SYNCOPAL WORKUP IN PEDIATRIC TRAUMA PATIENTS

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Introduction

Definition

Objectives

Background

Incidence

Categories of Syncope:

- Neurocardiogenic Syncope (NCS) or vasovagal syncope
- Neurogenic syncope
- Syncope from unknown cause
- Neurosurgical causes
- Cardiac (heart rate, rhythm, auscultation for murmur, palpation of precordium, orthostatic vital signs)
- Structural/functional heart defects
- Hypertension and hyperlipidemia
- Neurologic (seizures or convulsions followed by loss of consciousness)

Detailed History

Event History: duration of episode, presence of prodrome, activities preceding event, any injuries during event

NCS specific: debilitation factors, position change preceding event, emotional/painful stimuli, warm environment, visual changes (tunnel vision or visual blackout), or muffled hearing

Cardiac specific: chest pain or palpitations, immediately prior to syncope, syncode during exercise, syncope without warning

Neurologic specific: post ictal state of confusion lasting minutes to hours, rhythmic bilateral jerking accompanied with focal/uniitary incontinence, lateral tongue biting, and focal signs may indicate seizure and not syncope convolution

PMH: history of syncope, congenital heart disease, cardiac surgery, tumor disease, epilepsy, amnesia/depression, suicidal ideation, current medications, recent growth spurt, menstrual history, or rapid weight loss

PTT: cardiac (cardiomyopathy, arrhythmia, placement of a pacemaker or defibrillator, sudden cardiac death < 50 years, death from unknown cause < 50 years), neurologic (migraine, headache, stroke, brain abnormality, sleep disorders, or neuromuscular diseases)

Testing:

- Non contrast head CAT scan or MRI if concern for TBI
- Electrocardiogram (ECG) or stress test for all patients
- Consider lab work (electrolyte panel, complete blood count, toxic drug screen, pregnancy test in post menarchal females)

Specialized Testing

NCS: Tilt table test (patient is placed on a table and tilted to -70 degrees for 45 minutes while being monitored by ECG and BP). The test is used to create an artificial orthostasis and see if syncope occurs in a drop in BP and HR

Cardiac concern – Cardiology consult and often echocardiogram (echo). Holter monitor, stress test for cardiac

Neurologic concern – Neurology consult and may require electroencephalogram (EEG)


References


Collaboration:

- Collaboration is key in the approach of evaluating pediatric trauma patients following a syncope episode
- Identification of secondary survey significant history and physical exam
- Development of plan of action in collaboration of multiple care team
- RCPS is key to the referral decision

Case Study: G.S., 15 y/o male

History:

- Event history: G. S. 15 y/o male found down on basketball court, “very dizzy” to fall and is amnesic to event

Physical exam: VP (BP 124/69 mmHg / Pulse 110 / RR 19 / SpO2 97 | HR 135 | Hgb 9.7 | Hct 32 | WBC 5.2 | Neutrophils 3.6% | Hemoglobinopathies normal | Adrenal function normal)

As patient is transferred to NCAT, the patient presents with “3 holes in his heart” as were undercardiac surgery, surgery, orthopedic or neurosurgery.

The cause of syncope may or may not be related to the trauma but the workup is often labor intensive and a source of stress for families.

Some reports estimate 15% of children will have an episode of syncope before they reach their 18th birthday.

Following the primary and secondary survey, specific causes and consultation of specialized services is often necessary.

Collaboration is key in the approach of evaluating pediatric trauma patients following a syncope episode. Identification of secondary survey significant history and physical exam is often necessary.

The trauma team serves in a unique role of initial stabilization and then communication among care teams to coordinate care and transfer of the patient to the appropriate team.

Neurosurgical causes include: convulsions followed by loss of consciousness, disruption in CSF circulation, and sleep disorders.

Sids, SIDS, and neonatal apnea: Examinations: no edema, no cyanosis, no clubbing, bradycardia, normal respiration, and normal heart rate confirmed. On physical exam, the patient is alert and awake, alert, and responsive to stimuli.

The cause of syncope may or may not be related to the trauma but the workup is often labor intensive and a source of stress for families.

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The peak incidence is 15-20 years of age.

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