Collapse in a 75 year old

Dr Nicola Cooper

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Main messages

• Collapse with transient LOC is a common clinical problem
• The main way to diagnose the cause of a collapse is by the history and initial evaluation
• New NICE guidelines are similar to established (ESC) guidelines in terms of initial evaluation and ‘red flags’
• However, they differ in the recommended investigations of ‘unexplained’ syncope
Case history

- A 75 year old man was sent to the Acute Medical Unit after an episode of transient LOC
- He and his wife said he was walking along, felt a bit queer, then was on the floor. He had brief LOC and made a quick recovery. This has happened before
- His only PMH was prostatism and hypertension. Medication: alfuzosin, amlodipine, bendroflumethiazide
- Neurological and cardiovascular examination normal
- 12-lead ECG normal
- Lying and standing BP 120/60 with no significant drop
- He was a driver
Syncope is common

<table>
<thead>
<tr>
<th>Year</th>
<th>Finished Consultant Episodes</th>
<th>Admissions</th>
<th>Emergency</th>
<th>Mean length of stay (days)</th>
<th>Median Episode Duration (days)</th>
<th>Mean Age (years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005/06</td>
<td>103825 (↑ 39%*)</td>
<td>82999 (↑ 38.6%*)</td>
<td>78146 (↑ 40.4%*)</td>
<td>3.9 (↓ 36%*)</td>
<td>1</td>
<td>67</td>
</tr>
<tr>
<td>2004/05</td>
<td>94486</td>
<td>75850</td>
<td>71311</td>
<td>4.6</td>
<td>1</td>
<td>68</td>
</tr>
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<td>2003/04</td>
<td>82773</td>
<td>65986</td>
<td>61982</td>
<td>5.5</td>
<td>2</td>
<td>68</td>
</tr>
<tr>
<td>2002/03</td>
<td>74576</td>
<td>59851</td>
<td>55651</td>
<td>6.1</td>
<td>2</td>
<td>68</td>
</tr>
</tbody>
</table>

*relative to year 2002/03

England data: syncope and collapse
Collapse ?cause
transient loss of consciousness

Due to acute illness

Syncope

Seizure
Hypoglycaemia
Intoxication
etc
Collapse ?cause
transient loss of consciousness

Due to acute illness

1. Neurally mediated
2. Orthostatic hypotension
3. Cardiac arrhythmia
4. Structural

Syncope

Seizure
Hypoglycaemia
Intoxication etc

Transient LOC alone is never a TIA
Causes of TLOC in patients referred to syncope clinics

**Syncope**

- **Neurally mediated**
  - Vasovagal (simple faint)
  - Situational
    - Unpleasant stimuli
    - Cough
    - Micturition
    - Swallow
    - Brass-instrument player
  - Carotid sinus hypersensitivity

- **Orthostatic**
  - Medication-induced
  - Volume depletion
  - Secondary autonomic failure (e.g. diabetic autonomic neuropathy, Parkinson’s disease)
  - Primary autonomic failure
  - Endocrine problems, e.g. Addison’s disease

- **Cardiac arrhythmias**
  - Sick sinus syndrome
  - AV blocks
  - Paroxysmal supraventricular or ventricular tachycardias
  - Long QT interval

- **Structural**
  - Aortic stenosis
  - Hypertrophic obstructive cardiomyopathy
  - Pericardial tamponade

- 50%
- 2%
- 20%
- 3%
- 30% in elderly
History and initial evaluation

- History from patient
  - Before
  - During
  - After
  - Teasing out questions
- History from available eye-witness
- PMH, medications etc
- Examination
- 12-lead ECG
- Lying and standing BP
Syncope (ESC Guidelines)

Initial evaluation

- History, physical examination, ECG, lying & standing BP

Certain or suspected diagnosis

Evaluate/confirm disease/disorder

Diagnosis made

Unexplained syncope

- Structural heart disease or abnormal ECG
  - Cardiac evaluation
    - +
    - -
      - Frequent or severe
        - NMS evaluation
          - +
          - -
            - No further evaluation
            - Re-appraisal
        - Single/rare
  - No structural heart disease and normal ECG
    - No further evaluation

Treatment
Vasodepressor VVS
Cardio-inhibitory CSH
BP responses in different types of syncope

BP (mmHg)

120

60

BP after standing

Time (mins)

OH

Elderly dysautonomic pattern

VVS
Syncope (NICE guidelines)

Box 3. Red flags
Refer within 24 hours for specialist cardiovascular assessment (by the most appropriate local service) anyone with TLOC who also has any of the following:
- an ECG abnormality
- heart failure (history or physical signs)
- TLOC during exertion
- family history of sudden cardiac death in people aged younger than 40 years and/or an inherited cardiac condition
- new or unexplained breathlessness
- a heart murmur

• Consider referring within 24 hours anyone aged older than 65 years who has experienced TLOC without prodromal symptoms

No
Uncomplicated faint (vasovagal syncope – 3Ps), situational syncope or orthostatic hypotension? If so – give advice and treat.

Yes
• Refer for specialist cardiovascular assessment by the most appropriate local service within 24 hours (?AMU)
• If the person presents to the ambulance service, take them to the Emergency Department
Specialist cardiovascular assessment and diagnosis (NICE)

Reassess:
– history, including any previous events
  – medical history, and any family history of cardiac disease
  – drug therapy at the time of TLOC and any subsequent changes

• Conduct a clinical examination and measure lying and standing BP
  • Repeat 12-lead ECG and examine previous ECGs

Assign to suspected cause of syncope and offer further testing as directed below, or other tests as clinically appropriate

- Suspected structural heart disease cause
- Suspected cardiac arrhythmic cause
- Suspected neurally mediated cause*
- Unexplained cause
NICE contd

Suspected structural heart disease cause

Investigate appropriately (for example, cardiac imaging)

Because other mechanisms for syncope are possible in this group, also consider investigating for a cardiac arrhythmic (see opposite), and for orthostatic hypotension or for neurally mediated syncope

Suspected cardiac arrhythmic cause

• Offer an ambulatory ECG as a first-line investigation
  – choose type of ambulatory ECG based on person’s history (and in particular, frequency) of TLOC
  • Do not offer a tilt test as a first-line investigation

24/48T if several times a week
EER if every 1-2 weeks
IER if less than once a fortnight
Do not offer a tilt test to people who have a diagnosis of vasovagal syncope on initial assessment.

Vasovagal syncope suspected

Do not offer a tilt test to people who have a diagnosis of vasovagal syncope on initial assessment.

Only consider a tilt test if the person has recurrent episodes of TLOC that adversely affect their quality of life, or represent a high risk of injury, to assess whether the syncope is accompanied by a severe cardioinhibitory response (usually asystole).

Carotid sinus syncope suspected

• Offer carotid sinus massage
  • Carry out this test in a controlled environment, with ECG recording and resuscitation equipment available **

Syncope due to marked bradycardia/asystole and/or marked hypotension reproduced?

Yes

Diagnose carotid sinus syncope

No

Negative carotid sinus massage test (normal or asymptomatic non-significant bradycardia and/or hypotension)

Unexplained cause

Is the person 60 years or older?

Yes

• Offer an ambulatory ECG – choose type of ambulatory ECG based on history and frequency of TLOC
  • Do not offer a tilt test before the ambulatory ECG

No

*Suspected neurally mediated cause

Suspected neurally mediated cause

Unexplained cause

NICE contd
Implantable event recorder
(Reveal ® Device)
<table>
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<tr>
<th>ESC</th>
<th>NICE</th>
</tr>
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<tr>
<td>VVS is not always diagnose-able on the history</td>
<td>Tilt test studies are mainly (heterogeneous) case control studies</td>
</tr>
<tr>
<td>Tilt testing discriminates well for VVS between symptomatic patients and asymptomatic controls (specificity 90% pHUT)</td>
<td>Pre-test probability of neurally mediated syncope is high in patients without structural heart disease, even if test is negative</td>
</tr>
<tr>
<td>No ‘gold standard’ to compare</td>
<td>Analysed evidence for tilt testing vs IER (A1. as standard) in diagnosis of cardio-inhibitory NM syncope (A2. as would benefit from pacing) and found more cost-effective to use IER</td>
</tr>
<tr>
<td>Well known that different hemodynamic picture occurs at different times in same patient - so not used to tailor treatment</td>
<td></td>
</tr>
</tbody>
</table>
People with blood pressure problems

There are two types of orthostatic hypotension

• One we can measure on the ward …and
• One we can measure on a tilt test (and can suspect from a careful history) that’s not mentioned in the NICE guidelines
Do not offer a tilt test to people who have a diagnosis of vasovagal syncope on initial assessment.

Vasovagal syncope suspected
- Do not offer a tilt test to people who have a diagnosis of vasovagal syncope on initial assessment.

Carotid sinus syncope suspected
- **Offer carotid sinus massage**
- Carry out this test in a controlled environment, with ECG recording and resuscitation equipment available.
- Syncope due to marked bradycardia/asystole and/or marked hypotension reproduced?
  - Yes
    - Diagnose carotid sinus syncope
  - No
    - Negative carotid sinus massage test
      - (normal or asymptomatic non-significant bradycardia and/or hypotension)

Is the person 60 years or older?
- Yes
  - Offer an ambulatory ECG
    - – choose type of ambulatory ECG based on history and frequency of TLOC
    - • Do not offer a tilt test before the ambulatory ECG
- No

Unexplained cause
- Offer an ambulatory ECG
- Choose type of ambulatory ECG based on history and frequency of TLOC
- Do not offer a tilt test before the ambulatory ECG

*Suspected neurally mediated cause

Suspected neurally mediated cause

Unexplained cause
Summary

• Collapse with transient LOC is a common clinical problem
• The main way to diagnose the cause of a collapse is by the history and initial evaluation
• New NICE guidelines are similar to established (ESC) guidelines in terms of initial evaluation and ‘red flags’
• However, they differ in the recommended investigations of ‘unexplained’ syncope
Collapse in a 75 year old
- thank you!

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Indications for tilt testing (ESC)

1. Recurrent unexplained (or single serious) syncope in absence of heart disease
2. Recurrent unexplained (or single serious) syncope in absence of heart disease, after cardiac causes of syncope have been excluded
3. Assessing recurrent pre-syncope (incl POTS)
4. After an aetiology of syncope has been established, but where demonstration of susceptibility to neurally-mediated syncope would alter the therapeutic approach
5. Differentiating syncope with myoclonic jerks from epilepsy (also PNES and psychogenic pseudo-syncope)
6. Evaluating patients with recurrent unexplained ‘falls’