Syncope in ED - Risk Stratification

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3-8% of ED presentations – increasing with advancing age

>50% are admitted
@ 75% of healthcare costs due to syncope

ED physicians ranked syncope ED physicians ranked syncope ED physicians ranked syncope ED physicians ranked syncope as the 2nd most common decision making dilemma


Syncope 1yr Mortality

Cardiac causes of syncope have high mortality rates:
(1 year Mortality Rate of 30%)

Compared to non-cardiac syncope:
(1 year Mortality Rate of 0-12%)


Risk Stratification of Syncope in ED - one of key new 2018 ESC Syncope Guidelines

Department of Emergency Medicine
1. Assess for life threatening problems standard ABC/PRIMARY SURVEY approach

2. True syncope from "non-syncopal" disorders
   - Was LOC complete
   - Was LOC transient with a rapid onset and short duration
   - Did the patient recover spontaneously, completely without sequelae or post-ictal state
   - Did the patient lose postural tone
   - If yes to all then Syncope Likely

Red Flags in History
- Chest pain (CAD/PE), Dyspnoea, Palpitations preceding syncope
- Known severe structural or coronary heart disease
- Family Hx of sudden cardiac death
- Syncope during exercise or supine
- Frequent and/or injurious syncope
- Syncope while driving
- Prolonged unconsciousness
- Post-event confusion
- Lateral tongue biting

T-LOC Suspected Syncope
- Physical examination
- Cardiovascular
- Neurological
- 12-lead ECG
- Orthostatic BP measurements
- BM & Baseline lab investigations

12-lead ECG
- Normal or abnormal
- Acute MI
- Severe sinus bradycardia/pause
- Arrhythmias
- Tachyarrhythmias (VT, VF)
- Pre-excitation (WPW), Long QT, Brugada
- Short sampling window (12 seconds)
- May require extended ECG monitoring to improve diagnostic yield (ILR)
### Risk Stratification at the initial evaluation (I)

**High-risk (red flag)**
- Sudden onset
- Associated with premonitory type of syncope or school syncope (e.g., light-headedness, feeling of warmth, sweating, nausea, vomiting)
- Syncope or pre-syncope associated with headache or focal neurologic symptoms
- Unexplained syncope or syncope following exercise or after standing up
- Unexplained syncope or syncope following exercise in patients on antiarrhythmic therapy
- Persistent syncope or syncope following exercise

**Major**
- New onset of chest discomfort, breathlessness, abdominal pain, or headache
- Unexplained syncope or syncope following exercise or after standing up
- Unexplained syncope or syncope following exercise in patients on antiarrhythmic therapy

**Minor**
- Syncope or syncope following exercise
- Syncope or syncope following exercise in patients on antiarrhythmic therapy

### Risk Stratification at the initial evaluation (II)

**High-risk (red flag)**
- Long history (years) of recurrent syncope with low risk features of the same
- Absence of structural heart disease

**Major**
- Severe structural coronary artery disease
- History of arrhythmia
- History of syncope following exercise

**Minor**
- Normal ECG

### Risk Stratification at the initial evaluation (III)

**High-risk (red flag)**
- Normal ECG

**Major**
- ECG changes consistent with acute ischemia
- Mobitz I second-degree AV block and 3rd-degree AV block
- Complete AV block
- Persistent sinus bradycardia (>40 b.p.m.)
- Atrioventricular block or 6th-degree AV block
- Q waves consistent with CAD or cardiomyopathy
- Sustained and nonsustained VT
- Dysfunction of the pacemaker or ICD
- Type 1 Brugada pattern
- LVH long QT

### Risk Stratification at the initial evaluation (IV)

**High-risk (red flag)**
- Normal ECG

**Major**
- ECG changes consistent with acute ischemia
- Mobitz I second-degree AV block and 3rd-degree AV block
- Complete AV block
- Persistent sinus bradycardia (>40 b.p.m.)
- Atrioventricular block or 6th-degree AV block
- Q waves consistent with CAD or cardiomyopathy
- Sustained and nonsustained VT
- Dysfunction of the pacemaker or ICD
- Type 1 Brugada pattern
- LVH long QT

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### Risk Stratification at the initial evaluation

**Management of syncope in the ED based on risk stratification**

The management of TLOC of suspected syncope nature in the ED should answer the following three key questions:

1. Is there a serious underlying cause that can be identified?
2. What is the risk of a serious outcome?
3. Should the patient be admitted to hospital?
**Case 1**

- **68yr old taxi driver**
- **BIBA**: Collapse and scalp laceration.
- Last thing he remembers is his wife calling him… came round on the kitchen floor, denies any prodrome.
- **4 episodes in previous 12m**
- **PMH**: High cholesterol, **Meds**: Lipitor 20mg

**Clinical Assessment**

- Alert and Fully orientated, GCS15/15, no HI red flags
- Blood Sugar normal
- BP/HR normal, OH neg
- Clinical exam: Cardiac, Neurological NAD
- Lab investigations: NAD
Clinical Assessment

- Alert and fully orientated, GCS15/15, no red flags for HI
- Blood sugar normal
- BP/HR normal, D1H negative
- Clinical exam: Cardiac, Neurological NAD
- Lab investigations: NAD
- 12-lead ECG acute
- Discharged to HSU

Case 2

- 26yr old male BIBA following a witnessed syncopal episode at work at his desk. Alert and orientated, on no acute distress on arrival.
- Clinical exam: normal
- History:
  - Prodrome of palpitations and weakness
  - Previous episodes of dizzy spells, no syncope
  - No family to SCD
  - No substance misuse

Cardiac syncope manage

Figure 19: Summary of indications for pacing in patients with reflex syncope. O: CSS: cardio-inhibitory carotid reflex syncope.
Arrhythmogenic Right Ventricular Dysplasia (ARVD)

- First described in 1977
- Important cause of SCD
- True prevalence unknown
- May present as syncope
- Aetiology is linked to fatty myocardial infiltration
- AICD implantation
- Radiofrequency ablation
- Medical Management with B-blockers first line

Case 3

- 19 year old:
  - Presented to ED following a syncope episode: had been at a concert, had a few drinks, standing for a long period, felt weak and dizzy for 2 minutes, then remembers waking up on the ground.
  - Has had similar episodes previously (2 over the last year).
  - Always upright, always prodromal, all episodes associated with prolonged standing.
  - Clinical Examination, Lab investigations and ECG normal.
  - Active Stand: Normal

Family history of sudden cardiac death in first cousin maternal side, aged 30.
Case 6

- 78 yr. old presented to ED - fell at shop ... remembers tripping on the kerb
- Fallen 3 times in the last 2 months - tripped on a rug at home, fell going upstairs
- Independent, lives alone, drives
- PMHx: Mild asthma, TIA 6 years ago
- Meds: Aspirin, Lipitor

Blood pressure drop followed by asystole 26 seconds

Blood pressure drop followed by asystole 26 seconds
Older Fallers presenting to ED
FUSE study Heart 2016

- 1/5 falls in older persons are unexplained.
- 1/5 of unexplained fallers had an arrhythmogenic cause.
- Arrhythmias are predictive of increased risk of future falls

Cough Syncope
Multiple injurious falls in past 10 days secondary to cough syncope

- No Prodrome
- Clinical Examination, ECG no other red flags
- Referred for urgent assessment in FASU
- Advised against driving

R-Test Mobitz Type 2 with Ventricular standstill

Management
Multi-pronged
1. Respiratory
   - Smoking Cessation / Cough Suppression + Education
   - Treatment of Underlying Chronic Pulmonary Disease
2. Cardiac
   - Pacemaker
3. Driving Advice
   - Advise against driving until full assessment is complete, unless recurrence whilst driving deemed unlikely
Management of syncope in the ED: Recommendations

1. It is recommended that patients with low risk features, who are not likely to have reflex or vasovagal syncope or non-syncope type of events, are discharged from ED.

2. It is recommended that patients with high-risk features receive an early intake and prompt evaluation in an observation area or in an ED observation unit (if available), or are hospitalized.

3. It is recommended that patients with no high-risk features are observed in the ED or in a syncope unit instead of being hospitalized.

4. High complication scores may be considered for risk stratification.

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Thank you