EMC 370 Introduction to Medical Emergencies

07 Syncope

David Trigg, MD

Outcomes for This Lecture

At the completion of this lecture, the learner will be able to:

- Discuss the pathophysiology of syncope. (5-3.18)
- Identify the need for rapid intervention and transport of patient with syncope.
- Discuss the assessment findings used for syncope. (5-3.19)
- Discuss the management of syncope. (5-3.20)
- List the common causes of syncope in the emergency population.

Why Study Syncope?

- Frequent complaint of patients presenting to Emergency Departments. (usually benign)
- The problem with syncope is that the most significant causes are cardiac, may be life threatening, and may be dismissed as benign.

Definition of Syncope

A sudden, brief, temporary loss of consciousness as a result of decreased cerebral blood flow

Causes

- Vasovagal, >50% (“simple”)
- Cardiac
- Orthostatic (decreased BP upon standing)
- Cerebrovascular
- Misc. (hypoglycemia, micturation…)

Causes of Brief LOC

- Syncope
  - Vasovagal 55%
  - Cardiovascular 10%
- CNS
  - “1st ever seizure” 10%
  - Other CNS Dz. 5%
- Drug – Metabolic 5%
- Undiagnosed (including hysteria)15%

Etiology

- Heart
- Brain
- Other

Vasovagal (simple faint)

- Also referred to as vasodepressor syncope
- Most common form of syncope, > 50% of cases
- Fainting occurs only when sitting or standing
- Vasovagal syncope typically occurs in young people
- Fainting that begins in middle age or later in life, often due to non-vasovagal causes
- Clinical picture is well known: Faint almost always preceded by prodromal s/s.
  - warmth
  - nausea/vomiting
  - abdominal distress
  - yawning
  - pain
  - diaphoresis, pallor

Cardiac Syncope

- Any syncope that occurs when patient is supine
- HB (Stokes Adams)
- Ventricular dysrhythmia (VT)
- PSVT
- Valvular HD
  - AS (effort syncope)

Orthostatic Syncope

- Orthostatic: only while upright
  - without warning symptoms
  - volume depletion
    - actual (GI bleed; N,V,D,…)
    - effective (pooling secondary to DM, meds,…)
- Micturation syncope
  - elderly men
  - nocturnal
  - immediately after urination

Miscellaneous Causes

- Carotid sinus syndrome
  - Drop in blood pressure
  - Fainting is induced by turning the head, looking upward, or wearing tight collars
- Cough syncope
  - Preceded by a violent coughing spell
  - Chronic Obstructive Pulmonary Disease
    - Chronic hypoxia
    - Vasovagal
    - Valsalva
- Hypoglycemia
- Hyperventilation

Diagnostic Approach

First Priority: Potentially life-threatening cardiovascular and neurologic causes should be excluded

- Cardiovascular
  - MI
  - PE
  - arrhythmia
  - shock
- Neurologic
  - coma
  - delirium
  - stroke
  - seizures

History

- Age
- Circumstances of the attack
- Rate of recovery
- Premonitory symptoms
- Systemic conditions
  - Cardiac
  - DM
  - ↑ BP; stroke or TIA history
  - predisposing to volume depletion
  - medications

Potential Causes

• Numbness, paresthesias of extremities	hyperventilation
• Preceded by prolonged standing	orthostatic
• Absence of warning symptoms	cardiac or orthostatic

Potential Causes

• Syncope during sleep (who would know ?)	hypoglycemia cardiac epileptic
• During fasting state or long after a meal	hypoglycemia
• During exercise	aortic stenosis

Effect of Posture

- Vasovagal - always upright
- Orthostatic - after prolonged standing
- Cardiac - upright position with little or no warning
  - in recumbency

PE and Differential Diagnosis

- Hypoglycemia
- Neurologic
- Anxiety
- Cardiovascular
  - life-threatening
  - benign, vasovagal
- Seizure

Differential Diagnosis of Syncope and Seizures

	SYNCOPE	**SEIZURES**
Onset	Gradual	Sudden
Warning	Usual	Aura common
Duration	Brief	Prolonged
Position	Usually erect	Any
Convulsions	Rare	Common
Incontinence	Rare	Common
Tongue biting	Rare	Common
Postictal	Usually absent	Usually present

Syncope Treatment Plan

CABCDE and

- **C** spine, if any question of trauma
- **O_2** NRB or NC
- **M_3** BP / cardiac / O_2 sat. pulse oxymetry
- **E** expose (possible trauma)
- **B** blood for labs ("all tubes" - red, purple + blue)
- **I** IV NS 10 mL / hr or fluid challenge
- **G** glucose check

Approach to Syncope

- COMEBIG
- O_2 / IV volume / rule out arrhythmias
- keep patient flat or Trendelenburg
- VS
- loosen tight clothing
- secondary survey
  - trauma signs
  - seizure signs
  - hypoglycemia signs

Summary

We have discussed:

- Pathophysiology of syncope.
- Assessment findings in syncope.
- Common causes of syncope.
- Potentially life-threatening causes of syncope.
- Comparing the various causes of syncope.
- Need for rapid intervention and transport of patient with syncope.
- The management of syncope.