



5/27/20 Morning Report with @CPSolvers



Case Presenter: Dr. Jennifer Davis Case Discussants: Josh L. Morris (@JoshMedPeds) and Fawzi Zghyer (@FZghyer)

CC: Post cardiac arrest

HPI: 20F p/w post cardiac arrest
She woke up by sisters's alarm clock. She had a "seizure like episode" and stopped breathing. Sister started CPR immediately. In the ambulance she got pulseless again (V Fib) and received CPR. She was quickly intubated in the ED.

History update: seizures since 15yo. Loud noises as trigger of seizures, resistant Keppra
ED last month: EKG (1st one) with long QT referred to cardiologist. That cardiologist recommended implanted loop recorder

PMH:
No congenital problems

"Seizures" for 3 years, neuro workup unrevealing. Shake for a while → limp → wake up

Meds:
Keppra (not taking due to side effects)

Fam Hx: none

Soc Hx:
Lives w/ sister + roommates

Health-Related Behaviors:
Occasional marijuana
Not sexually active
No other substances

Allergies: none

Vitals: T: 34.6 C HR :64 BP: 91/74 RR: 13 SpO₂:100 % in room air

Exam:
Gen: intubated and sedated laying in bed
HEENT: PEERL, moist mucous membranes. **Blood in her mouth, small laceration in tongue**
CV: No murmurs, rubs or gallops RR
Pulm: Clear to auscultation
Abd: Soft, non tender
Neuro: Intubated and sedated but prior to sedation moved 4 extremities **GS:4**
Extremities/Skin: **cold extremities**

Notable Labs & Imaging:

Hematology:
WBC: 7 Hgb: 12.9 Plt: 250

Chemistry:
Na: 133 K: 2.7 Cl: 98 CO₂: 19 BUN: Cr: 0.5
Glucose: **500 (post amp of glucose)** Ca: wnl Mag: 1.9
AST: wnl ALT: wnl **Lact: 9**

Imaging:
EKG: **QT prolongation around 600**
CXR: endotracheal tube in correct position, cardiac silhouette was normal
Cardiac loop EKG right before "seizure": **Torsades de Pointes**
Genetical test: **Long QT type 2**

Problem Representation:
20F w/ long hx of sound-triggered "seizures" refractory to keppra presents s/p cardiac arrest found to have hypokalemia and QTc of 600 with TdP on cardiac loop dx w/ type 2 congenital long QT syndrome

Teaching Points (Moses):

Cardiac arrest:

- Practical: focus initially on stabilization and life-saving tx steps (ACLS)
- Detective work: collateral hx, PMHx, EMS team as allies (initial vitals etc.)
- RV often dilated regardless of etiology
- Coronary disease: most common cause of out of hospital arrest
- Age: young age as a frame, i.e. congenital predispositions (cardiomyopathies, channelopathies), health-related behaviors (drugs/toxins/ingestions)

GTC seizures, short term metabolic derangements:

- Avg pH: 6.9, K: 7, lactate 10 → majority don't arrest! A predisposition may lower threshold
- Within an hour, largely normalized

Transient LOC: syncope, seizure, sugar, strategic stroke

CR: think of labs beyond static values, i.e. in context of clinical trajectory. Exp: normal Cr now, but may worsen i/s/o cardiac arrest and may influence management.

Hypokalemia schema: renal vs. cellular shifts vs. GI losses. Considering in conjunction w/ pH also useful see CPSolvers schema

Congenital Long QT Syndrome: don't forget acquired long QT! (electrolytes, meds etc.) In acquired, avoid slowing down the HR

- Type 1 (exercise-triggered),
- Type 2 (sympathetic surge trigger - loud noises. repol K channel)
- Type 3 due to SCN5A-encoded Nav1.5 sodium channel
- Devolve into V Fib → seizure from hypoxemia
- For this patient : spironolactone used for keeping the K up & nadolol to keep HR down. Ultimately need ICD.