Critical Care Mailbag: The Crashing Asthmatic

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- Standard teaching is that asthma is a disease of exhalation. The patient with crashing asthma is unable to properly exhale leading to breath stacking.
- Weingart believes there are two types of severe asthma patients:
  - Bronchospastic
    - Tight, silent chest
    - No air moving during inhalation because of breath stacking
    - Unable to deliver breaths by BVM (can't get any air movement either due to spasm and breath stacking)
  - Respiratory muscle fatigue
    - A vicious cycle: fatigue leads to hypercapnia which leads to acidosis which leads to worsened functioning of respiratory muscles.
    - Patients may have some hypoxemia as well as they are also unable to move adequate air during inhalation.
- Crashing asthmatic patients with respiratory muscle fatigue can be rapidly improved by providing positive pressure.
  - Positive pressure can be administered with BVM or, even better, using bilevel positive airway pressure (BPAP).
  - Hypoxemia will rapidly improve.
  - Improved minute ventilation will result in improved hypercapnia and acidosis which will help respiratory muscles function better.
  - Additionally, BPAP allows respiratory muscles to rest and recover.
- How to provide BPAP
  - Settings
    - IPAP: 10-15 mm Hg
    - EPAP: Minimum setting. Patients don't need PEEP.

- Facilitate BPAP with ketamine.
  - Encephalopathy from hypercarbia and hypoxemia may make it challenging to get patients to tolerate BPAP.
  - Dissociation results in a compliant patient.
  - These patients **must be closely watched** and should never be left unattended.
  - Always **be ready to intubate** if there's aspiration or if the patient decompensates.

PERSPECTIVES

- Note: If you find a patient getting only a small tidal volume on BPAP, they likely have bronchospasm and will not improve with non-invasive ventilation.

PEARLS

- Don't forget that when you start BPAP or intubate the patient, you have to continue to provide maximal medical management with beta agonists.

***Core*Pendium: Asthma**
https://www.emrap.org/corependium/chapter/recJcsRr7c5n59oJq/Asthma

EM:RAP 2021 April: Introduction https://www.emrap.org/episode/emrap2021april/april