**Motility-modifying Drugs**

* **Anticholinergic drugs** are common ingredients in antidiarrheal preparations because they *significantly decrease intestinal motility and secretions.* *Their parasympatholytic effects decrease segmental and propulsive intestinal smooth muscle contractions and relax spasms of smooth muscle.* Although they do not alter the course of the disease, anticholinergic drugs decrease the urgency associated with some forms of diarrhea in small animals, the amount of fluid secreted into the intestine, and abdominal cramping associated with hypermotility. *Because few of the types of diarrhea seen in animals can be classified as “hypermotile,” use of anticholinergic drugs is limited in veterinary medicine. Intestinal motility is already impaired in many animals with diarrhea, and these drugs may actually worsen the diarrhea.* The anticholinergic drugs also have profound systemic pharmacologic effects. If they are administered in sufficient doses to affect intestinal motility, possible side effects include severe ileus, xerostomia, urine retention, cycloplegia, tachycardia, and CNS excitement. Chronic administration may lead to serious intestinal atony.

* **Opiates** have both *antisecretory and antimotility effects*. *They decrease propulsive intestinal contractions and increase segmentation for an overall constipating effect*. They also increase GI sphincter tone. There is some evidence that opiates inhibit colonic motor activity in horses. In addition to affecting motility, opiates stimulate absorption of fluid, electrolytes, and glucose. Their effects on secretory diarrhea are probably related to inhibition of calcium influx and decreased calmodulin activity. They are frequently used for treatment of diarrhea in dogs, but their use in cats is controversial because they may cause excitement. The constipating effects of morphine and codeine have been known for many years, but they are not used clinically as antidiarrheal drugs. Paregoric is a tincture of opium product and a controlled substance (5 mL of paregoric corresponds to ∼2 mg of morphine). Diphenoxylate and loperamide are 2 synthetic opiates that have specific action on the GI tract without causing other systemic effects. They have been used in small animals and large animal neonates. Diphenoxylate is a controlled substance in a formulation that contains atropine to discourage abuse; at therapeutic doses, there is no effect from the atropine. Opiates can have potent effects on the GI tract and should be used cautiously. Loperamide is available over-the-counter.
* *Loperamide should not be used in dog breeds known to be ivermectin sensitive (Collies, Australian Shepherds, Old English Sheepdogs) without genetic testing.* These dogs may have a gene mutation that causes a functional defect in P-glycoprotein, which controls drug movement in many tissues. This results in increased oral bioavailability of loperamide and reduced clearance, leading to CNS toxicity. These drugs are contraindicated in infectious diarrhea because slowing GI transit time may increase the absorption of bacterial toxins. In dogs, constipation and bloat are the most common adverse effects. Potentially, paralytic ileus, toxic megacolon, pancreatitis, and CNS effects can develop, especially in cats.