



AARHUS
UNIVERSITY

Danish Epilepsy Centre

FILADELFIA

EEG in Status Epilepticus

Sándor Beniczky



sbz@filadelfia.dk



@SBeniczky

Disclosures

- Research grants from non-commercial entities:
 - Independent Research Fund Denmark
 - Innovation Fund Denmark
 - Danish Agency for Higher Education and Science: International Network Programme.
 - European Union: Eurostars Programme / EUREKA
 - European Union: HORIZON Europe Framework Programme
- Speaker honoraria:
 - UCB
 - Eisai
 - GSK
 - Lundbeck

Learning objectives

- To identify the indications for EEG in patients suspected of status epilepticus.
- To integrate EEG into the clinical context and patient management.
- To recognize the EEG patterns in status epilepticus.
- To recognize the EEG patterns suggesting increased risk of seizures and status epilepticus.

Key message

- EEG is needed for the diagnosis of non-convulsive status epilepticus (NCSE).
- A high index of suspicion for NCSE, and a low threshold to obtain EEG is recommended,
- The Salzburg criteria for SE have high inter-rater reliability and accuracy.
- The American Clinical Neurophysiology Society guidelines adapted the Salzburg criteria for critically ill patients.
- The 2HELPS2B nomogram is useful for identifying patients at risk of developing seizures.

References

- Trinka E, Cock H, Hesdorffer D, Rossetti AO, Scheffer IE, Shinnar S, Shorvon S, Lowenstein DH. A definition and classification of status epilepticus--Report of the ILAE Task Force on Classification of Status Epilepticus. *Epilepsia*. 2015 Oct;56(10):1515-23. doi: 10.1111/epi.13121.
- Beniczky S, Hirsch LJ, Kaplan PW, Pressler R, Bauer G, Aurlen H, Brøgger JC, Trinka E. Unified EEG terminology and criteria for nonconvulsive status epilepticus. *Epilepsia*. 2013 Sep;54 Suppl 6:28-9. doi: 10.1111/epi.12270.
- Leitinger M, Beniczky S, Rohrer A, Gardella E, Kalss G, Qerama E, Höfler J, Hess Lindberg-Larsen A, Kuchukhidze G, Dobesberger J, Langthaler PB, Trinka E. Salzburg Consensus Criteria for Non-Convulsive Status Epilepticus--approach to clinical application. *Epilepsy Behav*. 2015 Aug;49:158-63. doi: 10.1016/j.yebeh.2015.05.007.
- Leitinger M, Trinka E, Gardella E, Rohrer A, Kalss G, Qerama E, Höfler J, Hess A, Zimmermann G, Kuchukhidze G, Dobesberger J, Langthaler PB, Beniczky S. Diagnostic accuracy of the Salzburg EEG criteria for non-convulsive status epilepticus: a retrospective study. *Lancet Neurol*. 2016 Sep;15(10):1054-62. doi: 10.1016/S1474-4422(16)30137-5.
- Hirsch LJ, Fong MWK, Leitinger M, LaRoche SM, Beniczky S, Abend NS, Lee JW, Wusthoff CJ, Hahn CD, Westover MB, Gerard EE, Herman ST, Haider HA, Osman G, Rodriguez-Ruiz A, Maciel CB, Gilmore EJ, Fernandez A, Rosenthal ES, Claassen J, Husain AM, Yoo JY, So EL, Kaplan PW, Nuwer MR, van Putten M, Sutter R, Drislane FW, Trinka E, Gaspard N. American Clinical Neurophysiology Society's Standardized Critical Care EEG Terminology: 2021 Version. *J Clin Neurophysiol*. 2021 Jan 1;38(1):1-29. doi: 10.1097/WNP.0000000000000806.
- Leitinger M, Gaspard N, Hirsch LJ, Beniczky S, Kaplan PW, Husari K, Trinka E. Diagnosing nonconvulsive status epilepticus: Defining electroencephalographic and clinical response to diagnostic intravenous antiseizure medication trials. *Epilepsia*. 2023 Sep;64(9):2351-2360. doi: 10.1111/epi.17694.
- Struck AF, Ustun B, Ruiz AR, Lee JW, LaRoche SM, Hirsch LJ, Gilmore EJ, Vlachy J, Haider HA, Rudin C, Westover MB. Association of an Electroencephalography-Based Risk Score With Seizure Probability in Hospitalized Patients. *JAMA Neurol*. 2017 Dec 1;74(12):1419-1424. doi: 10.1001/jamaneurol.2017.2459