

ERCAST Show Notes

COVID-19: Fluids, Prone Position, and Your Emails

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In today's update: New York experience with fluid restriction in COVID ARDS, prone positioning for non-intubated hypoxic patients, resetting the intubation threshold, and using ABGs. Your questions for Reuben Strayer and Patrick Reinfried. For all the previous COVID podcasts plus a bunch of other super useful stuff, [here is our depository](#) of resources.

The below is not an evidence based approach, it is experience based and "here's what we're doing and it seems to work." It is by no means the only way to go about this and there are certainly other shops proceeding differently with COVID-19 patients.

New York Experience

Steven Johnson, DO and Dana Gottlieb, MD surveyed their hospital's docs for lessons they're learning. Below are some of the recommendations. A full write up can be found at the [EM Pulse Blog](#).

Ease up on the fluids

- Don't give fluids unless you KNOW they are hypovolemic (diarrhea, vomiting, no drinking x 1 week).
- These patients seem to be very sensitive to fluid overload. Patient's on the floor are avoiding intubation by keeping them net negative despite tachycardia and AKI. Consider starting the patient on a low-dose pressor rather than a fluid bolus to support MAP if they are on the verge of intubation due to hypoxia.
- A suggestion for undifferentiated ED patients: if they are normotensive DO NOT give a fluid bolus. Patients that are hypotensive, carefully consider very small fluid bolus vs pressor (especially if clinically volume overloaded).
- Do not fluid resuscitate to clear lactate. The elevated lactate in a non-hypotensive patient is not from hypovolemia, this is likely from catecholamine surge from severe hypoxia and respiratory distress.
- Not that any of us normally do....but DO NOT start maintenance fluids.

It's interesting how the pendulum swings with IV fluid. Over the past few years, there has been a call to action to be more judicious with our fluid administration, especially in

septic patients rather than reflexively jumping in 'whole hog' with 30 cc's per kilo (or even more). Much of this is going to fly in the face of policies or benchmarks so it's something to discuss among your group to see how you want to approach it.

Adding further support to COVID ARDS fluid resuscitation, Josh Farkas has this to say in his online [Critical Care Textbook](#). (direct quote below)

- *The cause of death from COVID-19 is nearly always ARDS – which may be exacerbated by fluid administration.*
- *Gentle fluid administration could be considered for patients with evidence of hypoperfusion and a history suggestive of total body hypovolemia (e.g. prolonged nausea/vomiting and diarrhea). An aggressive fluid resuscitation strategy in viral pneumonia is especially misguided. The primary life-threat facing these patients is ARDS (not hypoperfusion, and certainly not hypovolemia). Perfusion can generally be easily maintained with early administration of low-dose vasopressors and a conservative fluid strategy if necessary (although most patients with viral pneumonia have adequate perfusion to begin with).*
- *Notably, if hyperlactatemia is being driven by dyspnea causing sympathetic activation, this will only be exacerbated by fluid (which will worsen the respiratory failure).*

Oxygenation and Prone Position

Mechanical ventilation can go on a long time and intubated patients have not been doing well. Whether that's a cause (mechanical ventilation has harmful effects), an association (if you're sick enough to get intubated, mortality is already high), or both remains to be seen.

- These people are needing 15+ days of intubation, saving a vent for several days is meaningful. Unfortunately, every patient on the floor is developing severe hypoxia. Currently they are recommending a NRB at 15L with a NC at 10L underneath with persistent sats <90% before even considering intubating for hypoxia.

- If the patient is able to, have them prone themselves while on supplemental O2. They are having a lot of patients on the floor prone as much as they are able and it is helping.

Prone positioning in the awake patient was [described by Sun et al](#) two weeks ago as part of their critical care package (prone positioning, fluid restriction, and high flow nasal cannula/NIV).

- *“We attempted awake prone position in coronavirus pneumonia patients which showed significant effects in improving oxygenation and pulmonary heterogeneity”*
- Sun, Qin, et al. "Lower mortality of COVID-19 by early recognition and intervention: experience from Jiangsu Province." *Annals of Intensive Care* 10.1 (2020): 1-4.

Resetting the intubation threshold

In the ED we have a pretty standard mental framework when it comes to making the decision to intubate, but much of what we've seen so far is contrary to usual practice and, taking this further, the New York docs recommend this:

- If you have someone who is requiring a lot of supplemental O2, send an ABG. They are considering intubating these patients if they have PaO2 <60 *despite* the NRB and NC.
- They are not intubating just for work of breathing. These patients are all looking terrible on the floor, please get an ABG and if they are developing respiratory acidosis then they should be intubated. Obviously if on arrival they look terrible and have poor mental status then they should be intubated.
- Very few people are getting extubated upstairs and in their experience mortality is around 80% for patients needing intubation. .
- EMCRIIT goes deep into intubation issues and resetting the threshold [here](#).