Digitalis Glycosides

Digoxin (Lanoxin)

Indications

- CHF, the evidence for use of Dig in CHF has gone back and forth, the DIG Trial showed that dig did NOT improve mortality, however, when pts previously on dig where taken off dig they had increased Sx and hospitalizations BUT when naïve pts where placed on dig they did NOT have decreased Sx and hospitalizations (very weird!!!) therefore the current approach is if a pt is on dig then continue it but if a pt is NOT on dig there is NO indication to start dig in a CHF pt
- Rate Control for AFib w/ RVR in pts who have comorbid CHF

Mechanism

- inhibits myocyte Na/K active antiporter → increase in intracellular Na → Na/Ca antiporter pumps more Na out than usual b/c of the high chemical gradient → increase in intracellular Ca → positive inotropic BUT negative chronotropic

Side Effects & Contraindications

CNS

- vision changes (75%): altered pupil size, photophobia, ocular muscle palsies, yellow-green halos around bright lights (Vincent van Gogh)
- fatigue/malaise/weakness
- HA
- AMS
- dizziness
- paresthesia

CV

- EKG changes (refer)

GI

- Ab pain
- decreased appetite
- D
- N/V

GU

- digoxin is structurally similar to estrogen → gynecomastia, impotence, decreased libido

Renal

- electrolyte imbalances: hyperK and hypoCa

Other

- Therapeutic Level: 0.8-1.8ng/mL
- Toxicity is VERY COMMON and can even occur at therapeutic levels
  - Common Causes of Toxicity:
    - RF (decreased excretion)
    - Cirrhosis (decreased metabolism)
    - hypoK (b/c in effect also inhibits Na/K pump)
    - hypoMg
    - hypoTH
    - quinidine, amiodarone, verapamil, tetracyclines (decreased clearance and displaces digoxin from tissue binding sites)
  - Antidote:
    - Digoxin-Immune Fab (Digibind, Digitab) (one vial binds 0.5mg of digoxin)
    - Lidocaine
    - normalize K+
    - cardiac pacer