Wide Variation in Naloxone Dosing Recommendations for Acute Opioid Toxicity

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Research Question
What is the variation in naloxone dose recommendations for acute opioid toxicity?

Methods
A convenience sample of textbooks, study guides, and internet resources published within the last ten years in several relevant medical disciplines were reviewed:
- Anesthesiology
- Pediatrics
- Emergency Medicine

Results
- 22 resources identified that provided a naloxone dose recommendation.
- Sources varied in the dose recommendations:
  - Initial dose: 12/22 (55%) recommended an initial dose of 0.04 or 0.05 mg IV, 9/22 (41%) suggested 0.4 or 0.5 mg IV.
  - Maximum dose by titration (number of sources):
    - 2 mg in 6
    - 10 mg in 8
    - 20 mg in 2
    - No maximum mentioned in 6
  - No trend towards lower recommended dosage was noted based on year of publication.

An initial dose less than 0.1 mg recommended by source was:
- 3/4 Medical Toxicology
- 3/4 Anesthesia
- 4/6 General medical
- 2/4 EM

Results of sources varied by medical discipline:

- Anesthesiology
- Pediatrics
- Emergency Medicine

Discussion
- The increase in chronic opioid therapy for pain and addiction, and an increase prevalence of opioid abuse raises the likelihood of opioid withdrawal syndrome following naloxone.
- Low dose naloxone is highly effective in reversing ventilatory depression.
  - While onset is slower than higher doses, external ventilatory support is available
  - Opioid withdrawal is less likely and severe.
- Complications of precipitated opioid withdrawal include:
  - Pulmonary edema
  - Agitation
  - Gastrointestinal Distress
- Many believe an initial naloxone dose of 0.04 mg IV is preferred.

Conclusion
- Wide variation in the naloxone dose recommended for acute opioid toxicity is noted in sources with the potential for patient harm due to Opioid Withdrawal Syndrome.
- Given that 0.04 may be a safer dose and can be titrated to effect, this should be considered as the initial dose for the opioid intoxicated patient.
- Clinical studies are needed to evaluate whether this results in greater safety without sacrificing efficacy.

Sources
2013 ADR Guidelines for CPR and ECC
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