**ToxTidbit: Chloroquine and Hydroxychloroquine Toxicity**

With chloroquine (CQ) and Hydroxychloroquine (HQ) coming back into the limelight as potential regimens for COVID-19 patients, there may be more opportunity for unintentional/intentional deadly ingestions.

* Chloroquine and hydroxychloroquine are antimalarial agents with other FDA approved uses such as rheumatoid arthritis and Lupus erythematosus (HQ)
* These agents have very narrow therapeutic windows
  + 1-2 tablets potentially lethal in a small child
    - ≥30mg/kg in pediatrics
    - Dosage forms:
      * CQ-250mg, 500mg tabs
      * HQ-200mg tabs
      * Perspective-7kg 6mo or a 16kg 3yo is in real life threatening danger with a single tablet ingested depending on tablet strength
  + >5g universally lethal in an adult (2.25g-3g may be fatal)
* **Toxicity tends to occur very quickly:**
  + Deaths often occur pre-hospital within 1-2 hours of ingestion
* **Mechanism of Toxicity**:
  + Quinine derivative- Impairing conduction and depressing cardiac contractility
* **Toxidromes:**
  + QRS/QTc prolongation
  + Hypotension- Secondary to decreased cardiac function NOT peripheral vasodilation
  + Hypokalemia secondary to an intracellular shift
  + Neurologic:
    - Altered mental status
    - Seizures
  + Hypoglycemia
* **Treatment:**
  + PROMPT RECOGNITION and supportive care
  + Early intubation
  + Activated charcoal not recommended pre-hospital due to rapid onset of coma or seizures; Can be reassessed in the hospital setting with care taken assessing the patients ability to protect their airway due to risk of aspiration
  + Vasopressors- Epinephrine recommended over norepinephrine (NE) given the mechanism of toxicity and the lack of sufficient beta1 activity with NE
  + High dose diazepam (2mg/kg) OR midazolam 0.5mg/kg over 30 minutes shown to lessen cardiotoxity in humans (In conjunction with early intubation)
    - Thought to act on benzodiazepine receptors in the myocardium
  + Monitor potassium levels closely-cautiously replete when <2mEq/L
* **Resolution:**
  + Toxicity is thought to be a result of the high pre-distribution initial concentrations after an acute ingestion
    - With aggressive management, resolution within 24-48 hours
  + CQ and HQ serum concentrations are not readily available

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