Summary of “First seizure definitions and worldwide incidence and mortality” (Hauser and Beghi, Epilepsia 2008)

Having seizures is not always a sign of epilepsy. We need to properly distinguish acute symptomatic seizures from unprovoked seizures for treatment decisions and prognostic determination. The main distinctions between the two types of seizures is that acute symptomatic ones have a clearly identifiable cause and is not recurrent unless the cause is recurrent.

Acute symptomatic seizures are a risk factor for epilepsy but they are not included in the definition of epilepsy. They are caused by either a systemic insult or around a time of a brain insult. The most common causes are: Traumatic brain injury, cerebrovascular disease, drug withdrawal, infarction, and metabolic insults. Men have a higher risk than women for this type of seizures. They predominate in the youngest age class(less than one year old) and to a lesser extent, in the elderly. The incidence of acute symptomatic seizures (isolated or recurrent) is 29–39 per 100,000 persons per year. It’s important to note that epidemiologic studies for these seizures are rare because in those cases they are part of the diagnosis and the focus will be on the underlying condition. Also field surveys often fail to distinguish acute symptomatic seizures from the second type: unprovoked seizures.

When the cause of the seizures are not clearly identifiable, we call the seizures ‘unprovoked’. Even though there is no precipitating factors they can be cause by a static injury and they are called in this case remote symptomatic seizures or by a progressing injury and they are in this case called progressive symptomatic seizures. They can be unique but they are recurrent in one half of cases. The occurrence of two or more unprovoked seizures is the definition of epilepsy. The incidence of single unprovoked seizures is 23–61 per 100,000 persons per years. As with epilepsy, single unprovoked seizures predominate in men and in patients less than 12 months and older than 65 years.

A standardized mortality ratio (SMR) of 2.3 has been reported in patients experiencing a single unprovoked seizure. The SMR in patients with a newly diagnosed unprovoked seizure ranges from 2.5 to 4.1 according to the study population and design. SMR for acute symptomatic seizures are rare.

(footnote) Standardized Mortality Ratio is a ratio between the observed number of deaths in an study population and the number of deaths would be expected, based on the age- and sex-specific rates in a standard population and the age and sex distribution of the study population.