



THE WINN FELINE FOUNDATION

For the Health and Well-Being of All Cats

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HEALTH NEWS #6

Summaries by Betty White 1/05

Journal of Veterinary Internal Medicine 2004; 18:257-258, "Editorial: DNA Testing for Inherited Diseases In Animals." Biochemical methods for detection of genetic diseases have been reasonably successful in identifying animals with certain recessive traits. The problem with this type of diagnostic test is that there are other sources of variation in results, both genetic and non-genetic. Animals with results that overlap may be both carriers of the disease and normal.

While new mutations that may cause disease do arise from time to time, they are rare in animal breeding. Once a DNA test is available, it is possible that evidence of a new mutation, in the same gene or in a different one, could surface. The majority of single-locus inherited diseases in animals are caused by a single mutation in a gene, although occasionally multiple mutations have been identified in the same gene. This latter situation, however, is generally seen in different breeds of the same species. The common practice in animal breeding of concentrating on particular ancestors, i.e. line breeding, can lead to high frequencies of a disease gene from a single animal. Most animals have at least one harmful gene that is passed on to approximately half its offspring. Inbreeding among the descendants of a single animal increases the possibility of a recessive disease emerging, a disease which can often be traced back to that common ancestor. At present, the number of disorders/traits for which the causative mutation has been identified is 126, across 13 animal species. (There are 38 such disorders/traits for the dog, 36 for disease and 2 for coat color.)

DNA tests can be either direct or indirect, the former being the most accurate. A direct marker is identified by comparing the sequence of candidate gene(s) between normal and affected animals; this marker can identify the mutation responsible for causing the disease. The mutation is then used as the basis for a direct DNA test. Indirect markers are identified through linkage to the disease in question in a family of affected and non-affected individuals. Either a genome screen or selected markers close to a likely gene(s) will identify linked markers. If one or more of these markers are linked to the disease, they can be used as an indirect DNA test. More research is needed to progress from an indirect DNA test to a direct DNA test, and the difficulty involved depends upon the location of the causative gene(s).

Management of genetic diseases once a DNA test is in place can vary. It can range from voluntary testing to compulsory testing of all animals, a decision usually made and managed by the relevant breed organizations. **DNA testing can play a major role in the control and eradication of some devastating conditions. It takes only a few generations to reduce the frequency of mutant alleles in the population. Another great advantage of DNA testing is that carrier animals can still be used in breeding programs to maintain desirable bloodlines.** As DNA testing will identify all normal offspring, it is possible to avoid the loss of favorable alleles in the population.

Single-gene recessive diseases in animals are relatively common, and are both economically and ethically important. Some of them can now be controlled by a simple, cost-effective DNA test.

Journal of Feline Medicine & Surgery 2004; Aug; 6(4): 219-25, “Oral Glucosamine and the Management of Feline Idiopathic Cystitis.” Researchers D.A. Gunn-Moore and C.M. Shenoy of the University of Edinburgh Small Animal Hospital, Royal School for Veterinary Studies, Scotland, compared oral glucosamine to a placebo for the management of cats with feline idiopathic cystitis (FIC) in a random, double blind (neither the researchers nor owners knew which group was which), placebo-controlled, study. Two groups of twenty cats each with a history of recurrent FIC were studied, one group was given a placebo and the other was given 125 mg N-acetyl glucosamine daily for six months. Owners kept daily diaries documenting signs of cystitis using visual analogue scales and graded their cats’ clinical signs at the beginning and end of the study. Both groups experienced episodes of cystitis during the study. There were no significant differences between the two groups when considering the owners’ evaluations of overall health of their cats or the average number of days the cats showed clinical signs of cystitis. Two cats in the placebo group had to be euthanized due to severe urethral obstruction. The majority of cats in both groups improved significantly during the course of the study. The researchers believe that this is due to the fact that 36 of the 40 owners (90%) started feeding more canned cat food. The urine specific gravity at the start of the trial was significantly higher than when reassessed one month later.

News Release, Kansas State University, October 1, 2004, “Tick Control Research Can’t Keep Up With Increased Tick Populations.” This news bulletin, prepared by Abby McCullough, discusses research by Kansas State University’s Dr. Michael Dryden, Professor of Veterinary Parasitology. “The tick population has increased significantly due to climatic changes, agriculture practices and wildlife management,” said Dryden. Pet owners’ knowledge of tick control needs to change as well. Dr. Dryden’s research involves testing and comparing the major tick control products to see which of these products work for the various types of ticks. Tick control research is lagging mainly because it has not historically been a serious issue. This is not so today, primarily because the increase in tick populations coincides with an increased recognition of tick-transmitted diseases that elevates concern. No tick product is 100% effective; there are 8 major tick species on dogs and cats, many of which have different hosts, life cycles and physiology. Typically, ticks engorge and drop from animals with 7 to 14 days. If more ticks are noted on an animal two weeks after the first treatment, then these ticks are not likely the same species treated initially. One species, the lone star tick found on 90% of dogs and cats in eastern Kansas, is considered a nuisance parasite. However, it is a vector of human monocytic ehrlichiosis and can transmit *Borrelia lonstari*, a type of bacteria. Human monocytic ehrlichiosis causes fever, fatigue, muscle aches, nausea, diarrhea, and weight loss. Untreated, this malady can result in kidney failure and respiratory failure. *Borrelia lonstari* causes a Lyme disease-like infection called southern tick-associated rash illness. To decrease habitats for tick host animals, grass, weeds and brush piles between fences, property lines and buildings should be cut and cleared. It may be that combining tick control products or increasing frequency of application may be measures needed to control ticks. However, research needs to be conducted on the safety and efficacy of such approaches.

Canadian Veterinary Journal, 2002; 43(1): 33-37, "Feline Mammary Adenocarcinoma: Tumor Size as a Prognostic Indicator." This study by Jodi R. Viste, Sherry L. Myers, Baljit Singh, and Elemir Simko examines the median survival periods for cats with different sizes of mammary tumors. While the survival period following removal surgery is inversely proportional to tumor size, the reported survival periods has been shown to be quite variable. This variability diminishes the prognostic value of reported data. In this study, the researchers found that cats with mammary carcinomas and adenocarcinomas (MACs) greater than 3 cm in diameter had a 12-month median survival period, while cats with MACs less than 3 cm in diameter had a 21-month survival period. The range of survival times for those cats with MACs less than 3 cm was from 3 to 54 months, indicating that tumor size alone is of limited prognostic value. However, this study, as well as others, found that cats with MACs larger than 3 cm in diameter have a poor prognosis with median survival periods ranging from 4 to 12 months. Tumor size, in this case, is relevant to prognosis.

Journal of Feline Medicine & Surgery, 2004; June; 6(3):133-8, "A Pilot Study Using Synthetic Feline Facial Pheromone for the Management of Feline Idiopathic Cystitis." D.A. Gunn-Moore and M.E. Cameron of the Royal School for Veterinary Studies, University of Edinburgh Hospital for Small Animals, Scotland, assessed a synthetic feline facial pheromone (FFP), brand name Feliway®, for the management of cats with recurrent feline idiopathic cystitis. There were 12 cats initially in the random, double blind, placebo-controlled, crossover study, with 9 completing it. The cats' environments were treated daily with either FFP or a placebo for 2 months. The treatment groups were then reversed. Owners evaluated the severity of their cat's clinical signs and behavioral changes with the use of visual analogue scales. There was no real statistical difference between the two treatment groups. However, a trend was noted for the cats exposed to FFP to show fewer days with clinical signs of cystitis.

Theriogenology, 2004; Sept.15; 62(6): 1116-30. "GnRH Immunocontraception of Male Cats." This study again addresses the problem of non-surgical contraceptives, this time in the male cat. J.K. Levy, L.A. Miller, P. Cynda Crawford, J.W. Ritchey, M.K. Ross, and K.A. Fagerstone of the College of Veterinary Medicine, University of Florida at Gainesville, investigated the utility of GnRH (gonadotropin releasing hormone) for its ability to control reproduction in male cats. GnRH is a key hormone that controls reproduction in both males and females. Twelve male cats were divided into groups of 3, one of which received no GnRH. The other three groups received three different doses of GnRH formulated as a vaccine. Serum testosterone concentration, GnRH antibody titer, and scrotal size were determined monthly. Semen was collected from all cats at six months and testicular tissue examined. All cats receiving GnRH produced antibodies continuously throughout the study, and the amount of the dose did not affect the titers. Six of the nine treated cats were classified as responding to treatment. These responders had undetectable testosterone concentrations and testicular atrophy at three months. Those cats not responding had testosterone concentrations intermediate between responder cats and placebo cats. Only one of the six responder cats produced sperm, none of which were motile. GnRH treatment with a single dose resulted in testosterone concentrations and semen quality consistent with castration in a majority of cats treated.

Journal of Veterinary Internal Medicine, 2004; Jul-Aug; 18(4): 477-82, “Therapeutic Effects of Recombinant Feline Interferon-Omega on Feline Leukemia Virus (FeLV)-Infected and FeLV/Feline Immunodeficiency Virus (FIV)-Coinfected Symptomatic Cats.” K. de Mari, A. Sanquer, B. Lebreux, and H.M. Eun of Virbac SA, France conducted a clinical trial to determine the efficacy of a recombinant feline interferon, rFeIFN-omega, in the treatment of cats co-infected with FeLV and FIV. Virbac is the manufacturer of a commercial recombinant feline interferon product called Virbagen® Omega. This was a multi-centric, double blind, placebo-controlled trial of 81 cats meeting the inclusion criteria. Randomly placed in groups, the cats were injected subcutaneously with rFeIFN-omega or a placebo once daily for 5 consecutive days in 3 series (day 0, 14, 60). All cats were evaluated for up to 1 year for clinical signs and mortality. During the first 4-month period, interferon-treated cats (39) had significantly reduced signs of clinical disease compared with the placebo cats (42). All cats were given supportive therapy during this period. The IFN-treated cats showed significantly lower rates of mortality both at the 9-month point and the 12-month point compared with the control group. The interferon treatment produced minor but consistent improvement in red blood cell count, packed cell volume, and white blood cell count. This trial would indicate that rFeIFN-omega has statistically significant therapeutic effects on the clinical signs of FeLV infection and FeLV/FIV co-infection at the initial stage of treatment and later on will increase survival.

News Release, Kansas State University, November 5, 2004, “Pet Pain Best Solved Through Pet Specific Medication.” Speaking for veterinarian Dr. William Fortney, Assistant Professor of veterinary medicine at Kansas State University, Amber Haag poses the question, “If your pet is whining a lot or having trouble getting comfortable to lie down, it is probably obvious to you that your pet is experiencing pain. However, if your pet had dilated pupils would you even notice?” Dr. Fortney does not think most owners would notice because this is one of a number of behaviors that they would not associate with pain. Pain-related behaviors in older pets are often attributed to age when they are actually often caused by a treatable condition. The most common behaviors associated with pain include dilated pupils, rapid/shallow breathing, hiding, anorexia, weight loss, lack of grooming, growling, twitching tail, crouching posture, whining, inability to get comfortable lying down, biting, and lack of interaction with the owner. Since pets cannot tell us where they hurt and pain is not a disease but a symptom, it is important for owners to be alert to behaviors that might be pain-induced. It is also important to remember that human medications can have dire results in animals. Dr. Fortney stresses that pets need professional evaluation and properly prescribed pet medication. Recognizing pain earlier rather than later can prolong a pet’s life through diagnosis of a treatable condition.