

Health News # 11

From THE WINN FELINE FOUNDATION

Summaries by Betty White 3/06

Veterinary Practice News, January 2006, "Dietary Modification and Renal Failure."

Anthony Carr, DVM, discusses one of the most researched relationships in veterinary medicine -- dietary influences on renal disease. For decades, restricting dietary protein has been a cornerstone of treatment for this malady. Science has supported the efficacy of renal diets lower in protein with studies that show lower phosphate levels, urea, and PTH concentrations. Life spans more than doubled in these studies. A recent study in 2005 involving both conventional and renal diets indicated a survival time of seven months for cats on a conventional diet, while those fed renal diets lived for an additional sixteen months. Cats are natural carnivores, therefore their requirements for a higher protein diet should include careful monitoring to ensure that a renal diet of significant protein restriction does not lead to protein-calorie malnutrition.

As cats do not regularly drink large quantities of water and tend to have concentrated urine, it is desirable in some renal diseases to increase their intake of water. Many things have been tried, including salting the food. Researchers at the University of Liege in Belgium wanted to find out if changing feeding frequency and/or energy intake changed water intake. Cats in the study were fed either once, twice, or three times daily. They also received either a low-energy (71 kcal/kg body weight) or high-energy (91 kcal/kg body weight) diet. Water intake was increased in the cats fed three times daily; those fed more calories also drank more water. Both feeding more often and more calories will increase water intake, but feeding more calories may lead to increased body weight.

Veterinary Practice News, January 2006, "Antioxidants Plus Chemo Yield Synergy."

[N.B. For those readers who also read the report in the last "Health Committee News" about echinacea, this article widens the discussion to all antioxidants and poses a different view.] Kevin A. Hahn, DVM, PhD, adds his thoughts to the growing debate among both human and veterinary oncologists about the benefits of antioxidants in cancer treatment. The explosion of products available to those who use nutritional supplements in search of better health has led increasing numbers of pet owners to seek the same products either as alternatives to traditional cancer therapy or as complements to that treatment. Antioxidants prevent cell damage by reacting with and eliminating oxidizing free radicals. In cancer treatment, however, certain chemotherapeutic agents act to generate free radicals to cause cellular damage and death of malignant cells. This dichotomy obviously causes concern. Yet, there are animal studies that demonstrate decreased tumor size and increased longevity with the use of chemotherapy and antioxidants, just as there are studies in people indicating an increase in survival time

with chemotherapy in combination with the use of antioxidants, vitamins, trace elements, and fatty acids.

Many conventional veterinary practitioners are skeptical about antioxidant therapy for cancer. Others have argued that antioxidants could blunt the effect of standard therapies. The evidence, however, shows that this proposed interaction of anti- and pro-oxidant therapies is not generally of primary importance in the body. Studies in people have shown that antioxidants, with or without chemotherapy and radiation, have allowed patients to tolerate standard treatments better, experience less weight loss, enjoy a better quality of life, and live longer than patients receiving no supplements.

Dr. Hahn concludes that contrary to conventional wisdom, the effects of using antioxidants concurrent with chemotherapy and radiation are synergistic. He urges the veterinary profession to monitor the latest available research and to foster more investigation into the role of these agents in conventional cancer treatment.

Veterinary Practice News, December 2005, "Calicivirus, Stress, Environment Factors in FIC." Maureen Kochan, writing for *Veterinary Practice News*, questioned several researchers around the country about the causes and treatment of feline idiopathic cystitis (FIC). Progress is being made, but the cause of the syndrome remains inconclusive. A newly identified calicivirus, affecting only the urinary tract, differs from the more common respiratory calicivirus. This new viral strain is being studied at the Michigan State University College of Veterinary Medicine. Should there be a causal relationship between FCV and idiopathic cystitis, this relationship may lead to the development of more effective prevention and treatment strategies. This research has been supported by the Winn Feline Foundation.

Many feline specialists and practitioners alike believe that the development of cystitis may be an expression of stress in some cats. This approach to the disease requires painstaking examination by owners and their veterinarians of environmental factors such as lighting; litter box considerations (size, location, number, cleanliness); location and cleanliness of food/water bowls; toys, scratching posts, and hiding places. The interactions of the cat with other pets and family members must be assessed as well. Once these potential stress factors in the environment are addressed, medications are usually prescribed to treat potential underlying anxiety and the pain associated with FIC. Synthetic feline pheromones are another management choice to reduce anxiety. Increasing water intake is suggested in order to dilute noxious substances in the urine and to increase urination. This increased drinking is promoted by feeding more canned foods and introducing water fountains.

It is now possible to monitor the results of the measures taken to address recurrent FIC by using litters, or additives to litters, that indicate feline lower urinary tract disease (FLUTD). These products indicate a change in urine pH. Urine pH is but one consideration in diagnosis, however, and should only be a part of the management of a specific disorder and in conjunction with complete urinalysis. For instance, a low urine pH is desirable in a male cat with a history of urinary tract obstruction. On the other hand, a higher urine pH is desirable in feline patients with calcium oxalate urolithiasis.

The classic signs of FIC, including straining to urinate, painful urination, increased frequency of urination, or even urethral obstruction, are not specific to FIC, but may be seen with FLUTD as well. At a minimum, diagnostic evaluation should include

abdominal radiographs, urinalysis, and urine culture in order to rule out urinary crystals and urinary tract infection. Persistent and recurring disease may require further testing by ultrasound and urethrocytoscopy. Veterinary medicine continues to seek the causes of FIC, and the veterinarian's ally in this pursuit is the cat's owner. Jean M. Duddy, DVM, of Angell Animal Medical Center in Boston said, "There is no one new treatment for this disease, except for client education."

Veterinary Practice News, December 2005, "The Acupuncture Point Everyone Should Know." Narda Robinson, DVM, discusses the point "Jen Chung," or GV 26 in the practice of acupuncture. She also notes its routine use in animals suffering cardiac or respiratory arrest, once conventional procedures are underway, in the Critical Care Unit at the Colorado State University Veterinary Medical Center. Dr. Robinson outlines the method used: A 25 g hypodermic needle is inserted deep into a point ventral to the nasal planum until it reaches the underlying bone or cartilage. Vigorous needle manipulation follows, usually with a pecking motion. (GV 26 in humans lies one-third the distance from the nose to the upper lip. Veterinarians have transposed this point in dogs and cats to the intersection of the planum and philtrum of the upper lip.) Research affirming the effectiveness of GV 26 in treating cardiovascular depression began appearing in English-language veterinary literature in the 1970s. A report on the successful use of GV 26 for the resuscitation of neonatal kittens delivered by Cesarean section appeared recently in a veterinary journal. This use of acupuncture followed unproductive cardiopulmonary resuscitation attempts.

GV 26 is not always successful. Variables include the species being treated, drugs administered, level of anesthesia – or simply different results in different animals. This confusion caused by disparate results after needling the same site has been somewhat reconciled by the recognition that acupuncture can influence neural function in a bi-directional, rather than unidirectional manner.

Human Molecular Genetics, 2005, Vol. 14, No. 23, "A Cardiac Myosin Binding Protein C Mutation in the Maine Coon Cat with Familial Hypertrophic Cardiomyopathy." This important research study was conducted by Kathryn M. Meurs, Ohio State University; Ximena Sanchez, Ryan M. David, Neil E. Bowles, Jeffrey A. Towbin, Baylor College of Medicine; Peter J. Reiser, Keith Dryburgh, Ohio State University; Judith A. Kittleson, Marcia J. Munro, Kristin A. MacDonald, and Mark Kittleson, University of California, Davis. Hypertrophic cardiomyopathy (HCM) is one of the most common causes of sudden cardiac death in young human adults; it is a familial disease in at least 60% of all cases. Mutations in several sarcomeric genes (genes associated with the repeating structural units of striated muscle fibrils) have been identified as the cause of this disease. One of these genes is the myosin binding protein C (*MYBPC3*) gene. While various mutations have been identified, the disease process is still poorly understood. An animal model of familial HCM in the cat has been identified. The *MYBPC3* gene was chosen as a candidate gene in the Maine Coon after identifying a reduction in the protein in myocardium from affected cats in comparison to healthy cats. DNA sequencing was performed and sequence alterations were investigated for evidence that they changed the amino acid produced, so that the protein structure was altered. The

authors identified a single base pair change (G to C) in the feline *MYBPC3* gene in affected cats. The change alters the protein conformation of this gene product and results in sarcomeric disorganization. The authors identified a causative mutation in the feline *HYBPC3* gene that results in the development of familial HCM. This is the first report of a spontaneous mutation causing HCM in a non-human species. This research has been supported by The Winn Feline Foundation.

Compendium on Continuing Education, October 2005, "Gastrointestinal Lymphoma in Cats." Sandra Grover, DVM, discusses the most commonly diagnosed neoplasm in cats, lymphoma, and specifically the most common form in the body, gastrointestinal (GI) lymphoma. Both FIV and FeLV infections are implicated in many cases, although most cats with GI lymphoma test negative for FeLV. Signs of GI lymphoma may include weight loss and decreased appetite, vomiting, and diarrhea. Less common signs include lethargy, weakness, excessive or abnormal thirst, excessive urine excretion, pica, and abdominal swelling. Ultrasound of the abdomen is a strong diagnostic tool, but a biopsy provides the definitive diagnosis. Small cell GI lymphoma has a much better prognosis than large cell lymphoma, and the small cell type responds well to the relatively non-aggressive chemotherapy combination of oral chlorambucil and prednisolone.

Because lymphoma is a systemic disease in cats, chemotherapy is the treatment of choice. Surgery is indicated in treating GI lymphoma when partial or complete intestinal obstruction or intestinal perforation is present. This is followed by chemotherapy after resection of the focal GI mass, although it is recommended that this therapy be delayed for 10-14 days to facilitate wound healing. Supportive care is important in treating GI lymphoma, particularly the use of oral appetite stimulants. Also, oral medications should be given to control nausea and vomiting.

The prognosis for cats with GI lymphoma is not well defined. However, in most studies the most significant prognostic indicator was initial response to chemotherapy. Cats that initially achieved remission with chemotherapy generally survived longer than those that did not. The immunophenotype (B versus T cell) of tumor cells does not correlate with response to therapy or survival in cats, nor does the measurement of tumor cell proliferation.

Journal of the American Animal Hospital Association, July/August 2005, "Nutritional Myths." With a tremendous amount of information about pet nutrition available on-line and elsewhere, breeders and owners should be especially cautious in evaluating that wealth of information. Ann Wortinger, LVT, VTS (ECC), discusses the three common nutritional myths that have been widely reported in the popular press.

1. The leading myth is that meat by-products are inferior in quality to whole meat. Meat by-products are defined as non-rendered, clean parts of the carcass and may contain lungs, spleen, kidneys, brain, liver, blood, bone, head, feet (of poultry), partially defatted fatty tissue, and stomach and intestines emptied of their contents. Meat by-products do not contain hair, horns, teeth, or hooves. There is a good deal of variation in the amount of non-digestible material in pet food, depending upon the supplier and the manufacturer. Ash content is the key. It is not the presence of meat by-products that indicates a poor quality diet, but the higher ash-to-protein ratio in the food. It is

important to examine the results of feeding trials that are available in most product reference guides, in on-line references, and from the manufacturer.

2. Another widely circulated myth is that feeding trials are unnecessary. Feeding trial protocols have been established by the Association of American Feed Control Officials (AAFCO) for adult maintenance, and the trials are of six-month duration. One of the parameters monitored is the daily level of ingestion of a nutrient that is adequate to meet known nutritional needs of most healthy individuals, as defined by the National Research Council (NRC). While these recommendations serve as a guide to formulating diets, they do not measure digestibility or nutrient availability. Feeding trials meeting AAFCO guidelines give assurance that the proper nutrients are available in a formula acceptable to the palate. Only a feeding trial can accurately assess the quality of the protein in a diet, because the trial will determine digestibility of a protein in the animals' bodies. Trials are conducted only with healthy dogs and cats, and the control group of animals is identical in breed and gender. Additional information is recorded for breeding animals as well. All reliable manufacturers of pet food conduct feeding trials, and this can be verified by checking the product label to find the seal of AAFCO certification.

3. The third common nutritional myth is that pet food preservatives are bad. Preservatives are any substance able to inhibit or retard the growth of microorganisms, or capable of masking the evidence of such deterioration. The main nutrient requiring this protection during storage is dietary fat. The Food and Drug Administration (FDA) defines an antioxidant as any substance that aids in the preservation of foods by retarding deterioration, rancidity, or discoloration as the result of the oxidation process. Antioxidants, therefore, are included in foods to prevent/retard fat oxidation. To be fully effective, these antioxidants must be included in the food when it is initially mixed and processed. Antioxidants themselves can be divided into two types: nature-derived products and synthetic products. Products derived from nature are found in certain grains, vegetable oils, and in some herbs and spices. Of the synthetic antioxidants used in foods for animals, all except ethoxyquin are approved by the FDA for use in human food in the United States. Owners concerned about synthetic antioxidants should realize that most canned foods do not contain antioxidants and that many commercially prepared dry foods use nature-derived antioxidants. However, no studies have been published that support the contention that synthetic antioxidants, particularly ethoxyquin, are responsible for the variety of health problems reported by owners to the FDA. The fact is that synthetic antioxidants are more effective than natural antioxidants, and they better withstand the heat, pressure, and moisture applied during food processing. They are superior in preserving the fat-soluble vitamins A, D, and E, and they are more efficient, and lower in cost. Nature-derived antioxidants are unstable and require high levels for effective protection.