

Journal Club: House of Pain



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In this issue's column, we contemplate pain management from some alternative sources.

VAPOCOOLANT SPRAY FOR PROCEDURES: SO QUICK AND YET NOT SO EFFECTIVE

Summary

This high-quality systematic review and meta-analysis of the effectiveness of vapocoolant spray in reducing pain related to venipuncture and venous cannulation identified 12 studies including 1266 patients (509 children). Using a pooled random-effects model, the authors showed no difference in mean pain scores for vapocoolant sprays compared with placebo or with no treatment among children. In adults, spray was superior to no treatment in reducing pain, but there was no difference between spray and placebo.

Relevance

Procedural pain, especially with venipuncture and venous cannulation, is a common experience for hospitalized children. Pain, trauma, and anxiety related to such events predict future anxiety for other procedures, overall pain intolerance, and even medical traumatic stress. One easy remedy is the use of vapocoolant spray. It takes little training to use and is widely available and inexpensive, but as this study suggests, it is ineffective.

Takeaway

There is no silver bullet for reducing procedural pain. Instead, multimodal techniques including planning with families, active distraction (bubbles, counting, being read to), positions of comfort, and topical or oral analgesia remain best practice. Other "instant" options, such as combination cold and vibration techniques, warrant testing over the not-so-effective vapocoolant spray.

REFERENCE

Hogan ME, Smart S, Shah V, Taddio A. A systematic review of vapocoolants for reducing pain from venipuncture and venous cannulation in children and adults. *J Emerg Med.* 2014. doi:10.1016/j.jemermed.2014.06.028

BRAIN SURGERY CAN BE PAINFUL, BUT THERE IS NO PAIN MANAGEMENT GOLD STANDARD

Summary

This multisite, prospective cohort study assessed correlation of different pain management styles with parent and patient satisfaction, postoperative day 1 (POD 1)

pain scores, side effects, and adverse events among 200 children undergoing elective cranial surgery. Among 3 large, urban children's hospitals, 1 site used patient-controlled analgesia (PCA) with basal opioid rates and concurrent low-dose naloxone for POD1 and longer ICU admission, and the other 2 used pro re nata opioids and variable ICU length of stay. All used acetaminophen, and none used nonsteroidal antiinflammatory drugs. Although total opioid receipt was 3 to 5 times higher with PCA use, vomiting was more common in the non-PCA setting. Despite this variation in practice and opioid receipt, there was no difference in rates of undetected neurologic deterioration, length of stay, or highest pain scores on POD1. Parents of those with a PCA, receiving highest opioid dosing, were actually more likely to report that their child's pain was undertreated.

Relevance

For hospitalists who comanage neurosurgical patients, it can be difficult to confidently discuss pain management ("No opioids because we don't want to cloud the exam") because it is, after all, brain surgery. On the other hand, this study suggests that generous opioid administration does not necessarily improve outcomes. What is interesting is what this study did not comment on: environmental and cultural factors in the 3 hospitals, such as preoperative

education, and adjunctive services such as integrative health.

Takeaway

First, there is a paucity of literature surrounding postoperative pain management for pediatric neurosurgical patients. The "Hospital X Way" is literally just that: 1 hospital's way. Second, clinical outcomes do not appear to be significantly altered by varying pain regimens, suggesting that optimal postoperative pain management is more than pharmacotherapy. Perhaps nonpharmacologic aspects of pain management, such as preoperative expectation setting and family factors, matter more than which medications are used.

REFERENCE

Maxwell LG, Buckley GM, Kudchadkar SR, et al. Pain management following major intracranial surgery in pediatric patients: a prospective cohort study in three academic children's hospitals. *Paediatr Anaesth*. 2014; 24(11):1132–1140. doi:10.1111/pan.12489

TOO QUICK TO TREAT FEVER, TOO SLOW TO TREAT PAIN

Summary

The authors compared time to medication for 2958 children aged 3 to 19 years presenting to a suburban pediatric emergency department. Children presenting with fever received ibuprofen or acetaminophen 24.6 minutes sooner than afebrile children with moderate pain ($P < .05$; 95% confidence interval, 21.3–27.9), after

age and acuity were controlled for. This gap was distributed throughout the emergency department process, from triage to physician assessment. Although higher temperatures were correlated with shorter time to medication, there was no such association for greater pain.

Relevance

Although evidence exists to support a benefit to children from adequately treating pain, the same cannot be said for treating fevers. Nevertheless, this study suggests that there may be a combination of practice and priority dictating treatment of fever with greater urgency than pain, such as standing pro re nata orders for fever treatment. This discrepancy may also occur in the inpatient setting; do we all routinely include pain scores as the fifth vital sign during rounds?

Takeaway

As hospitalists we do not often personally assess temperature, but any trained clinician can assess and manage pain. Assessing pain in children is within the pediatrician's skill set and is a metric we could improve in the inpatient setting.

REFERENCE

Dvorkin R, Bair J, Patel H, et al. Is fever treated more promptly than pain in the pediatric emergency department? *J Emerg Med*. 2014; 46(3):327–334. doi:10.1016/j.jemermed.2013.08.063

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