

Epileptic seizures can lead to changes in autonomic function affecting the sympathetic, parasympathetic, and enteric nervous systems. Changes in cardiac signals are potential biomarkers that may provide an extra-cerebral indicator of ictal onset in some patients. Heart rate can be measured easily when compared to other biomarkers that are commonly associated with seizures (e.g., long-term EEG), and therefore it has become an interesting parameter to explore for detecting seizures. Understanding the prevalence and magnitude of heart rate changes associated with seizures, as well as the timing of such changes relative to seizure onset, is fundamental to the development and use of cardiac based algorithms for seizure detection. We reviewed 34 articles that reported the prevalence of ictal tachycardia in patients with epilepsy. Scientific literature supports the occurrence of significant increases in heart rate associated with ictal events in a large proportion of patients with epilepsy (82%) using concurrent electroencephalogram (EEG) and electrocardiogram (ECG). The average percentage of seizures associated with significant heart rate changes was similar for generalized (64%) and partial onset seizures (71%). Intra-individual variability was noted in several articles, with the majority of studies reporting significant increase in heart rate during seizures originating from the temporal lobe. Accurate detection of seizures is likely to require an adjustable threshold given the variability in the magnitude of heart rate changes associated with seizures within and across patients <sup>1)</sup>.

<sup>1)</sup>

Eggleston KS, Olin BD, Fisher RS. Ictal tachycardia: the head-heart connection. *Seizure*. 2014 Aug;23(7):496-505. doi: 10.1016/j.seizure.2014.02.012. Epub 2014 Mar 6. Review. PubMed PMID: 24698385.

From:

<https://neurosurgerywiki.com/wiki/> - **Neurosurgery Wiki**

Permanent link:

[https://neurosurgerywiki.com/wiki/doku.php?id=ictal\\_tachycardia](https://neurosurgerywiki.com/wiki/doku.php?id=ictal_tachycardia)

Last update: **2024/06/07 02:53**

