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Case Presentation

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Clinical Judgment through an Emergency Room: Case Study

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Learning Objectives through an unfolding emergency admission

- Analyze data through cues including assessment findings, diagnostics, and history of present illness.
- Formulate a hypothesis that fits cues.
- Create solutions.
- Evaluate solutions.
- Discuss mystery diagnosis.

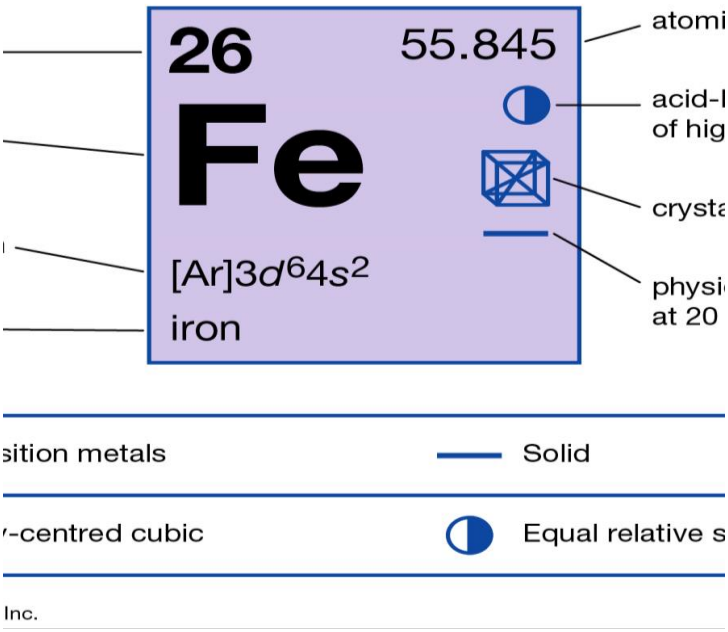
LEO goes GER??

Seton Medical Center Austin at 1500

Dr. Nicole Flores

Tara Lockhart RN

Darren Hodgson RN



Initial Presentation

EMS incodes with a 38 yr old male, Delta category medicine patient, found unresponsive by friend. Vomit present.

Pt is pale SBP in 90's. BVM by EMS on arrival.

What do you THINK? Hypothesis? What do you do FIRST?

- O2 Saturation 78% on 15 liters BVM
- Heart Rate 120 bpm
- Blood Pressure 102/51
- Respiratory Rate 12 assisted
- GCS 6
- Looks "mostly dead"

Gather More Cues

- Start two IVs and draw labs, start isotonic fluid bolus
- Call Respiratory Therapy for assist and ABGs
- ECG
- Prepare for intubation: RSI medications
- Intubate
- Get history from family
- Think H's and T's

Immediate Evaluations

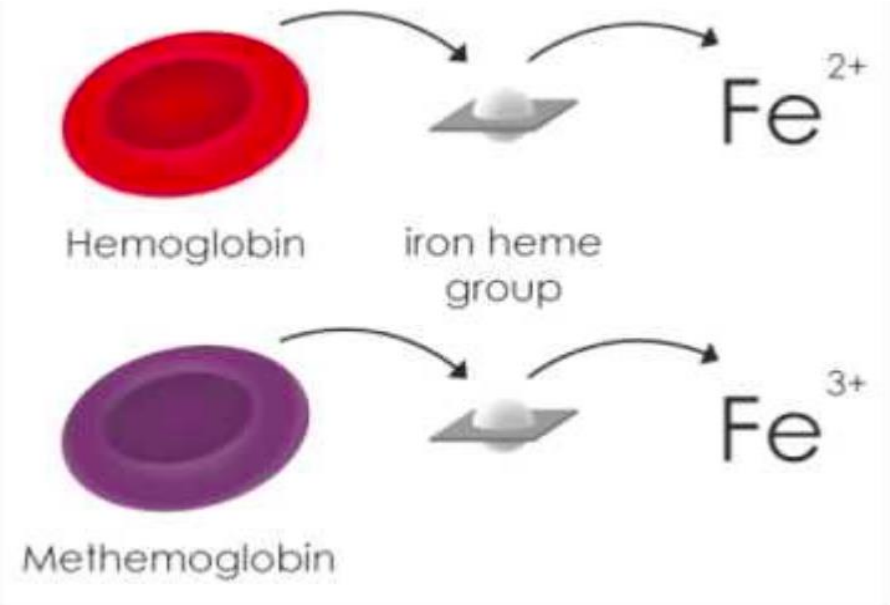
Patient looked No Better after Intubation. Blood looked like Chocolate Milk!

Lab Results

WBC	17.7
RBC	4.08
Hgb	13
Hct	39.2
ABG's	
pH	7.24

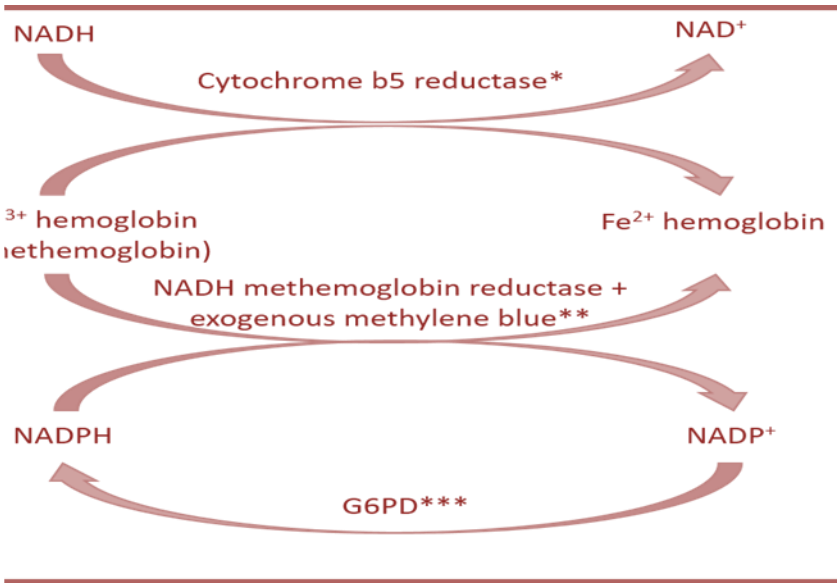
pCO2	32.7
pO2	408.6
HCO3	13.7
O2	12.3
Lactate	10.59
MetHb	87.4
H	
WBC	17.7
RBC	4.08
Hg	39.2

What is Methemoglobin?

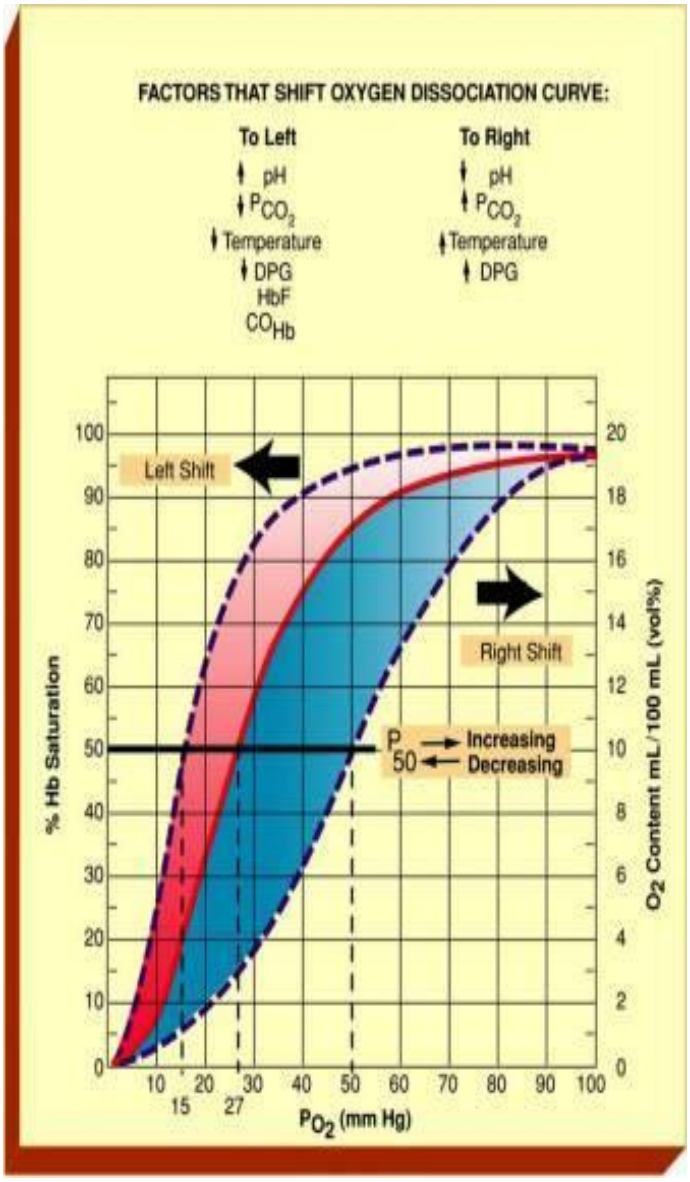


Hypothesis??

Normal equilibrium is: 1% MetHb and 99% Hgb.



Why is this problem? Does it tie into my cues? Methemoglobin carries oxygen very poorly. There is a left shift in oxygen dissociation curve.



Hemoglobin vs. Methemoglobin

Less than 10% metHb - No symptoms

10-20% MetHb – Cyanosis

20-30% MetHb -Anxiety, headache, SOB

30-50% MetHb - Fatigue, AMS, dizziness, palpitations

50-70% MetHb - Coma, seizures, acidosis, delerium

Greater than 70% MetHb - DEATH

Solutions

Methylene Blue

2mg/Kg I.V.P.

May repeat as needed

Accelerates Reduction Pathway

Exchange Transfusion

Hyperbaric Oxygen

Evaluation?

- Transferred to ICU
- Remained Intubated
- Repeat Doses of methylene blue administered
- Unable to follow trends and vital signs in ICU
- Reverse methemoglobin levels to baseline at 1% in 24 hours.
- Extubate
- Titrate oxygen to maintain saturations above 92%

Causes

Congenital

Multiple Forms

Rare

Acquired

Oxidizing Agents: Nitrites and Nitrates

Chlorates

Anesthetics

How did our patient get there?

No illicit drug use: Nitrous oxide. Not in a rural area exposed to fertilizer run off or well water. No recent procedures using benzocaine or prilocaine. Pork Roast for dinner "tasted off." Heavy use of meat tenderizer and curing agents containing Nitrites!

Seton Medical Center Austin

25 year old female presents with dizziness, weakness, and dysuria. Recently seen in our facility for seizure. Long history of EtOH, and Substance Abuse. Recent diagnosis of UTI and self-treating.

Confused, Pale, Slight Cyanosis

HR= 116 bpm

RR= 17 b/min

BP= 106/78

Oxygen saturation= 84% on room air

GCS= 15

Alert but confused

More Diagnostic Cues

CBC= Normal

CMP= Normal

UA= + for Nitrites

Toxicology Screen= + amphetamines and cannabinoids

EtOH= 20mg/dl

Afebrile

Any other cues you want to see?

Methemoglobin!!!!

MetHb= 23.2%

Solution

Methylene Blue

2mg/Kg I.V. Push

Summary

Gather and Analyze Cues

Create Hypothesis

Gather More Cues

Create Hypothesis

Use Solutions

Evaluate Solutions

References

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