

Dr. Goodloe,

Recently we spoke about complications I had run into using Etomidate during medication assisted intubations. We spoke of a trismus and myoclonus as common side effects of Etomidate and that these rarely last longer than 20-30 seconds. Given that the effectiveness of Etomidate ranges from 3-12 minutes, depending on which literature you're reading, there is most often still time to safely intubate the patient in a relative state of sedation. However, after quite a bit of thought and several other patient interactions using the medication I have noticed a few consistencies that I had not previously noticed. In the instance of myoclonus, it is most often resolved by 30 seconds post completion of the administration. The complication that I am noting is that either after myoclonus resolves, or in the absence of it, the patients clench when the laryngoscope is placed into the vallecula. This discovery has led me to the hypothesis that there is a secondary response, not related to the Etomidate that is taking place.

After the development of the hypothesis that Etomidate may not be the direct cause of the "clenching" reported by so many paramedics, I began looking more into Etomidate itself and how it affects the body and the ways it doesn't affect the body. In addition, I began looking more into the physiologic response to pain in the unconscious or sedated patient population. My understanding is that Etomidate is hypnotic without any form of analgesic properties. In addition Etomidate is considered a moderate anesthetic without any direct anterograde amnesiac properties. This leads me to the concern that our patients are simply experiencing a great amount of pain during intubation and as a result, bite the laryngoscope. When I think about my own response to any type of pain, I clench my teeth and even grind them at times until the pain subsides. I can only imagine that the pain from the laryngoscope doesn't stop when the blade is removed from the airway. This thought process has led me to think it may be a possibility that our crews are not seeing prolonged trismus or myoclonus but seeing a physiologic response to pain. I think that this concept may be under-recognized in the hospital setting as they use paralytics in most all intubations, thus hiding the response we may be seeing in the field. Recognizing paralytics to be potentially dangerous in a system our size with the volume of turnover we experience, I feel a need to seek a better solution.

Working with the hypothesis that our complications are pain related less than they are a reaction to the Etomidate, I see improved pain control as our primary means of improvement. If I can make my patient more comfortable, can I intubate my patient more successfully and safely? I currently am unable to answer this question for myself as I must operate under protocol. (Not a compliant) Understanding that not all patients will be hemodynamically stable enough for pain control such as Morphine or Fentanyl, I felt that I needed to explore less invasive methods of pain control. I spent some time reading the history of anesthesiology from multiple sources and even conversed with several anesthesiologists about conscious intubations. After these conversations I am curious about the possibility of nebulizing Lidocaine as part of our pre-oxygenation process. I am led to believe that if I can numb the airway and reduce the pain of intubation, I can improve my opportunity for success. Ideally I would like to give a higher dose of fentanyl prior to the administration of the Etomidate but as previously stated, I don't think this would always be practical. In addition, do you think that using viscous lidocaine as a cuff lubricant would improve pain in the post intubation setting?

My final question is the use of Etomidate in the presence of suspected sepsis. While I have no data available to back this statement, it seems a large volume of our unresponsive, respiratory compromised patients seems to be sepsis, often related to pneumonia. I know you are no stranger to the data showing that Etomidate should be used with caution in septic patients. What would your recommendation be to improve my chances for success in sedating and intubating a septic patient? My

fear with Versed is the hemodynamic effects. To further my question, would numbing the airway of a patient already unresponsive but with a slight gag reflex be enough to allow safe intubation of the patient, avoiding IV drugs all together? As I expand my thought, research and hypothesis it becomes more apparent that pain control is a very important aspect of sedation and intubation.

I greatly appreciate you taking the time to read this and hear my thoughts. I love seeking knowledge and chasing ways to improve my patient care and the outcomes of those I care for. I know you are very busy and I understand if this is not something you have the time to discuss. I hope I was able to organize my thoughts enough to make sense. For all I know my hypothesis is completely off base and has little to no medical significance however if it could possibly lead to better pre-hospital airway management and help me learn to care for my patients better, the research alone was worth it. Again, I thank you for your time.

-Chris Meeks NRP

Listed are a few of the sources I collected information, data, and understanding from:

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3108152/>

<https://www.drugs.com/pro/etomidate.html>

<https://www.flightbridgeed.com/> --Podcast and published educational material

<http://lifeinthefastlane.com/ccp/awake-intubation/> --Several concepts and treatment options obtained from listed article.