

VETERINARY VOICE: Tips of the Trade

Internal Medicine: Sulfa drug toxicities

Commonly used sulfa drugs	Sulfadimethoxine, sulfadiazine, sulfasalazine, sulfathiazole, sulfamethazine, trimethoprim sulfa
How does this medication work?	Broad spectrum antibiotic with activity against most gram-negative organisms and against Staph. It is not generally effective against Pseudomonas. Potentiated sulfas inhibit enzymes in the folic acid pathway, inhibiting bacterial thymidine synthesis. Mammal enzymes are less sensitive to the blockade than bacterial enzymes because they don't have to manufacture their own folic acid. Potentiated sulfas have good penetration across the blood-aqueous and blood-brain barriers, and can penetrate into the prostate.
Adverse effects	<p>The adverse effects are idiosyncratic—meaning they are unpredictable in nature and do not relate to the amount of drug given to an individual.</p> <ul style="list-style-type: none">• <u>Joint inflammation and blood dyscrasias</u>: Arthritis, fever, muscle soreness, and kidney inflammation can be seen. The Doberman pinscher is over-represented. Side effects occur almost exclusively after a previous uneventful exposure to TMS and usually around 8-20 days after therapy has started. Blood dyscrasias may lead to immune dysfunction, bleeding tendencies, or other problems such as aplastic anemia. Any of the blood cells can be affected. This is usually part of the joint inflammation syndrome.• <u>Hepatitis</u>: Liver failure can result when a sensitive individual receives this medication. Nausea, icterus, and all other complications that occur with liver failure may result. It is not recommended to use TMS in patients with previous history of liver disease.• <u>KCS</u>: In one study, small dogs (<12 kg) were at significantly greater risk of developing KCS. Lacrimal function usually returns with stopping the drug, but prolonged usage may cause permanent KCS.• <u>Fever</u>: Most common adverse reaction in dogs (followed by thrombocytopenia) in a study of 40 dogs with adverse sulfa drug reactions.
Interactions with other drugs	<p>Antacids decrease bioavailability of TMS.</p> <p>Trimethoprim sulfa should not be used with cyclosporine because it increases toxicity of the cyclosporine and reduces its beneficial effects.</p> <p>Trimethoprim sulfa can interfere with thyroid function testing. It is not known how long this is affected after therapy.</p> <p>Sulfonamides may displace other highly bound drugs, such as methotrexate, phenylbutazone, thiazide diuretics, and salicylates (like aspirin).</p>
Questions?	The Veterinary Specialty Center of Tucson has board-certified internists available for questions and consultations on internal medicine conditions during the weekdays. A member of the internal medicine team is on-call 24/7 to provide consultations to VSCT emergency doctors and to perform emergency procedures (endoscopy, ultrasound) for patients seen by the VSCT emergency service. Board-certified internists have four additional years of training and are certified by the American College of Veterinary Internal Medicine (internal medicine) to assure competency in advanced veterinary internal medicine procedures and cases.
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