

AEROMED OUTREACH

JUNE 2018

IMPROVING SYSTEMS OF CARE

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Aeromed recently collaborated with Desoto Memorial Hospital to improve time to treatment, focusing on communication and coordination. Aeromed crewmembers trained along side of Desoto Memorial emergency room staff to find simple solutions to improve patient outcomes, such quick hand off report sheets and preparing the patient for transport upon air transport arrival.

This multidisciplinary effort improves patient care for time-sensitive medical emergencies such as stroke and STEMI, and all patients requiring rapid transport.



PHYSICIAN'S ARTICLE

Scenario:

You arrive on scene of a 54 year-old-male vomiting blood. The patient is accompanied by his wife, who provides you with a history. He is a known cirrhotic with esophageal varices. A brief physical exam reveals a pale, diaphoretic middle aged male in acute distress. He has a distended abdomen and scleral icterus. The wife hands you a bag of vomit and you estimate that he has lost at least 500 cc of blood. The vomit is coffee ground. Vital signs reveal a temperature of 100.6 F, RR of

32, HR of 146, and blood pressure of 90/54. You recognize that this patient will need an advanced airway.

What are our priorities in the case? Airway, breathing, circulation. That's our standard approach to nearly every crashing patient both in the prehospital setting and in the ED. I would like to cover two important themes that relate to this classic paradigm: Delayed sequence intubation, and first pass success.

The patient in front of you is sick. You go to work and immediately place two 14 gauge

IVs. You hang fluids and get your levophed ready. If you are coming from a transferring facility, you hang trauma blood as well. You prepare your RSI medications and get ready to intubate. As you slide your laryngoscope in you realize that this patient has a terrible view. His cords are anterior, your suction cannot keep up with the secretions and blood. You see epiglottitis but cannot pass your tube underneath. The patient begins to desaturate and you stop to bag. On the second attempt, you reposition the patient, use head lift and are

UPCOMING OUTREACH ACTIVITIES

- **Stop The Bleed Class offered at TGH July-October. Contact Jennifer Mefford at jmefford@tgh.org for additional information**

PHYSICIAN'S ARTICLE CONT

able to sneak the ET tube through the cords. You place the patient on the vent. Your next blood pressure is 50/30. The patient does not have palpable pulses. You begin ACLS.

What happened? Clearly, this is a sick patient and even perfect management may result in a bad outcome. But there are some things we can do to improve the patient's chance of survival. In the words of Scott Weingart, "Hemodynamics kill". If you intubate a hypotensive patient they will probably die immediately following intubation. Three reasons for this: You have taken away their sympathetic drive, or pain response, by sedating them, the drug itself will have an effect on blood pressure, and positive pressure ventilation will decrease cardiac output.

So what can we do? Clearly this patient will need an airway. But do they need an airway right now? That question may be difficult to answer, but in the hypotensive patient we should do our best to resuscitate prior to intubation. So our approach is to maximize this patient's blood pressure. Run fluids, give small doses of push dose pressors during the peri-intubation period, and

decrease your sedative dose. The patient who is hypotensive may not be alert to begin with, so giving a full sedative dose is probably not needed. Scott Weingart recommends half dose ketamine (.5 mg/kg), and double your paralytics (1.6 mg/kg Roc, 2.0 mg/kg Succ). Why double the paralytics? Because a hypotensive patient will not have enough cardiac output to effectively distribute a "normal" dose of paralytics. If the patient still drops their pressure, you should have either a levophed or epi drip ready to go, or push dose pressors next to you. Lastly, start with low tidal volumes and low peep on the vent. This will reduce the effect of positive pressure on a patient's cardiac output.

The second topic I want to discuss is first pass intubation success. The patient in the scenario has an extremely challenging airway. This type of airway may present problems for even the most experienced laryngoscopist. But we also know that a patient's mortality goes up significantly with more than one attempt at intubation. So what do we do?

I'd like to make a case for

using the bougie on every airway. The bougie is often thought of as a "backup" device. I think it should be the standard way we intubate. A recent article showed that first pass success was significantly increased with use of the bougie vs stylet. This is not surprising to those who use the bougie often. The bougie has several advantages: You can intubate any airway with an epiglottis view, you never lose sight of your cords during tube passage, you receive immediate feedback on correct placement of tube. If you have successfully passed the bougie through the cords, you will find "hold up" on advancement of the bougie as you hit the mainstem bronchus. If you are in the esophagus, there will never be hold up. The other reason I suggest using the bougie for every intubation is so you become skilled with it. You may one day have to rely on that skill in the difficult airway situation. It takes time to develop the tactile skill of bougie placement, and it's not as easy as people think. You want to learn how to use it on the easy airways first. My personal setup is as follows: Two ET tubes at my side. One with a stylet loaded,

the other empty with a bougie next to it. Depending on what I see when I advance my laryngoscope, I will reach for either the bougie or stylet as a "game time decision".

So let's go back to the start of our case. You resuscitate the patient prior to intubation. You start fluids, pressors, and he has a BP of 130/60 at time of intubation. You dose ketamine and paralytics at half and double respectively, pass your bougie through a difficult airway and feel holdup. You know you are in the correct spot. You place the patient on low peep and tidal volume. The patient does well. He receives eight units of blood, and has his varices banded by GI. He is discharged from the ICU five days later in stable condition because of your efforts.

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