PEER REVIEWED ADVERTORIAL

Nutritional management of chronic enteropathies in cats



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Background:

Feline noninfectious, inflammatory chronic enteropathies (CE) can be treated using nutritional management, modulating bacterial populations in the gut, pharmacologic therapy to decrease inflammation, and environmental enrichment to decrease the role of stress.[1] The most important step in diagnosing a CE is eliminating the possibility of systemic disorders as well as ruling out several primary gastrointestinal diseases (e.g. infectious, neoplastic) that may not be dietary responsive.[2] Nearly half of cats with CE will respond to nutritional management alone, and that is the focus of this article.[3,4]

Nutritional Management of Feline Noninfectious Inflammatory CE

Limited ingredient, hydrolyzed, highly digestible, and modified fiber diets are used for management of CE in cats (Table 1).[5,a-c] Low-fat diets will not be covered here due to lack of evidence for their use in feline CE.[6,7] In a study of 8 cats with small intestinal IBD fed a hydrolyzed diet, clinical signs resolved in all cats within 4-8 days. Challenge with the original diet resulted in all cats relapsing, and with reintroduction of the hydrolyzed diet, clinical signs resolved again in 7 cats.[8] Another study demonstrated a 40-67% response rate in cats fed various highly digestible diets.[9] This is supported by another study using two different highly digestible diets and another using a hydrolyzed diet.[10,11] These data indicate that limited ingredient, hydrolyzed, as well as highly digestible diets have utility for treating feline CE with small bowel signs (Table 1). Individual studies with each of these diet types have shown good outcomes, and there are currently no comparative studies to identify the optimal approach. Therefore, when based solely on the criteria of diet type, there is no specific first line choice. Recent, informal polls of veterinarians specializing in gastroenterology, in the Comparative Gastroenterology Society, demonstrated a fairly even distribution of expert opinion on the best strategy. Therefore, for the clinician in practice, considering holistic nutrition goals and examining other aspects of the diet nutrient profile (e.g. caloric content, macronutrient content, etc.) may assist in choosing specific diets and strategies for the individual patient.

If signs of colitis predominate, there is some evidence for utilizing either a highly digestible, limited ingredient, or a modified fiber diet (Table 1). In an early study of 12 cats treated with either diet alone or diet in addition to ancillary medications, complete resolution was observed in 7 of the cats, all of which were managed long-term on diet alone. Another 3 cats exhibited a partial response to dietary management. The most common diet type utilized in the study was modified fiber.[12] A smaller case series that preceded that study demonstrated a response in 6 cats to a home-cooked lamb and rice diet. One cat in this study was initially concurrently managed with anti-inflammatory medications, but ultimately diet alone was sufficient.[13]

Indirect evidence shows that a true immunologic food allergy may occur in one-third of cats with CE. Food allergy cats often display a wide variety of clinical signs; however, vomiting and small bowel diarrhea with concurrent dermatologic signs should increase the clinician's suspicion.[14] If a food allergy is suspected, limited ingredient or hydrolyzed diets based on a complete diet history should be fed to avoid potential previous exposure as well as the most common allergens in cats (e.g beef, dairy products, fish) (Table 1).[15,16,17] Additionally, diet trials longer than 2 weeks are required in true food allergy cases. In food allergy cases, diet trials of at least 8-12 weeks are required for diagnosis.[16]

Clinical Summary

Feline CE can be effectively managed with diet, which offers many advantages over other therapies and should be a focus during treatment planning. A variety of options exist, and patient factors and clinical signs may guide empirical dietary management choices made by the clinician. The optimal approach between these diet types in cats is unknown, and it may be beneficial to attempt multiple diet trials utilizing different diet types (easily digestible, hydrolyzed, limited ingredient, and modified fiber diets) if initial attempts with one specific diet type fail.



Footnotes:

[a] Dethioux F, Marniquet P, Petit P, et al. Importance of proteins together with soluble and insoluble fibers on a cat's digestive tolerance. In: Preventative Nutrition for Major Health Risks in Cats. Royal Canin Focus, 2005;37-50.

[b] Davenport DJ, Leib MS, Roth L. Progression of lymphocytic plasmacytic enteritis to lymphosarcoma in three cats, in Proceedings. Seventh Annual Conference, Veterinary Cancer Society. Madison, Wisconsin 1987; (Suppl.).

[c] Hannah SS, LaFlamme DP, Marks SL. Hydrolyzed proteins in diets for the management of food hypersensitivity or inflammatory bowel disease, in Proceedings. World Small Animal Veterinary Association/Federation European Companion Animal Veterinary Association World Congress. Amsterdam, Netherlands 2000;517.

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TABLE 1: UNDERSTANDING TYPES OF GASTROINTESTINAL DIETS

DIET TYPE	KEY POINTS	DIETARY CONCEPT	EXAMPLE DIETS	REFERENCES
Hydrolyzed	These diets have undergone processing to alter macronutrient structure to reduce its antigenic potential.	*Typically made with a single protein source. *Processing is not perfect. If food allergy is suspected consider hydrolyzed protein source. *These diets are often highly digestible. *Side effects associated with hydrolyzed diets (e.g. osmotic diarrhea) have not been studied in cats.	*BLUE Natural Veterinary Diet HF Hydrolyzed *Royal Canin Veterinary Care Nutrition Hydrolyzed Protein HP. *Hill's Prescription Diet Food Sensitivities z/d *Purina Pro Plan Veterinary Diets HA Hydrolyzed	1. Cave NJ. Hydrolyzed protein diets for dogs and cats. *Vet Clin North Am Small Anim Pract* 2006;36:1251-1268, vi. 2. Clapper GM, Grieshop CM, Merchen NR, et al. Ileal and total tract nutrient digestibilities and fecal characteristics of dogs as affected by soybean protein inclusion in dry, extruded diets. *J Anim Sci* 2001;79:1523-1532. 3.
Limited Antigen	These diets provide limited protein and carbohydate source[s]. If there is no previous exposure to these ingredients, the diet is also considered a 'novel ingredient' diet.	*Variable macronutrient profiles in these diets allow for flexibility in combining nutritional goals. *Over the counter limited antigen/ingredient diets frequently contain additional ingredients which may act as antigens and are not listed in the ingredient list.	*BLUE Natural Veterinary Diet NP Novel Protein *Royal Canin Veterinary Care Nutrition Selected Protein PR/PV *Hill's Prescription Diet Food Sensitivities d/d	1. Raditic DM, Remillard RL, Tater KC. ELISA testing for common food antigens in four dry dog foods used in dietary elimination trials. *J Anim Physiol Anim Nutr* (Berl) 2011;95:90-97. 2. Willis-Mahn C, Remillard R, Tater K. ELISA testing for soy antigens in dry dog foods used in dietary elimination trials. *J Am Anim Hosp Assoc* 2014;50(6):383-389.
Highly Digestible	These diets are frequently reported to have over 90% digestiblity of major macronutrients.	*Digestibility varies between animals, as it is affected by mechanical, enzymatic, bacterial, and chemical digestion. *There is no set definition for 'highly digestible'. Each component of a highly digestible diet can be altered to affect digestibility, resulting in a lack of a consistent phenotype of a highly digestible diet. *Highly digestible diets tend to be more calorically dense than other dietary groups.	*BLUE Natural Veterinary Diet GI Gastrointestinal Support *Royal Canin Veterinary Care Nutrition Gastrointestinal *Hill's Prescription Diet Digestive Care i/d. *Purina Pro Plan Veterinary Diets EN Gastroenteric	1. Schunemann CM, A.; Junker, S.; Wilfarth, H.; Meyer, H. Praecaecale und postileale verdaulichkeit verschiedener starken sowie pH-werte und gehalte an organischen sauren in darmchumus and faeces. *Adv Anim Physiol Anim Nutr* 1989;19:44-57.
Modified Fiber	These diets have modified fiber content to improve clinical response through their solubility fermentability. Fiber is defined as complex, nondigestible carbohydrates of plant origin.	*Soluble fiber sources are typically more readily fermented, ultimately producing volatile fatty acids, which can benefit enterocytes and augment the microbiota. *Insoluble fiber sources are less fermentable and can contribute to gut motility and passage of gut contents in the gastrointestinal tract. *Total dietary fiber is a more useful descriptor of fiber content in a diet than crude fiber, as total dietary fiber includes both soluble and insoluble fiber. *Fiber can function as a prebiotic.	*Royal Canin Veterinary Care Nutrition Gastrointestinal Fiber Response *Hill's Prescription Diet Gastrointestinal Biome	1. de-Oliveira LD, Takakura FS, Kienzle E, et al. Fibre analysis and fibre digestibility in pet foods x– a comparison of total dietary fibre, neutral and acid detergent fibre and crude fibre. *J Anim Physiol Anim Nutr* (Berl) 2012;96:895-906. 2. Slavin J. Fiber and prebiotics: mechanisms and health benefits. *Nutrients* 2013;5:1417-1435.

*It is important to note that the nutrient profiles of diets frequently change and up-to-date profiles should be acquired every 6 to 12 months. Canned and dry varieties of the same diet, as well as diets that come in a variety of flavors, may have variable nutrient profiles and should not necessarily be used interchangeably.

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