Evaluation of Dizziness and Fainting in Children and Adolescents

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Objectives

Upon completion of this presentation you will be able to:

1. Thoughtfully evaluate children and adolescents presenting with symptoms of dizziness or syncope.
2. Identify risk factors for serious underlying causes of dizziness and syncope in children and adolescents.
3. Diagnose and manage vasovagal symptoms in children and adolescents.
4. Know when to refer patients for subspecialty evaluation.
The Scope of the Problem

- Lightheadedness and syncope are VERY common.
  - EVERYONE experiences dizziness.
  - ~50% of people experience an episode of fainting.
The Challenges of Primary Care
KEY DRIVERS

- Family
  - Fear
  - Social pressure
  - Google
- PCP/ED
  - Time
  - Liability
  - Family pressures/expectations
  - Insufficient experience
- Subspecialists
  - Liability
  - Lack algorithm information
  - Family pressures/expectations
- Patient
  - Psychological factors

Outcome:
Expensive/unnecessary/inefficient subspecialty syncope evaluations
The Result

- Unnecessary
  - Referrals for subspecialty evaluation
  - Testing
  - Added cost
  - Family burden
Our Goal
To simplify and standardize the evaluation and management of children and adolescents presenting with dizziness and syncope.

Secondary Aims
• Empower Primary Care and Emergency Room providers
• Reduce unnecessary testing
• Reduce unnecessary referrals
• Reduce patient and family anxiety
• Reduce costs and improve value
What causes lightheadedness and fainting?

- Usually due to transient decrease in blood flow to the brain.
- RARELY due to serious underlying medical problem.
What makes this more likely to occur?

- Not drinking enough water
- Skipping meals
- Standing up too fast
- Standing for too long without moving around
- Having your hair brushed or combed while standing
- Being too hot – including from hot showers and hot tubs
- Breath-holding
- Low red blood counts (anemia)
What risk factors suggest a more serious cause?

• Need for CPR after fainting
• Significant associated injury
• Fainting WITH exercise
• Faint triggered by fright
• No preceding sensation (like light headedness)
• Chest pounding or chest pain/pressure preceding faint
• Posturing, jerking for 1 minute or more with the faint
What risk factors suggest a more serious cause? (continued)

- Abnormal heart or neurologic examination
- Abnormal ECG
- Close family history of unexplained sudden death, heart rhythm problems or cardiomyopathy or seizures
- History of brain or cardiac injury or disease
- Underlying metabolic or kidney disease
- Peripheral or autonomic neuropathy
- Significant developmental delay
Diagnosis: Vasovagal

What Next?

Reassurance and Education!
Prevention

• Drink more water -> urine should be clear
• Eat more salt
• Eat healthy meals with snacks as needed to avoid hunger
• Avoid caffeine
• Avoid standing in one position for a long time
• Stand up slowly
• Avoid getting too hot — hot showers and hot tubs
• Compression stockings?
Treatment of lightheadedness and fainting

- Get more blood to the brain!
  - Help your child lay down and raise his/her legs above the level of the head
  - Sit down with head between knees
  - Counter-pressure techniques
Orthostatic Evaluation

- Heart rate and blood pressure while sitting
- Heart rate and blood pressure after standing for 2 min

Abnormal: Systolic BP falls $> 20$ mmHg
Heart rate increases $> 40$ BPM
Electrocardiogram

• Should be obtained if a normal ECG is not available from the previous 90 days.

• Abnormal corrected QT interval (QTc)
  • Boys and prepubertal girls > 450 ms
  • Adolescent girls > 470 ms
When to refer for subspecialty evaluation

CARDIOLOGY
- Abnormal ECG
- Abnormal cardiovascular examination
- Family history of cardiomyopathy
- Family history of unexplained sudden death
- History suggestive of acute myocarditis
- Syncope during exertion

NEUROLOGY
- Clinical diagnosis of seizure disorder
- Suspected CNS disease
Laboratory Analysis

- Rarely necessary
- Abnormal orthostatic evaluation
- Suspected anemia
Dizziness and Fainting in Children and Adolescents

• Common problems
• Usually vasovagal
• Standard approach to identify more serious causes
• Reassurance, education and prevention will effectively manage the vast majority of patients
• Referral of select patients for subspecialty evaluation