EM CASE OF THE WEEK.

BROWARD HEALTH MEDICAL CENTER
DEPARTMENT OF EMERGENCY MEDICINE

BROWARD HEALTH
Care Warriors

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SYNCOPE

A 36-year-old female with recently diagnosed hypertension presents to the ED for a first-time episode of syncope. She was recently on a flight home from NY to Ft. Lauderdale when about 30 minutes before landing she began to feel very warm. She stood from her seat to walk to the restroom and subsequently fainted. She lost consciousness for about 20 seconds and, upon waking, had two episodes of non-bilious, non-bloody vomiting. The patient did not experience any tongue biting or urinary/bowel incontinence, and the family did not notice any involuntary movements. She denies head trauma, headache, palpitations, chest pain, shortness of breath, leg pain or swelling, vomiting or diarrhea prior to this, and has not been fasting. She was started on hydrochlorothiazide 12.5 mg daily three days ago. There is no family history of heart disease or sudden cardiac death. Vital signs are T 97.2, BP 111/70, HR 75, RR 18, oxygen sat 100% on room air. Physical exam is unremarkable. Which of the following is the best next step in management?

A. CT scan of brain
B. ECG
C. CBC and CMP
D. Tilt table test

Syncope is a transient, self-limited loss of consciousness due to acute global impairment of cerebral blood flow. It has rapid onset, short duration, and complete, spontaneous recovery.

Syncope mimickers are other causes of transient loss of consciousness and must be distinguished from syncope. These include seizures, hypoglycemia, hypoxia, and vertebrobasilar ischemia.

EM Case of the Week is a weekly "pop quiz" for ED staff.

The goal is to educate all ED personnel by sharing common pearls and pitfalls involving the care of ED patients. We intend on providing better patient care through better education for our nurses and staff.

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The correct answer is **B**, ECG. When evaluating a patient with syncope, always obtain an ECG to look for a life-threatening cause.

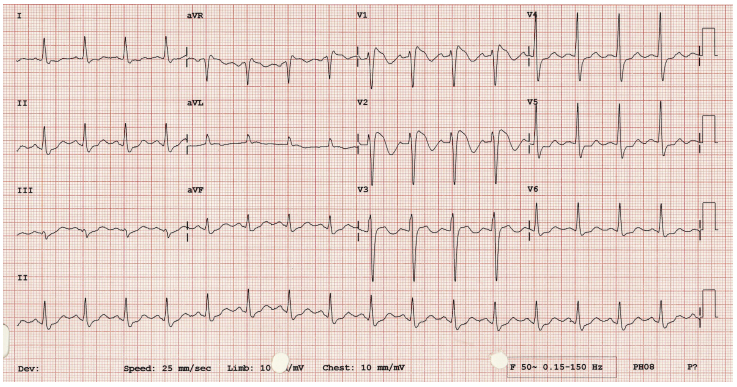
CAUSES OF SYNCOPE

There are three general categories defining the causes of syncope: neurocardiogenic (reflex) syncope, orthostatic hypotension, and cardiac syncope.

In **neurally mediated syncope,** there is a sudden, transient change in autonomic efferent activity causing bradycardia and vasodilation, which leads to decreased blood pressure and a subsequent fall in cerebral blood flow to below the limits of autoregulation. Elicitation of this reflex requires an intact autonomic nervous system, and a trigger may often be identified. In the case of vasovagal syncope, the trigger is intense emotion or pain, whereas situational reflex syncope involves localized stimuli that may originate in the pulmonary system, gastrointestinal system, urogenital system, heart, or carotid artery. The patient with neurally mediated syncope may experience a prodrome of diaphoresis, pallor, palpitations, nausea, hyperventilation, and yawning.

Orthostatic hypotension, on the other hand, is a manifestation of sympathetic vasoconstrictor failure, which results in a reduction in systolic blood pressure of at least 20 mmHg or diastolic blood pressure of at least 10 mmHg within 3 minutes of standing or head-up tilt on a tilt table. Orthostatic hypotension may be due to primary or secondary autonomic failure, postprandial hypotension, volume depletion, or it may be drug-induced. Symptoms typically include light-headedness, dizziness, and pre-syncope occurring with sudden postural change.

The third categorical cause of syncope is **cardiac syncope** secondary to arrhythmias and/or structural heart disease. Unlike the other categories, syncope from a cardiac cause usually does not cause prodromal symptoms.



Brugada (illustrated above) may present as syncope and can result in cardiac arrest. This represents the importance of an ECG in assessing for a life-threatening cause of syncope.

TREATMENT

The mainstay treatment of **neurally mediated syncope** is reassurance, avoidance of provocative stimuli, and plasma volume expansion. Isometric counter-pressure maneuvers can help avoid or delay syncopal onset. For refractory patients, fludrocortisone, vasoconstricting agents, and beta-adrenoreceptor agonists may be used.

Similarly, removing reversible causes and educating the patient are essential for the treatment of **orthostatic hypotension**. Educate patients regarding the effects of position changes, isometric counter-pressure maneuvers, elevation of the head of the bed, increasing dietary fluid and salt, and the hypotensive effects following meal ingestion. If non-pharmacologic intervention fails, fludrocortisone and vasoconstricting agents such as midodrine and pseudoephedrine should be introduced.

The treatment of **cardiac syncope** depends upon the underlying condition, and this is best managed by physicians with specialized skills in this area.

For a list of educational lectures, grand rounds, workshops, and didactics please visit ***BrowardER.com*** and **click** on the ***"Conference"*** **link**.

All are welcome to attend!

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APPROACH TO THE PATIENT WITH SYNCOPE IN THE ER

A detailed history, thorough history from eyewitnesses, and a physical exam focusing on vital signs and the neurologic and cardiac examination should always be performed. The first step is to distinguish syncope from other causes of loss of consciousness. Next, assess for red flags that reflect increased risk of a dangerous cause of syncope in the history including concomitant symptoms (e.g., shortness of breath, headache, chest pain), sudden loss of consciousness without prodrome, exertional syncope, older age, and family history of sudden death. Life-threatening causes to consider include cardiac syncope, blood loss, pulmonary embolism, and subarachnoid hemorrhage.

While labs may not be of benefit, an ECG should be obtained on all patients with syncope. Notable findings include prolonged intervals, severe bradycardia, pre-excitation, and evidence of myocardial infarction. Patients with concerning symptoms or obvious neurologic or cardiac causes should be admitted.

For unexplained syncope, risk stratification is appropriate. High risk criteria include abnormal ECG, history of cardiac disease (especially heart failure), persistently low blood pressure (systolic < 90 mmHg), shortness of breath during the event or evaluation, hematocrit < 30, older age and associated comorbidities, and family history of sudden cardiac death. A high-risk patient should be admitted for evaluation and cardiac monitoring. If low-risk and asymptomatic, it is appropriate to reassure the patient and discharge with follow up. The San Francisco Syncope Rule can aid with risk stratification. Meeting any one of its five criteria (congestive heart failure history, hematocrit < 30%, abnormal ECG, shortness of breath, systolic BP < 90 at triage) classifies the patient as *not* being low risk.

Take Home Points

- Rely on the history, physical examination, and ECG to assess the patient with syncope.
- Keep 3 questions in mind to guide your evaluation and management plan:
    1. Is this true syncope or is the loss of consciousness due to some other serious condition (stroke, seizure, head injury)?
    2. If this is true syncope, is there a life-threatening cause (prolonged QT interval)?
    3. If this is true syncope but the cause is unclear, is the patient at high risk?

ABOUT THE AUTHOR

This month's case was written by Claudia Santiesteban. Claudia is a 4th year medical student from FIU COM. She did her emergency medicine rotation at BHMC in October 2016. Claudia plans on pursuing a career in Internal Medicine after graduation.

REFERENCES

Fauci, Anthony S, et al. *Harrison's Principles of Internal Medicine*. Chap. 20: Syncope. 18th ed., McGraw-Hill, 2012.

McDermott, D., and Quinn, J. Approach to the adult patient with syncope in the emergency department. In: UpToDate, Post, TW (Ed), UpToDate, Waltham, MA, 2016.

mdcalc.com: San Francisco Syncope Rule

Photos: google.com