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IBD has been defined clinically as a spectrum of gastrointestinal disorders associated with chronic inflammation of the stomach, intestine and/or colon of unknown etiology. Management of IBD consists of 1) dietary therapy, 2) exercise, 3) antibiotics, 4) probiotics, 5) anti-diarrheal agents, 6) restoration of normal motility, 7) anti-inflammatory or immunosuppressive therapy, and 8) behavioral modification.

1. Dietary Therapy
The precise immunologic mechanisms of canine and feline IBD have not yet been determined, but a prevailing hypothesis for the development of IBD is the loss of immunologic tolerance to the normal bacterial flora or food antigens. Accordingly, dietary modification may prove useful in the management of canine and feline IBD. Several nutritional strategies have been proposed including novel proteins, hydrolyzed diets, anti-oxidant diets, medium chain triglyceride supplementation, low fat diets, modifications in the omega-6/omega-3 (ω-6/ω-3) fatty acid ratio, and fiber supplementation. Of these strategies, some evidence-based medicine has emerged for the use of novel protein, hydrolyzed, anti-oxidant-supplemented diets, and prebiotics.

2. Exercise
Experimental IBD in the dog is accompanied by significant abnormalities in the normal colonic motility patterns. Physical exercise has been shown to disrupt the colonic MMCs and to increase the total duration of contractions that are organized as non-migrating motor complexes during the fed state. Exercise also induces GMCs, defecation, and mass movement in both the fasted and fed states. The increased motor activity of the colon and extra GMCs that result from physical exercise may aid in normal colonic motor function.

3. Antibiotics
Some IBD cases are initiated by true enteric pathogens, while others are complicated by small intestinal bacterial overgrowth. Some IBD cases may show short term responsiveness to one or more antibiotics, e.g., tylosin, metronidazole, or oxytetracycline.

4. Probiotics
Probiotics are living organisms with low or no pathogenicity that exert beneficial effects (e.g., stimulation of innate and acquired immunity) on the health of the host. The Gram-positive commensal lactic acid bacteria (e.g., Lactobacilli) have many beneficial health effects, including enhanced lymphocyte proliferation, innate and acquired immunity, and anti-inflammatory cytokine production. Lactobacillus rhamnosus GG, a bacterium used in the production of yogurt, is effective in preventing and treating diarrhea, recurrent Clostridia difficile infection, primary rotavirus infection, and atopic dermatitis in humans. Lactobacillus rhamnosus GG has been safely colonized in the canine gastrointestinal tract, although probiotic effects in the canine intestine have not been firmly established. The probiotic organism, Enterococcus faecium (SF68), has been safely colonized in the canine gastrointestinal tract, and it has been shown to increase fecal IgA content and circulating mature B (CD21+/MHC class II+) cells in young puppies. It has been suggested that this probiotic may be useful in the prevention or treatment of canine gastrointestinal disease. This organism may, however, enhance Campylobacter jejuni adhesion and colonization of the dog intestine, perhaps conferring carrier status on colonized dogs.

5. Anti-Diarrheal Agents
**Prostaglandin Synthetase Inhibitors**
- Sulfasalazine - 10-25 mg/kg TID-QID, PO
- 5-aminosalicylate - 5-10 mg/kg PO, TID-QID (dog)

**μ,δ-Opioid Agonists**
- Loperamide 0.08 mg/kg TID, PO-preferred drug

**5-HT₃ Serotonin Antagonists**
- Ondansetron (Zofran, Glaxo) - 0.5-1.0 mg/kg BID, PO
- Granisetron (Kytril, SmithKline Beecham) - 0.5-1.0 mg/kg BID, PO

**α₂-Adrenergic Antagonists** - These drugs must be used carefully as they can activate α₂-adrenergic receptors in the chemoreceptor trigger zone and cause vomiting.
- Clonidine 5-10 μg/kg BID-TID, SQ/PO

6. **Restoration of Normal Motility**
The mixed μ,δ-opioid agonist, loperamide, stimulates colonic fluid and electrolyte absorption while inhibiting colonic propulsive motility. Loperamide (0.08 mg/kg PO TID-QID) may be beneficial in the treatment of difficult or refractory cases of large bowel-type IBD.

7. **Anti-Inflammatory/Immunosuppressive Therapy**
**Sulfasalazine** – Sulfasalazine is a highly effective prostaglandin synthetase inhibitor that has proven efficacy in the therapy of large bowel IBD in the dog. Sulfasalazine is a compound molecule of 5-aminosalicylate (meselamine) and sulfapyridine linked in an azo chemical bond. Following oral dosing, most of the sulfasalazine is transported to the distal gastrointestinal tract where cecal and colonic bacteria metabolize the drug to its component parts. Sulfapyridine is largely absorbed by the colonic mucosa but much of the 5-aminosalicylate remains in the colonic lumen where it inhibits mucosal lipoxygenase and the inflammatory cascade. Sulfasalazine has been recommended for the treatment of canine large bowel IBD at doses of 10-25 mg/kg PO TID for 4-6 weeks. With resolution of clinical signs, sulfasalazine dosages are gradually decreased by 25 per cent at 2-week intervals and eventually discontinued while maintaining dietary management. Salicylates are readily absorbed and induce toxicity in cats, therefore this drug classification should be used with great caution in cats. If used in cats, some authors have recommended using half of the recommended dog dose (i.e., 5-12.5 mg/kg PO TID. Sulfasalazine usage has been associated with the development of keratoconjunctivitis sicca in the dog, so tear production should be assessed subjectively (by the pet owner) and objectively (by the veterinarian) during usage.

**Metronidazole** – Metronidazole (10-20 mg/kg PO BID-TID) has been used in the treatment of mild to moderate cases of large bowel IBD in both dogs and cats. Metronidazole has been used either as a single agent or in conjunction with 5-aminosalicylates or glucocorticoids. Metronidazole is believed to have several beneficial properties, including anti-bacterial, anti-protozoal, and immunomodulatory effects. Side effects include anorexia, hypersalivation, and vomiting at recommended doses and neurotoxicity (ataxia, nystagmus, head title, and seizures) at higher doses. Side effects usually resolve with discontinuation of therapy but diazepam may accelerate recovery of individual patients.

**Glucocorticoids** – Anti-inflammatory doses of prednisone or prednisolone (1-2 mg/kg PO SID) may be used to treat IBD in dogs that have failed to respond to dietary management, sulfasalazine, or metronidazole, and as adjunctive therapy to dietary modification in feline IBD. Prednisone or prednisolone is used most frequently, as both have short durations of action, are cost-effective, and are widely available. Equipotent doses of dexamethasone are equally effective but may have more deleterious effects on brush border enzyme activity. Prednisone should be used for 2-4 weeks depending upon the severity of the clinical signs. Higher doses of prednisone (e.g., 2-4 mg/kg PO SID) may be needed to control severe forms of eosinophilic colitis or hypereosinophilic
syndrome in cats. Combination therapy with sulfasalazine, metronidazole, or azathioprine may reduce the overall dosage of prednisone needed to achieve remission of clinical signs. As with sulfasalazine, the dose of glucocorticoid may be reduced by 25% at 1-2 week intervals while hopefully maintaining remission with dietary modification. Because of steroid side effects and suppression of the hypothalamic-pituitary-adrenal axis, several alternative glucocorticoids have been developed that have excellent topical (i.e., mucosal) anti-inflammatory activity but are significantly metabolized during first pass hepatic metabolism. Budesonide has been used for many years as an inhaled medication for asthma, and an enteric-coated form of the drug is now available for treatment of IBD in humans (and animals). There is little evidence-based medicine in support of the use of this medication in canine or feline IBD, but doses of 1 mg/cat or 1 mg/dog per day have been used with some success in anecdotal cases.

8. Behavioral Modification
Inflammatory bowel disease and irritable bowel syndrome very likely have underlying behavioral components. Abnormal personality traits and potential environmental stress factors were identified in 38% of dogs in one study. Multiple factors were present in affected households, including travel, re-location, house construction, separation anxiety, submissive urination, noise sensitivity, and aggression. The role of behavior in the pathogenesis and therapy of canine and feline gastrointestinal disorders remains largely unexplored.