Double-Edged Sword: Status Asthmaticus Complications in an Opiate Tolerant Patient

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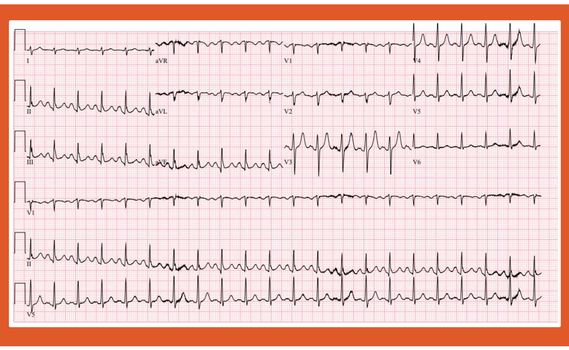
Background

- Severe Asthma Exacerbations (SAE) in opiate tolerant patients merit consideration of non-narcotic sedation strategies.
- The following case illustrates unique challenges.

Case Presentation

- **HPI:** A 24-year-old male with a history of asthma presented to our ED for acutely worsening shortness of breath for one hour. He ran out of his inhaler one month ago after losing his insurance. His girlfriend provided more history including recent IV heroin use one week ago and previous intubations for asthma. They denied any recent fevers, sick contacts, travel, nor vaccinations.
- **Pertinent Physical Exam Findings:**
  - HR 129bpm, BP 147/70mmHg, and SpO2 65% on 10L NRB mask
  - CV: tachycardia, no carotid bruits, no JVD
  - Respiratory: supraclavicular retractions, one word sentences, bilateral inspiratory and expiratory wheezing
  - Skin: diaphoretic, multiple tender lesions on his hands
- **EKG:** sinus tachycardia without ischemic changes
- **ED Course:**
  - He was advanced to BiPAP
  - Blood, urine, and sputum cultures collected
  - Given nebulized albuterol 10mg, methylprednisolone 125mg IV, magnesium sulfate 2mg IV, ampicillin/sulbactam 1.5g IV, and a 1L IV NS bolus
  - He continued to decline.

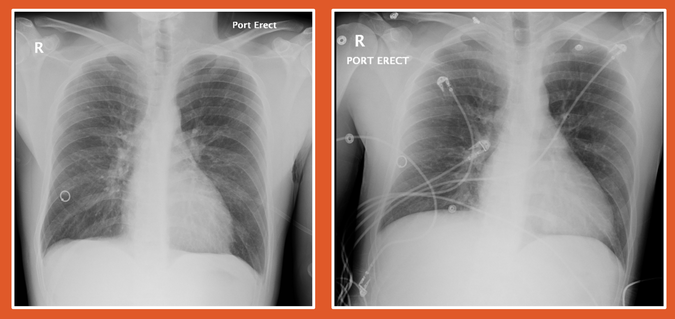
Figure 1. Admission ECG



Hospital Course

- The decision was made to intubate with ketamine 140mg IV and succinylcholine 100mg IV.
- He again received nebulized albuterol 10mg and magnesium sulfate 2mg IV.
- Initial labs found a leukocytosis of 34.4k cells/uL (n: 5-12k), lactic acid of 2.9mmol/L (n: .7-2), ABG pH of 7.13 (n: 7.35-7.45) and PaCO2 of 89.9mmHg (n: 35-48).
- Urine drug screen found benzodiazepines, cannabinoids and opiates.
- He was escalated to vancomycin and piperacillin/tazobactam for endocarditis concerns.
- His lactic acid trended up to 6.5mmol/L warranting an additional 2L normal saline IV.
- A chest radiograph, CTA chest and echocardiogram found no acute pathology.
- He required the maximum dose of fentanyl for sedation.
- On day 2, he was weaned for extubation, but his BP increased to 190/80mmHg.
- He was started on morphine 2mg IV for concerns of acute opiate withdrawal, and his BP normalized.
- His sputum culture grew Hemophilus influenzae.
- He was extubated later that day when stable.
- He was counselled extensively on medication compliance and illicit substance cessation.

Figure 2. Radiographic Progression



Discussion

- Expert opinion suggests a potential role for the administration of continuous ketamine infusions for concomitant sedative and bronchodilatory effects in opiate tolerant patients.
- After intubation, our patient received fentanyl and propofol.
- This may have exacerbated his respiratory acidosis, masked opiate withdrawal symptoms, and complicated his extubation.
- Further research may enable more effective management of SAE in opiate tolerant patients.
- Of note, previous reports correlate albuterol with type B lactic acidosis that may have played a role in reduced oxygenation in our patient.
- New strategies are needed to manage SAE in opiate tolerant patients.

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