ENROFLOXACIN

Drug Class: Fluoroquinolone

Spectrum: Like other fluoroquinolones, enrofloxacin has a broad spectrum, including various Gram positive and Gram negative bacteria. It is not effective against anaerobes. It is particularly useful as a drug targeting Gram negative bacteria of the Enterobacteriaceae family (e.g. E. coli, Enterobacter). It has good activity against staphylococci, with less predictable activity against streptococci and enterococcus.

Resistance: Resistance is a potential concern in both Gram positive and Gram negative bacteria. This can occur both through mutations and acquisition of transferable resistance genes.

Mechanism of Action: Enrofloxacin exhibits bactericide last activity in a concentration dependent manner, through effects on DNA gyrase. As a concentration dependent drug, high peak drug levels are important, so once daily dosing is used.

Route of Elimination: Elimination is primarily through the kidneys, and high levels of active drug are present in urine.

Adverse Effects: There are concerns about articulate cartilage damage when enrofloxacin is used in growing dogs. The relevance of this for short term us at commonly used doses is unclear but it is wise to limit enrofloxacin use in growing dogs, especially large breed dogs. Ciprofloxacin can cause cystalluria, and it is possible that enrofloxacin could do the same thing; however, the relevance of this is unclear. Use of enrofloxacin in dogs with *Streptococcus canis* infection has been associated with induction of necrotizing fasciitis. This drug should be avoided when *S. canis* is known to be present or when it is considered a reasonable possibility. In cats, enrofloxacin use has been associated with blindness from retinopathy. Use of lower (5 mg/kg) doses is thought to reduce that risk; however, less confidence can be had in clinical efficacy of enrofloxacin at that dose.

Contraindications: Enrofloxacin use should be limited in growing puppies and a avoided when *Streptococcus canis* infection might be present. It is best avoided in cats unless there is a critically important need for an injectable fluoroquinolone.

Common uses: As a critically important antimicrobial, enrofloxacin is typically recommended for treatment of infections resistant to common first line options. It is a useful second tier option for infections such as cystitis and pyoderma. This drug is well distributed throughout the body and is a first line treatment for bacterial prostatitis and pyelonephritis.

ENROFLOXACIN

Common uses (continued): It is also often used, in combination with a drug with greater Gram positive activity (e.g. ampicillin or clindamycin) for broad spectrum empirical therapy in cases of suspected sepsis.

Dosing:

- ***Dogs: 5-20 mg/kg q24h.***
- ***Cats: 5 mg/kg q24h***

Veterinary Drug Director Category: I (Very High Importance).

Approved veterinary products in Canada: Yes. Oral and injectable.

Additional information: Along with 3rd and 4th generation cephalosporins and macro lives, fluoroquinolones are classed as "Highest priority critically important antimicrobials".