Transient Loss of Consciousness – A Neurological Perspective

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Summary

• Syncope vs Epilepsy
  – Differentiation
  – Relationship
• Non-epileptic (Dissociative) Seizures
• Sleep Disorders
• Miscellaneous Neurological Disorders
Can We Reliably Diagnose Syncope?

- Symptoms related to hypoperfusion
  - Depend on rapidity of onset
  - Blurred vision, loss of colour vision, loss of vision
  - Loss of postural control – slumping or stiffening
  - Loss of consciousness

- Symptoms linked to the cause of syncope
Discriminatory Features?

- Convulsive Movements
  - Jerking in up to 90% (Lempert et al.)
  - Brief LOC (5-22secs)
  - Automatisms seen in 80%
  - Vocalisations in 40%
  - Eyes open
  - Urinary incontinence in up to 25%
  - Faecal incontinence very rare
Discriminatory Features?

• Convulsive Movements
  – Most subjects are flaccid but stiff opisthotonus also reported
  – Rare consistent head turning
  – Myoclonic jerking almost universal (in induced syncope), but occurs after falling, up to about 20 secs
  – Tongue biting rare and quite specific for epilepsy, especially lateral bite
Discriminatory Features?

• Other features
  – Breathing variable and may stop due to brainstem ischaemia
  – Recovery to consciousness usually within a few seconds
  – Post-event flushing, apnoea, 3-5sec retrograde amnesia
<table>
<thead>
<tr>
<th>Patient’s background</th>
<th>Discriminates between seizures and syncope</th>
<th>Discriminates between neurally mediated and cardiogenic syncope</th>
<th>Favours seizures</th>
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</thead>
<tbody>
<tr>
<td>Previous presyncope* or syncope</td>
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<td>Previous seizures; cortical abnormality on brain MRI</td>
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<td>Setting</td>
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<td>Prolonged sitting or standing,* rising to upright posture; dehydration</td>
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<td>Stress,* sleep deprivation; drug withdrawal (eg, alcohol, benzodiazepines); photic triggers</td>
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<td>Prodrome</td>
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<td>Nausea,* palpitations,* dyspnoea,* warm sensation,* light-headedness; greying of vision; hearing becoming distant</td>
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<td>If partial onset, symptoms might indicate temporal, frontal, parietal, or occipital focus</td>
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<td>Attack</td>
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<td>Palor; motionless collapse</td>
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<td>Tongue biting,* head turning,* unusual posturing,* urinary incontinence,* cyanosis*</td>
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<tr>
<td>Recovery (postdrome)</td>
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<tr>
<td>Loss of consciousness remembered*</td>
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<td>Confusion,* headache,* behaviours (before/during attack) not recalled*</td>
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*Denotes features validated in discriminating between seizures and syncope.† Denotes features validated in discriminating between neurally mediated and cardiogenic syncope.

**Table 3: Major clinical features that can be used to discriminate between seizures, neurally mediated syncope, and cardiogenic syncope**
So Far, So Good?

• Epilepsy May Induce Syncope
  • Seizures may induce bradyarrhythmias (up to 13% of patients)
  • Thought to represent seizure activity in parasympathetic networks lateralised in left hemisphere
  • Usually benign but may result in prolonged pauses
  • May present as isolated symptom of “syncope”
Epileptic Cardiac Asystole

Rugg-Gunn et al, 2000
25 seconds of asystole associated with TLS
So Far, So Good?

• Epilepsy and Syncope May Co-exist:
  
  • Hypoxia associated with syncope may rarely precipitate paroxysmal EEG changes and epileptic seizures – anoxic-epileptic seizures (Stephenson et al, 2004)

  • Increasing evidence of shared genetic basis for some inherited arrhythmias and epilepsy e.g. SCN5A, SCN1A, SCN1B
Other Confounders

• Reflex epilepsies – reading, hot water, startle, orgasm, music, movement

• Atonic Seizures
  – May be very brief or more prolonged
  – Rare, usually only in children with profoundly abnormal brains
Non-Epileptic/Dissociative/Psychogenic Attacks

• “Generalised convulsions” in the context of a normal EEG
• Caution – FLE
• Can be very difficult to discriminate on clinical grounds and may require video-telemetry to unravel
• No single clinical feature is pathognomonic
Sleep Disorders

- Sleep attacks may present as TLOC
- Sleep apnoea affects at least 4% of adult males
- More commonly narcolepsy, can present as sudden sleep attacks without warning
- Predisposition to REM-onset sleep with associated loss of tone
- Cataplexy – usually full awareness but not always
• Hypnogogic Hallucinations
• Sleep Paralysis
• REM Sleep Behaviour Disorder
Neurological Rarities

• Hyperekplexia
  – AD condition caused by mutations in GLRA1 gene
  – Typified by exaggerated startle response to auditory or tactile stimuli, resulting in drop attacks
  – Characteristic adduction response without loss of consciousness
  – May also occur as part of Coffin-Lowry syndrome

• Meniere’s Disease
Neurological Rarities

- 3rd Ventricle Colloid Cyst
- Presents with syncopal-type events in 0.5%
- Surgical resection described to stop drop attacks
- Classic paroxysmal positional headache very rare
Conclusions

• Most syncope is syncope

• Consider alternative explanations, especially if refractory to treatment

• Take a careful history, seeking out focal neurological features

• For atypical cases, have a low threshold for neurological referral, and consider the utility of other investigations, such as brain imaging, EEG, telemetry
Questions?