Objectives
At the conclusion of this presentation, each participant should be able to…
1. List the high-risk features in the history and physical examination that predict poor short-term outcomes.
2. Describe a cost effective workup for patients presenting after syncope.
3. Distinguish between syncope and seizures.

Definition and Background
• “Brief loss of consciousness associated with an inability to maintain postural tone that spontaneously and completely resolves without medical intervention”
  o Brief = not asleep/intoxicated, not post-ictal
  o Cannot survive prolonged cerebral hypoperfusion
  o Spontaneously = no intervention needed… therefore rarely hypoglycemia
  o Completely = no neurological deficit, baseline mental status
  o 1-3% of all ED visits
  o 1-6% of all hospital admissions

Pathophysiology
• Loss of consciousness requires dysfunction of
  o Bilateral cerebral hemispheres, or
  o Reticular activating system
• …caused by insufficient oxygen or glucose
  o Hypoperfusion (decreased oxygen or glucose)
  o Systemic hypoxia
  o Systemic hypoglycemia
• However, remember that this has to be transient to meet the definition of syncope

Evaluation
• Detailed history…no surprise questions
  o What were you doing before?
  o What symptoms do you remember before and after?
  o Witnesses? Their history
  o Feeling ill lately/recent illnesses?
  o Medications? Drugs? Alcohol?
  o Prior history of syncope? Workup?
Family history of sudden death?
Associated symptoms? (e.g. CP, SOB, AP, etc.)

**Physical Examination**
- Detailed examination…no surprises here either
  - Appearance and VS
  - HEENT
  - Cardiac (esp. murmurs)
  - Pulmonary
  - Etc. etc. etc.

**Differential Diagnosis**
- Huge!
- Critical to distinguish vs. seizure
  - Factors favoring syncope
    - Preceding nausea or diaphoresis
    - Oriented (not confused) upon waking
    - Age > 45yo
    - Preceding prolonged sitting or standing
    - History of CHF or CAD
  - Factors favoring seizure
    - History of seizure disorder
    - Tongue biting
    - Confusion upon waking
    - LOC > 5 minutes
    - Age < 45yo
    - Preceding aura
    - Observed unusual posturing, jerking, or head turning during episode
- “Rule of 15s”
  - SAH
  - ACS
  - TAD
  - PE
  - AAA
  - Ruptured ectopic pregnancy
  - Evaluate these with history/PE, test as needed

**Evaluation**
- What history and physical exam data help in risk stratification?
  - High-risk historical features…
    - Older age, history of CAD, structural heart disease (e.g. valvular problems, LVH)
    - Young patients with exertional syncope, SSx of ACS, FHx of sudden death
  - High-risk exam features…
    - Murmurs (esp. if suggestive of HCM, AS)
Orthostatic changes

- Beware poor sensitivity and specificity
- Positional symptoms → most reliable
- Evidence of tongue biting, loss of continence → sz.
- Abdominal and rectal exam
- Detailed neurological exam → structural lesion

What diagnostic testing data help to risk-stratify patients with syncope?

- 12-lead ECG should be done ~ 100%
  - Tachyarrhythmias
  - Bradyarrhythmias
  - Ischemia/infarction
  - WPW (short PR, delta wave, wide QRS)
  - Brugada syndrome
  - Hypertrophic cardiomyopathy
  - Prolonged QTc
    - Main concern when QTc > 500 msec
    - Risk for torsades

Routine labs and other tests...

- Rarely useful unless dictated by a good Hx/PE
- CBC if Hx of blood loss, weakness, pallor on exam, etc.
- Chems if Hx of N/V/D, use of diuretics, DM, renal disease, appears dehydrated, etc,
- CT if severe HA, abnl. neuro. exam, trauma, etc.
- Routine ED ECHO also has poor yield
  - Only if indicated by Hx/PE
- Outpatient Holter monitoring also has poor yield

Who should be admitted after an episode of syncope of unclear cause?

- Admit if “…treating physician suspects that the patient is at risk for significant dysrhythmia or sudden death and that observation might detect that event and enable an intervention.”
- Value of 24-72 hour admission has not been proven when the diagnosis has not been discovered in the ED
- Can probably discharge if there are no “high risk” criteria
- Discharge for outpatient follow-up
- Use of decision rules
  - Most don’t evaluate short-term risk
  - Very broad
  - Do they surpass common sense of an experienced emergency physician?
  - Most useful for those in training?
  - Perhaps best used to support decision to discharge
  - Less helpful at preventing “misses”