Absence seizure

Absence seizures involve brief, sudden lapses of consciousness. They're more common in children than in adults. Someone having an absence seizure may look like he or she is staring blankly into space for a few seconds. Then, there is a quick return to a normal level of alertness.

B. Non-Motor (Absence) Seizures:

Typical absence

Atypical absence

Myoclonic absence

Eyelid myoclonia

Ethosuximide indicated for absence.

Formerly called petit-mal seizure. Impaired consciousness with mild or no motor involvement (automatisms occur more commonly with bursts lasting > 7 secs). No post-ictal confusion. Aura is rare. May be induced by hyperventilation × 2–3 mins. EEG shows spike and wave at exactly 3 per second.

These generalized seizure involve an interruption to consciousness where the person experiencing the seizure seems to become vacant and unresponsive for a short period of time (usually up to 30 seconds). Slight muscle twitching may occur.

Absence seizures are transient episodes of impaired consciousness accompanied by 3-4Hz spike-wave discharge on electroencephalography (EEG).

Human functional magnetic resonance imaging (fMRI) studies have demonstrated widespread cortical decreases in the blood oxygen-level dependent (BOLD) signal that may play an important role in the pathophysiology of these seizures.

3-4Hz spike-wave discharge in a sulcated animal model does not necessarily produce fMRI decreases, leaving the mechanism for this phenomenon open for further investigation [1)].

Morse et al., retrospectively analyzed published studies to investigate historical trends in outcome of childhood absence epilepsy (CAE). They included patients based on onset of absence seizures in childhood, 3 Hz bilateral spike-wave discharges on EEG, and availability of seizure-free outcome data.

The primary endpoint was seizure-freedom off medications by study publication year. We also analyzed relationships between seizure-freedom and 1. treatment medication, and 2. CAE diagnostic criteria. We included 29 studies published 1945-2013, encompassing 2416 patients. Seizure-freedom off medications was higher for studies after 1985 versus before 1975 (82% versus 35%; $p < 0.001$). Ethosuximide and valproate were used more commonly after 1985, and patients previously treated with ethosuximide or valproate had higher seizure-freedom off medications than those treated only with other medications (64% versus 32%; $\chi 2>10$; $p < 0.001$). Although differences in diagnostic criteria for early vs. later studies did not reach statistical significance, later studies tended to use normal EEG background ($p = 0.09$) and absence of comorbid disorders ($p = 0.09$) as criteria more commonly. These findings demonstrate that seizure-freedom off medications has improved in published CAE studies after 1985. Our results are limited due to retrospective analysis. Further work is needed with prospective, controlled trials to establish factors leading to improved long-term prognosis in CAE [2].

1)
Youngblood MW, Chen WC, Mishra AM, Enamandram S, Sanganahalli BG, Motelow JE, Bai HX, Frohlich F, Gribizis A, Lighten A, Hyder F, Blumenfeld H. Rhythmic 3-4Hz discharge is insufficient to produce cortical BOLD fMRI decreases in generalized seizures. Neuroimage. 2015 Jan 3. pii: S1053-8119(14)01071-4. doi: 10.1016/j.neuroimage.2014.12.066. [Epub ahead of print] PubMed PMID: 25562830.
2)
Morse E, Giblin K, Chung MH, Dohle C, Berg AT, Blumenfeld H. Historical trend toward improved long-term outcome in childhood absence epilepsy. Epilepsy Res. 2019 Feb 25;152:7-10. doi: 10.1016/j.eplepsyres.2019.02.013. [Epub ahead of print] PubMed PMID: 30856420.