EPILEPSY OR SYNCOPE, OR SOMETHING ELSE?

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HOW TO UNRAVEL A DAILY CHALLENGE IN NEUROLOGY AND EMERGENCY MEDICINE

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Disclosure - Max J. Hilz

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Learning objectives

The lecture describes the different types of Transient Loss of Consciousness (TLOC).

TLOC is a frequent disorder seen in emergency rooms and in acute neurology.
Often the differential diagnosis between TLOC due to an epileptic seizure and TLOC due to syncope can be challenging. Thus, misdiagnoses are not uncommon.

This lecture will help participants to better

- recognize the various types of syncope,
- distinguish syncope from epileptic seizures, particularly
- differentiate convulsive syncope from epileptic seizures which is sometimes challenging,
- recognize signs and symptoms of functional (psychogenic forms) of syncope (“Pseudosyncope“) and functional (or psychogenic) seizures,
- identify disorders that may resemble syncope although there is no loss of consciousness.

The participants will learn

- which forms of TLOC are associated with low, moderate, or high risk, and
- which patients need immediate additional, particularly cardiologic examination and treatment.

Key messages

Convulsive syncope (independent from syncope etiology)

brief, tonic-clonic ***irregular*** movements; in contrast to epileptic seizure: **no crescendo-decrescendo; not unilateral;**

not rhythmical; in different extremities (arm / leg) **not synchronous**

Muscle jerks occur only after fall ! (in epilepsy possible while still standing)

sometimes difficult to differentiate from epileptic seizures ➔ simultaneous Video-EEG-recording clarifies diagnosis

serum prolactin levels may be increased after seizure & syncope

serum **creatinine kinase** increases **more often after seizure**

"10/20 Rule" facilitates differentiating Syncope vs. Epileptic Seizure:

Syncope:

- Tonic posture of the arms
  (Brainstem -Disinhibition)
- myoclonic jerks: **< 10** *(irregular)*
- **Loss of Muscle TONE**
  strongly favors diagnosis of SYNCOPE

Epileptic seizure:

- Tonic posture of the arms
- myoclonic jerks: **> 20** (rhythmic!)
- **NO** muscle atonia

Shmuely S, Bauer PR, van Zwet EW, van Dijk JG, Thijs RD. Differentiating motor phenomena in tilt-induced syncope and convulsive seizures. Neurology. 2018 Apr 10;90(15):e1339-e1346.

Key messages

Reflex-Syncope ➔ **very frequent, but *good Prognosis*** (Young patients without structural or electric heart disease)

Syncope due to Orthostatic Hypotension: **2-fold increase of prospective mortality risk !**

Cardiac Syncope: *poor prognosis* - high mortality risk ! *(Moya, Sutton et al. 2009)*

RED FLAGS: TLOC requires cardiology examination within 24 hours if there is:

- Transient loss of consciousness **during exertion;** new or **unexplained breathlessness; heart failure;** a **heart murmur**
- **family history** of sudden cardiac death in pats. **below age 40** and/or an **inherited cardiac condition**
- **electrocardiographic abnormalities:**

  inappropriate persistent **bradycardia;**
  conduction abnormality (e.g., complete right or left bundle branch block, or any degree of heart block);
  left or right **ventricular hypertrophy;**
  long QT interval (corrected >450 ms) **& short** QT interval (corrected <350 ms);
  pathological Q waves;
  ventricular pre-excitation;
  any **ventricular arrhythmia** (including ventricular extrasystoles); **Brugada syndrome; paced rhythm**
  any **abnormalities in ST-segment or T-wave**, especially abnormal T- wave inversion

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