

## **Academic Emergency Medicine Editor-in-Chief Pick of the Month**

*This month I am pleased to introduce our third guest writer for the EIC POTM. Please meet James R. Miner, MD, chief of emergency medicine at the Hennepin County Medical Center and professor of emergency medicine at the University of Minnesota. Dr. Miner has done extensive research in acute pain management and sedation, monitoring during resuscitation, and in health care delivery. He is the author of a textbook entitled "Emergency Sedation and Pain Management" and has been recognized as a "Top Doctor" by Minnesota Monthly Magazine for the last five years. Dr. Miner is a member of the Association of Academic Chairs of Emergency Medicine (AACEM) and has been an active member of SAEM for more than 20 years. He presently serves Senior Associate Editor for Electronic Publishing for Academic Emergency Medicine and on several SAEM committees and interest groups. When he is not practicing medicine, Jim enjoys cross-country skiing and "spending time with my family in the great state of Minnesota."*

*Best Wishes,  
Jeffrey A. Kline  
Editor-in-Chief, Academic Emergency Medicine*

### **Finding What We Need to Know to Determine Intranasal Ketamine's Role in Pain Management**

Ketamine has been around as a pain medicine and a sedative since the 1960s, and its effectiveness as an analgesic is long established. After its initial adoption and widespread use as an anesthetic during the Vietnam war, however, it was largely abandoned due to concerns about emergence reactions and tolerability. Since the 1980s, it has gradually regained a place as a commonly used analgesic, and more recently, as we become increasingly aware of the consequences of our reliance on opioids, it has been explored with renewed enthusiasm. Despite its long history, there is less information about ketamine available than is needed to determine its role as first line pain therapy in children. We have known for a long time

that ketamine is an effective analgesic, the question is; where does it fit in among other therapies given the adverse effects that led to its abandonment in the 1970s?

In this issue of Academic Emergency Medicine, [Reynolds et. al.](#) present the results of a randomized controlled trial comparing intranasal ketamine to intranasal fentanyl in children 4 to 17 years old with acute pain from extremity fractures. The primary outcome, rather than the typical comparison on changes in pain scores, was the cumulative frequency of side effects and adverse events. They found a higher rate of the minor side effects of dizziness and a bad taste, and a higher overall rate of adverse events and side effects, and no serious adverse events. The authors are clear in their conclusion that larger studies are needed to determine if there is a difference in serious adverse events or pain relief, but their work brings our knowledge in an important direction.

Most pain studies that lack a placebo arm show equivalent analgesia between agents, protocols or doses. This is due to the lack of precision of the pain measures used in the studies, the large baseline variability in pain due to differences in the injuries inciting the pain and the patient's response to it, and the large number of confounding factors that change a patient's perception of pain that are unrelated to the studied treatments. In clinical practice, this translates to the observed reality that most pain meds work to a certain degree that is difficult to predict for an individual, up until the point that no further treatment is needed or the patient has an adverse side effect or event. The important question for us, then, and the reason that ketamine was once abandoned, is the point at which negative effects of the treatment appear relative to other agents,

The question of whether or not a certain dose of ketamine results in more or less analgesia than a certain dose of fentanyl is not important given the background information available on both drugs and the weaknesses of clinical research models for pain treatment. The more important question is the difference in the tolerability of the two drugs at a dose likely to result in a good starting analgesic effect for a child in pain in the ED. The authors have asked the question that is more likely to answer the clinical question of which drug to use, and what factors may affect that decision, than a study that focused on relative pain relief.

This study starts to give us the information necessary to determine ketamine's place as a pain medication and its potential to replace opioids. Quantifying the relative adverse side effects and events from pain treatments at similar analgesic doses will give us the knowledge needed to select agents that our patients will safely tolerate, and to weigh analgesic options with a more nuanced understanding of the risks and benefits of our selected therapy.

Best Wishes,

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