EPERC End of Life / Palliative Education Resource Center

Print :: Close

FAST FACTS AND CONCEPTS #20 (PDF)

Author(s): David E Weissman MD

Background A common question from trainees is how fast, and by how much, can opioids be safely dose escalated? I like to use the analogy of furosemide (Lasix) when discussing this topic. I have never seen a resident order an increase in Lasix from 10 mg to 11 mg, yet that is precisely what often happens with opioids, especially parenteral infusions. Like furosemide, dose escalation of opioids should be done on the basis of a percentage increase. In fact, this is reflexively done when opioid-non-opioid fixed combination products are prescribed; going from one to two tablets of codeine/acetaminophen represents a 100% dose increase. The problem arises when oral single agents (e.g. oral morphine) or parenteral infusions are prescribed. Increasing a morphine infusion from 1 to 2 mg/hr is a 100% does increase; while going from 5 to 6 mg/hr is only a 20% increase, and yet many orders are written, "increase drip by 1 mg/hr, titrate to comfort." Some hospitals and nursing units even have this as a standing pre-printed order or nursing policy.

Key Point: In general, patients do not notice a change in analgesia when dose increases are less than 25% above baseline. There is a paucity of clinical trial data on this subject. A common formula used by many practitioners is:

- For ongoing *moderate to severe pain* increase opioids doses by 50-100%, *irrespective of starting dose.*
- For ongoing *mild to moderate pain* increase by 25-50%, *irrespective of starting dose*.

When dose escalating long-acting opioids or opioid infusions, do not increase the long-acting drug or infusion basal rate more than 100% at any one time, irrespective of how many bolus/breakthrough doses have been used. These guidelines apply to patients with normal renal and hepatic function. For elderly patients, or those with renal/liver disease, dose escalation percentages should be reduced.

The recommended frequency of dose escalation depends on the half-life of the drug. Short-acting oral single-agent opioids (e.g. morphine, oxycodone, hydromorphone), can be safely dose escalated every 2 hours. Sustained release oral opioids can be escalated every 24 hours. For methadone, levorphanol, or transdermal fentanyl no more frequently than every 72 hours is recommended.

See related analgesic *Fast Facts*:
#18 Oral opioid dosing intervals
51 Opioid combination products
70 PRN range orders
74 Good and Bad analgesic orders

References

1. Hanks G, Cherny NI, Fallon M. Opioid analgesic therapy. In: Oxford textbook of Palliative Medicine. 3rd Ed. Doyle D, Hanks G, Cherny N, Claman K, eds. New York, NY: Oxford University Press; 2005.
2. Weissman DE, Ambuel B, Hallenbeck J. Improving End-of-Life Care: A resource guide for physician education. 3rd Edition. Milwaukee, WI: Medical College of Wisconsin; 2001.
3. Handbook of Cancer Pain Management. 5th Edition. Wisconsin Cancer Pain Initiative; 1996.

Fast Facts and Concepts are edited by Drew A. Rosielle MD, Palliative Care Center, Medical College of Wisconsin. For more information write to: drosiell@mcw.edu. More information, as well as the complete set of Fast Facts, are available at EPERC: www.eperc.mcw.edu.

Version History: This Fast Fact was originally edited by David E Weissman MD. 2nd Edition published July 2005. Current version re-copy-edited March 2009.

ACGME Competencies: Medical Knowledge, Patient Care

Keyword(s): Pain – Opioids

Medical College of Wisconsin
8701 Watertown Plank Road, Milwaukee, WI 53226
www.mcw.edu | 414.456.8296