Neuro-NICU
Case of the Week

Five Minute Friday
June 26, 2015
32 week twin with acute onset of profound metabolic acidosis at 24 hours after birth

At birth was intubated, surfactant, lines, extubated

Found mottled with poor perfusion, low blood pressure, low saturations, pH 6.7, base deficit -30, lactate 17

Transferred to LPCH; Initial gas 6.66/27/122/>-30

STAT ECHO – pericardial tamponade; fluid with glucose of > 1200

Profound metabolic acidosis for > 12 hours with anuria, coagulopathy, liver dysfunction, brain injury
Neurologic Concerns

• Exam – diffuse hypotonia, poorly responsive, some movements, pupils reactive

• Initial aEEG Background

Is this a Normal or Abnormal Background Pattern? What is the risk of developing seizures – low or high?
aEEG

• Initial Background Pattern is **ABNORMAL**
  
  – **Very Low Voltage/Flat Trace** and resembles **Burst Suppression**
  
  – Lower margin does not not have a lot of variability and is close to 0 microvolts with periodic bursts of activity (~5-10 and Max 25 microvolts at times)
More burst suppression like; but bursts are mostly less than 25.
Continuous Low Voltage:
Narrow, suppressed band of activity at or below 5µV

Very Low Voltage / Flat Tracing:
Occasional spikes of high amplitude activity probably represent artifact

Burst Suppression (Discontinuous Low Voltage):
Periods of extremely low voltage intermixed with bursts of higher amplitude

Seizures

• Is the patient at risk for seizures?
• When would you expect to see them?
Seizures

– Patient is at **HIGH RISK** of developing seizures given initiation of insult was about 12 hours prior to the recording

– Most seizures develop within the first 24 hours after a Hypoxic-Ischemic insult
Seizures

• Do you see areas concerning for seizure?
• How many seizures do you suspect?
• Who should be notified? What needs to be done?
• Could this be the beginning of status epilepticus?
The raw trace shows a rhythmic pattern that evolves in both frequency and amplitude and lasts > 10 seconds.
• Yes – there are numerous seizures*. At least 18 elevations of the lower margin which should be inspected.

• The fellow should be notified as soon as there is a concern for change in background or seizures. Treatment should be initiated immediately. Goal is within 20 minutes of recognition of seizures.

• Neurology should be consulted and full EEG ordered.

• Yes – this is the beginning of Status Epilepticus. Status is defined by occupying at least half of a 1 hour recording or multiple repetitive seizures without a clear return to baseline activity.