

Opioid Toxicity

Overview

Knowing the clinical manifestations of opioid toxicity and how to treat these are intricately tied to your ability to use opioids responsibly. Patients at high risk for opioid toxicity are those who receive high doses of opioids for prolonged periods of time or those with severe renal or hepatic impairment. Opioids require dosage adjustment in the elderly and in patients with renal or liver disease.

Generally, opioid toxicity is managed by ensuring adequate hydration, adjusting the dose or rotating to a different opioid.

Key Points

Opioid toxicity may present as intractable nausea, somnolence, hallucinations, delirium, myoclonic jerk or hyperalgesia.

Sedation often precedes respiratory depression and is a warning sign to decrease the dose or increase the dosing interval.

There is a wide inter-individual variation in the dose of opioids that may cause toxicity and is dependent on pain response, rate of dose titration, concomitant medications, and renal and hepatic function.

Management

Respiratory depression is managed by giving naloxone slowly over 10-30 minutes to avoid acute painful withdrawal symptoms. The half-life of naloxone is 3 times less than half-life of most opioids. Repeated injections may be needed.

When changing to a different opioid, remember that equianalgesic charts are based on average peak pharmacokinetics and different opioids are recognized by the body as a unique but related molecular configuration, i.e. there is incomplete cross-tolerance between opioids.

Equianalgesia charts are guidelines, as the patient's pharmacodynamics will dictate the response to the drug for that individual. Reduce your new opioid's dose by:

- 25%, if patient is in mod-severe pain;
- 50%, if patient's pain is stable and opioid rotation is necessary to minimize adverse effects.

Equivalent pharmacokinetic doses of common opioids:

Medication in	Morphine	Hydromorphone	Hydrocodone	Fentanyl	Oxycodone
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milligrams/ route of administration					
Parenteral	10	1.5	N/A	0.1 (100 mcg)	N/A
Oral	30	7.5	30	While use of oral fentanyl is highly restricted, an equivalent is the 12 mcg/hr. transdermal patch.	20-30 (references vary)

References

Doyle D, Hanks G, Cherney N, Calman K, Eds. (2008). Oxford textbook of palliative medicine, 3rd Ed. New York, NY: Oxford Press.

Elsayem A, Driver L, Bruera E, Eds. (2008). MD Anderson supportive and palliative care handbook. Department of Palliative Care and Rehabilitation Medicine, The University of Texas Press.