss all known risks/benefits of antiepileptic treatment vs. no treatment: side effects of AEDs and consequences of seizure recurrence. In the question about treat or not-to-treat, the final decision should be made by the patient.