**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

References:

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