Management of Neurally Mediated Syncope: Focused on Recently Updated Guideline

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2018 ESC Guidelines for syncope

2018 ESC Guidelines for the diagnosis and management of syncope

The Task Force for the diagnosis and management of syncope of the European Society of Cardiology (ESC)

Developed with the special contribution of the European Heart Rhythm Association (EHRA)

Endorsed by: European Academy of Neurology (EAN), European Federation of Autonomic Societies (EFAS), European Federation of Internal Medicine (EFIM), European Union Geriatric Medicine Society (EUGMS), European Society of Emergency Medicine (EuSEM)

Authors/Task Force Members: Michele Brignole* (Chairperson) (Italy), Angel Moya* (Co-chairperson) (Spain), Frederik J. de Lange (The Netherlands), Jean-Claude Deharo (France), Perry M. Elliott (UK), Alessandra Fanciulli (Austria), Artur Fedorowski (Sweden), Raffaello Furlan (Italy), Rose Anne Kenny (Ireland), Alfonso Martin (Spain), Vincent Probst (France), Matthew J. Reed (UK), Clara P. Rice (Ireland), Richard Sutton (Monaco), Andrea Ungar (Italy), and J. Gert van Dijk (The Netherlands)

Practical Instructions for the 2018 ESC Guidelines for the diagnosis and management of syncope

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Treatment of syncope is based on risk stratification and the identification of specific mechanisms when possible.
Neurally mediated syncope

- Synonym for reflex syncope
- Emphasizes the role of the autonomic nervous system in the disruption of normal circulatory control

<table>
<thead>
<tr>
<th>Reflex (neurally mediated) syncope</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Vasovagal:</strong></td>
</tr>
<tr>
<td>- orthostatic VVS: standing, less common sitting</td>
</tr>
<tr>
<td>- emotional: fear, pain (somatic or visceral), instrumentation, blood phobia</td>
</tr>
<tr>
<td><strong>Situational:</strong></td>
</tr>
<tr>
<td>- micturition</td>
</tr>
<tr>
<td>- gastrointestinal stimulation (swallow, defaecation)</td>
</tr>
<tr>
<td>- cough, sneeze</td>
</tr>
<tr>
<td>- post-exercise</td>
</tr>
<tr>
<td>- others (e.g. laughing, brass instrument playing)</td>
</tr>
<tr>
<td><strong>Carotid sinus syndrome</strong></td>
</tr>
<tr>
<td><strong>Non-classical forms</strong> (without prodromes and/or without apparent triggers and/or atypical presentation)**</td>
</tr>
</tbody>
</table>
Treatment of reflex syncope

Reflex syncope

Education, life-style measures (Class I)
Education & Reassurance

● Explain about reflex syncope
  ● Most common cause of syncope
  ● Mechanism
    – A temporary, intermittent dysfunction of the autonomic nervous system, which leads to a slowing of the heart rate or a fall in the blood pressure
  ● Being upright, food, heat, exercise, sight of blood, and emotional stress can sometimes bring on episodes.
  ● Patients commonly experience prodromal symptoms such as lightheadedness, sweating, pale skin, blurred vision, nausea, or vomiting for several minutes before losing consciousness and tend to recover fairly quickly afterwards.

● Benign disease
Actions to take to avoid an impending attack of reflex syncope

- Lie down when symptoms of syncope are coming on.
- If this is not possible, sit down or do counter maneuvers.
  - The final warning symptom is when everything goes dark and you lose vision: then you only have seconds in which to prevent syncope
- Counter maneuvers
  - Press the buttocks together and straighten the knees forcefully
  - Cross your legs and press them together over their entire length
  - Fist and tense the arm muscles
- Drink around 2 liters of fluid a day and do not use salt sparingly. (unless there are medical reasons not to!)
- Inform those in your immediate surroundings what to do during syncope.
Treatment of reflex syncope

Counterpressure maneuvers
Recurrence of syncope in untreated patients in RCT

By Education, recurrence rate **decrease by about 50% at 1~2 years**
Treatment of reflex syncope

- Frequent
- Recurrent
- No/Short prodromes
- High risk activities
Practical decision pathway

SBP < 110 mmHg
Orthostatic intolerance, Orthostatic VVS

- Reflex syncope
  - Education, life-style measures (Class I)
  - Severe/recurrent form
    - Low BP phenotype
    - Prodromes
      - Yes or very short
      - No or very short
        - Fludrocortisone (Class IIb)
        - Midodrine (Class IIb)
        - Counter-pressure manoeuvre (Class IIa)
        - Tilt training (Class IIb)

ILR-guided management in selected cases (Class I); See section 4.2.4

Stop/reduce hypotensive drugs (Class IIa)

Tests showing CI, No prodromes

- Hypotensive drugs
- Dominant cardioinhibitiona

Cardiac pacing (Class IIa/IIb)

Younger

Older
## Treatment of reflex syncope

<table>
<thead>
<tr>
<th>Recommendations</th>
<th>Class</th>
<th>Level</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Education and life-style modification</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Explanation of the diagnosis, provision of reassurance, explanation of risk of recurrence, avoidance of triggers and situations are indicated in all patients.</td>
<td>I</td>
<td>B</td>
</tr>
<tr>
<td><strong>Discontinuation/reduction of hypotensive therapy</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Modification or discontinuation of hypotensive drug regimen should be considered in patients with vasodepressor syncope, if possible.</td>
<td>IIa</td>
<td>B</td>
</tr>
<tr>
<td><strong>Physical manoeuvres</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Isometric PCM should be considered in patients with prodromes who are less than 60 years of age.</td>
<td>IIa</td>
<td>B</td>
</tr>
<tr>
<td>4. Tilt training may be considered for the education of young patients.</td>
<td>IIb</td>
<td>B</td>
</tr>
</tbody>
</table>
## Treatment of reflex syncope

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<tr>
<th>Recommendations</th>
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<tr>
<td><strong>Pharmacological therapy</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Fludrocortisone may be considered in young patients with the orthostatic form of VVS, low-normal values of arterial BP, and absence of contraindication to the drug.</td>
<td>IIb</td>
<td>B</td>
</tr>
<tr>
<td>6. Midodrine may be considered in patients with the orthostatic form of VVS.</td>
<td>IIb</td>
<td>B</td>
</tr>
<tr>
<td>7. Beta-adrenergic blocking drugs are not indicated.</td>
<td>III</td>
<td>B</td>
</tr>
</tbody>
</table>
Pacing for reflex syncope

Reflex syncope

- Spontaneous asystolic pauses/s
  - Extrinsic (functional) (Class IIa)
    - Vagally-mediated or
      - Adenosine-sensitive
  - CI-CSS (Class IIa)
  - Asystolic tilt (Class IIb)

- Test-induced asystolic pauses/s
  - Adenosine sensitive syncope (Class IIb)

Undocumented syncope (Class III)

Pacing not indicated
# Pacing for reflex syncope

Cardiac pacing in different clinical settings

<table>
<thead>
<tr>
<th>Expected 2-year syncope recurrence rate</th>
<th>Clinical setting</th>
</tr>
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<tbody>
<tr>
<td>High efficacy (≤5% recurrence rate)</td>
<td>Established bradycardia</td>
</tr>
<tr>
<td></td>
<td>no hypotensive mechanism</td>
</tr>
<tr>
<td>Moderate efficacy (5% to 25% recurrence rate)</td>
<td>Established bradycardia</td>
</tr>
<tr>
<td></td>
<td><em>and</em> hypotensive mechanism</td>
</tr>
<tr>
<td>Low efficacy (&gt;25% recurrence rate)</td>
<td>Suspected bradycardia</td>
</tr>
<tr>
<td></td>
<td><em>and</em> hypotensive mechanism</td>
</tr>
</tbody>
</table>

Tilt test response is the strongest predictor of pacemaker efficacy
Pacing for reflex syncope

Decision Pathway

Clinical features
Severe, recurrant unpredictable syncopeces, age >40 years?
Yes → CI-CSS?
  Yes & Tilt negative → Implant a DDD PM
  Yes & Tilt positive → Implant a DDD PM & counteract hypotensive susceptibility
No → Asystolic tilt test?
  Yes → Implant a DDD PM & counteract hypotensive susceptibility
  No → Asystole?
    Yes & Tilt negative → Implant a DDD PM
    Yes & Tilt positive → Implant a DDD PM & counteract hypotensive susceptibility
Pacing not indicated

Perform CSM & tilt table test
CI-CSS?
  Yes → Pacing not indicated
  No → Asystolic tilt test?
    Yes → Implant a DDD PM & counteract hypotensive susceptibility
    No → Asystole?
      Yes & Tilt negative → Implant a DDD PM
      Yes & Tilt positive → Implant a DDD PM & counteract hypotensive susceptibility
심박기 거치술 인정기준 (2016.9.1 시행)

5. 목동맥굴 과민증후군 (Hypersensitive carotid syndrome)
   - 목동맥굴 압박을 하는 특정 상황에서 실신이 재발한 병력이 있고 목동맥굴 압박에 의해 3초 이상의 심실 무수축과 함께 실신이 유발된 경우

8. 원인 불명 실신
   가. 40세 이상의 반복적이고 예상하기 어려운 반사성 무수축성 실신환자 (reflex asystolic syncope)에서, 증상을 동반한 유의한 동휴지나 방실차단이 기록된 경우. 다만, 기립경사타이틀검사 (Tilt Table Test)에서 유발된 경우는 제외함.
   나. 실신의 병력이 있는 환자에서 증상과 상관없이도 6초 이상의 심실 휴지기가 발견된 경우
   다. 각 차단이 있으며, 임상전기생리학적검사에서 HV 간격이 70ms 이상 또는 2도 이상의 방실차단이 증명된 경우
   라. 원인이 불분명한 실신이 재발한 병력이 있고 목동맥굴 압박에 의해 6초 이상의 심실 휴지가 유발된 경우

9. 상기 1~8항의 적응증 이외 심박기 거치술이 반드시 필요한 경우 진료내역 및 담당의사의 소견서 등을 참조하여 사례별로 인정함.
# Treatment of reflex syncope

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<tr>
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<tr>
<td><strong>Cardiac pacing</strong></td>
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</tr>
<tr>
<td>1. Cardiac pacing should be considered to reduce syncopal recurrences in patients aged &gt;40 years, with spontaneous documented symptomatic asystolic pauses/s &gt;3 seconds or asymptomatic pause/s &gt;6 seconds due to sinus arrest or AV block or the combination of the two.</td>
<td>IIA</td>
<td>B</td>
</tr>
<tr>
<td>2. Cardiac pacing should be considered to reduce syncope recurrence in patients with cardioinhibitory carotid sinus syndrome who are &gt;40 years with recurrent frequent unpredictable syncope.</td>
<td>IIA</td>
<td>B</td>
</tr>
<tr>
<td>3. Cardiac pacing may be considered to reduce syncope recurrences in patients with tilt-induced asystolic response who are &gt;40 years with recurrent frequent unpredictable syncope.</td>
<td>IIB</td>
<td>B</td>
</tr>
<tr>
<td>4. Cardiac pacing may be considered to reduce syncope recurrences in patients with the clinical features of adenosine-sensitive syncope.</td>
<td>IIB</td>
<td>B</td>
</tr>
<tr>
<td>5. Cardiac pacing is not indicated in the absence of a documented cardioinhibitory reflex.</td>
<td>III</td>
<td>B</td>
</tr>
</tbody>
</table>
Reflex syncope: Take Home Message

- Treatment is based on risk stratification and the identification of specific mechanisms.
- In most cases, education and reassurance is sufficient.
- In severe and recurrent cases, treatment is determined by syncope phenotypes.
  - Young, low BP type: fludrocortisone, midrine
  - Prodromes (+): counterpressure maneuvers
  - No/short prodromes: ILR guided plan
  - Avoid or reduce hypotensive drugs in elderly
  - Old, cardioinhibition (+), no prodrome: pacing
- Documentation of asystole or severe bradycardia before cardiac pacing.
Thank You