

Pediatric Syncope Handout

Definition - the temporary loss of consciousness from reversible disruption of cerebral functioning and usually refers to inadequate cardiac output and cerebral hypoperfusion, depriving the brain of O₂. Occurs when cerebral blood flow decreases below 30-50% of baseline.

Epidemiology -15-25% of kids before the end of adolescence, F > M, peaks ages 15-19

General Clinical Features Sudden onset of falling with a brief LOC, 2/3 have lightheadedness before the event, vertigo is much less common, Involuntary movements may occur

Pathophysiology - Neurally Mediated Syncope (NMS), Structural Cardiac Disease, Cardiac Dysrhythmias, NonCardiovascular

Specific Conditions (Ddx)

Neurally Mediated Syncope (NMS)- Most common cause of syncope in children (61-80%). Generally benign, Includes vasovagal, vasodepressor, neurocardiogenic, reflex syncopes, and the simple faint. Due to vasodilatation, vagal stimulation, or both
Preceded by: a sensation of warmth, nausea, lightheadedness, visual grayout, tunneling of vision. Lasts less than 1 min.

Precipitated by: Prolonged recumbence just before standing or prolonged standing, Sight of blood or disfiguring injury (e.g., fractures or soft tissue injuries), Emotional upset, Mild physical trauma or pain (Combing), Physical exertion – blood shifted peripherally, Hot or crowded conditions-vasodilation and water loss.

Other contributing factors include: Hypovolemia, Anemia, Dehydration, Pregnancy
Can occur with: Stretch with neck hyperextension, Swallowing, Urination, Defecation, Coughing, Medications, Breath-holding spells are a variant of this form of syncope.

Risk Factors for a Serious Cause of Syncope:

- Exertion preceding the event
- History of cardiac disease in the patient
- Family history of sudden death, deafness, or cardiac disease
- Recurrent episodes
- Recumbent episode
- Prolonged loss of consciousness
- Associated chest pain or palpitations
- Medications that can alter cardiac conduction

Structural Cardiac Disease: Hypertrophic Cardiomyopathy, Dilated Cardiomyopathy, ARRHYTHMOGENIC RIGHT VENTRICULAR DYSPLASIA, CONGENITAL CYANOTIC AND NONCYANOTIC HEART DISEASE, VALVULAR DISEASES, PULMONARY HYPERTENSION (PH), CORONARY ARTERY ABNORMALITIES

Cardiac Dysrhythmias: Brugada syndrome, LONG QT SYNDROME, WPW, ATRIOVENTRICULAR BLOCK, SICK SINUS SYNDROME, SUPRAVENTRICULAR TACHYCARDIA

NonCardiovascular (Syncope look a likes) - Basilar migraine, Seizure, Vertigo, Hyperventilation, Hysteria, Hypoglycemia, Breath-holding spell

Diagnosis

Particularly pay attention to the CV exam. The PE will often be completely normal. **An ECG should be obtained for almost all children - usually normal.** Children who have an unmistakable episode of vasovagal syncope do not need an ECG. Note the pt. position when syncope occurred. The sequence and timing of motor movements, level of consciousness, and postural positioning will help to differentiate primary seizures from true causes of syncope.

Complete CV, neurologic, and pulmonary examinations are crucial, but usually normal, despite the etiology. CV abnormality = in depth cardiac evaluation. **Syncope = ECG, unless unmistakable vasovagal episode,** EKG abnormalities may not have caused syncope and EKG may not pick up arrhythmia. Lab tests determined by clinical suspicion (e.g., a Hgb for possible anemia or glucose in a diabetic). Routine lab studies not needed in a clear episode of vasovagal syncope. However, atypical presentation or worrisome associated symptoms BMP, CBC, thyroid, CXR, and ECG in the ED.

Hyperthyroidism → SVTs.

In adolescents, ETOH and UDS should be considered

Treatment

Most children with syncope will be fully recovered by the time they arrive in the ED. Continued altered level of consciousness should prompt an evaluation for causes other than syncope. Immediately address signs of compromised oxygenation, ventilation, or circulation. Hook pt. up to a cardiac monitor to document any transient dysrhythmias. Unless obvious vasovagal event, place IV and draw blood. Treatment is targeted to specific identified etiologies for the syncopal event.

- NMS – Reassurance, avoidance of dehydration and postural hypotension
 - salt intake, mineralcorticoids, BB

- Ongoing cardiac dysrhythmias or seizures should be managed as appropriate. Most patients, however, will have no treatable dysrhythmias in the ED. Out-of-Hospital Cardiac Arrest Survival

Rapidly stabilize following principles of pediatric advanced life support. Cardiovert unstable ventricular or supraventricular rhythms. Admit to PICU

Disposition

Any child with a dysrhythmia documented by prehospital providers or on the ECG in the ED must be admitted. Children with any high risk factors should be admitted in consultation with a pediatric cardiologist. If thorough Hx, PE, EKG, labs are Neg. D/C home with close F/U by PCP or cardiologist. Most pediatric patients without cardiac risk factors or exercise-induced symptoms may be safely evaluated as outpatients. Many of these children will have additional tests as outpatients, including portable rhythm monitoring, tilt-table testing, and stress testing.