Dangerous Medication Mistakes

● Medication errors are common. One academic medical center evaluated error rates during medical resuscitations and found that 1 out of 2 doses was administered in error. (Gokham R, et al. Resuscitation 2012;83(4):482-7.)

● Treating Hyperkalemia with Insulin
  ○ Incidence of hypoglycemia
    ■ A 10 unit dose of IV regular insulin has an onset of action of about 5-10 minutes, peaks at 25-30 minutes, and lasts 2-3 hours. IV dextrose lasts about an hour.
    ■ No prior diagnosis of diabetes
    ■ No use of diabetes medication prior to admission
    ■ A lower pretreatment glucose level
  ○ Strategies for avoiding hypoglycemia

● Opioids are a frequent cause of litigation in ED cases, particularly hydromorphone
  ○ Hydromorphone 1 mg IV = Morphine 7 mg IV
    ■ Morphine 10 mg seems high, yet hydromorphone 2 mg raises little concern.
    ■ Starting morphine at 0.1 mg/kg (normal kidney function and age < 65 years)
    ■ A good strategy is start low, go slow
  ○ Naloxone
    ■ Doses ≥ 0.4 mg will result in withdrawal in patients chronically taking opioids.
    ■ Instead, start with 0.04 mg and administer 0.04-0.08 mg increments (Kim HK et al. J Med Toxicol. 2015 Aug 20. [Epub ahead of print] )
    ■ Here’s how to prepare it: http://www.aliem.com/trick-trade-naloxone-dilution/

● Epinephrine is one of the most problematic medications in the ED with regard to errors
  ○ Cardiac arrest concentration: \(1:10,000 = 1 \text{ gm}/10,000 \text{ mL} = 1,000 \text{ mg}/10,000 \text{ mL} = 0.1 \text{ mg}/\text{mL}\)
  ○ Pretty-much-everything-else concentration: \(1:1,000 = 1 \text{ gm}/1,000 \text{ mL} = 1,000 \text{ mg}/1,000 \text{ mL} = 1 \text{ mg}/\text{mL}\)
    ■ The epinephrine ratio labeling is going away in May 2016 (at least in the U.S.)!
      ■ http://empharmd.blogspot.com/2016/01/no-more-epinephrine-ratios.html?q=epinephrine
  ○ Here are a few ways to reduce errors:
    ■ Limit the number of epinephrine sizes/concentrations in your ED
    ■ Consider stocking epinephrine auto injectors for anaphylaxis/asthma

● Syringe labeling in the ED
  ○ The two critical pieces of information that must be on every syringe are: drug name and concentration (Kothari D, et al. Br J Anaesth 2013;110(6):1056-8.)

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