METRONIDAZOLE

Drug Class: Nitroimidazole

Spectrum: Metronidazole has broad spectrum activity against anaerobic bacteria such as *Clostridium* and *Bacteroides spp.* It is ineffective against aerobic bacteria. It is also used for treatment of some protozoan infections (e.g. *Giardia*).

Resistance: Resistance is uncommonly reported; however, susceptibility testing of anaerobes is not widely performed.

Mechanism of Action: The mechanism of action is unclear. It exhibits concentration-dependent activity. It may also have some effects on cell mediated immunity and have corresponding anti inflammatory properties, although the clinical relevance of that is unclear. Metronidazole is lipophilic and well distributed throughout the body including bone and the CNS.

Route of Elimination: Metronidazole is primarily metabolized by the liver. Metabolites and unchanged drug are exerted both in urine and feces.

Adverse Effects: Anorexia can develop. Less commonly, neurological abnormalities can be encountered, including ataxia and weakness. Gastrointestinal disturbances can also occur. Hepatotoxicity can develop, but is rare.

Contraindications: Because of concerns about teratogenicity, metronidazole should not be used in pregnant animals. It should also be avoided in patients with hepatic dysfunction.

Common uses: Metronidazole is most commonly used for the treatment of acute and chronic gastrointestinal disease in dogs and cats. It is also used in combination with antimicrobials targeting aerobes to provide broader anaerobic coverage. It can also be used for peri-operative prophylaxis, in combination with an antimicrobial such as cefoxitin, when there is particular concern about anerobes (e.g. gastrointestinal surgery with penetration of the viscera).

Dosing:

- ***Sepsis or as part of broad spectrum coverage:15 mg/kg IV q12h***
- ***Other anaerobic infections: 10-15 mg/kg IV/PO q8-12h***
- ***Gastrointestinal disease: 10-15 mg/kg PO q8-12h***
- ***Peri-operative prophylaxis: 15 mg/kg slow IV ~1hr before surgery***
- ***Giardiosis (dogs): 50 mg/kg PO q24h for 5d***

Note: Dosing recommendations for metronidazole are typically based on metronidazole base. If metronidazole benzoate is used, the dose should be multiplied by 1.6.

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

Approved veterinary products in Canada: No.