



THE WINN FELINE FOUNDATION

For the Health and Well-Being of All Cats

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HEALTH NEWS #9

Summaries by Betty White 9/05

Veterinary Practice News, May 2005, "Life Insurance for the Pet with Cancer." Kevin Hahn, DVM, equates chemotherapy with life insurance as an additional measure to prevent or delay cancer's return after surgery. He asserts that this additional treatment has been very successful in changing the prognosis of some canine cancers and feline breast cancer. In explaining the efficacy – or lack of it – of chemotherapy, it is necessary to understand the properties of cancer cells. They are minute in size, best understood by realizing that a lump the diameter of 1 centimeter (about half an inch) will be made up of about 1 billion cancer cells. When the claim is made after surgery, "We got it all," it is important first to remember that these very, very small cells may be hiding out of the surgeon's sight. It is perhaps more accurate to say, "We got all that we could see." Secondly, negative tests are often subject to the same reservation. The tests indicate that no detectable cancer is present.

This does not mean that cancers are never cured with surgery or radiation, or that every cancer has tiny deposits lurking out of sight just waiting for a chance to return. It simply means that some pets may have cells hiding out of sight, and for those pets additional chemotherapy is indicated. Every pet is different, and the size of the tumor does not necessarily indicate whether the cancer cells have migrated, or metastasized. Some individuals have cancers that never metastasize; others have cancers that develop the ability to migrate early in their growth.

The small size of cancer cells also militates against being able to tell quickly and easily if chemotherapy is working. At the end of treatment, a negative test does not necessarily mean the absence of cancer cells. However, a positive test does bring up the question, "What next?" Chemotherapy requires the best possible drugs to do the job, the "A" team. If these have failed to work, it is fair to assume that the cancer cells will be resistant to the "B" team of drugs. Treatment at this point should be designed to help the pet feel better, and chemotherapy with its side effects may only make the pet feel worse.

Chemotherapy comes with no guarantees. However, when the length of treatment with its side effects is balanced with the possible benefits, the benefits usually outweigh the risks.

DVM Newsmagazine, May 2005, "NCSU Veterinarian Uses Osseointegration to Rebuild Limbs." Jessica Tremayne, Associate Editor, discusses a procedure at North Carolina State University that employed osseointegration for the first time in repairing limbs on a 1-year-old cat born without the lower half of its tibias. Osseointegration incorporates prosthesis with bone, eventually forming one unit as the bone integrates with the metal implant. The living tissue and prosthesis meld in approximately four to six weeks.

This \$35,000 project was a joint effort of veterinarians, undergraduate students, and researchers at the NC State College of Engineering. Dr. Denis Marcellin-Little, associate professor of orthopedics at the university and a specialist in total hip replacement, external fixation, treatment of bone deformities and physical therapy, was the surgeon for the cat. He stated that much of the cost went into engineering and design of the prosthesis. Once the procedure becomes more common, Dr. Marcellin-Little expects the surgery to cost in the \$2000-\$3000 range, comparable to a total hip replacement. A foot is to be added to the prosthesis after the bone and implant have stabilized. Since the cat will have to learn to walk on three legs once the foot has become functional, a difficult feat itself, only one leg was attached.

The procedure was planned for months, and the idea derived from wanting to improve quality of life. The cat lacked a way to balance his weight for the lower half of his body, and, without the surgery, he would have eventually developed problems with his hips. Dr. Marcellin-Little said, "This could have a significant impact in the animal world and in humans. There are very few people who have undergone the procedure, and all were overseas." He likened the procedure to the way an artificial tooth is anchored into the jaw.

The cat returned home the day after the surgery, and will begin physical therapy after the wound and bone graft have had time to heal and become stronger. Gait training will commence once the foot has been added and new radiographs have been examined.

Journal of the American Veterinary Medical Association, May 1, 2005, "Accuracy of Polymerase Chain Reaction Assays for Diagnosis of Feline Immunodeficiency Virus Infection in Cats." P. Cynda Crawford, DVM, PhD, Margaret R. Slater, DVM, PhD, and Julie K. Levy, DVM, PhD, DACVIM had as their objective to determine the sensitivity, specificity, and overall diagnostic accuracy of polymerase chain reaction (PCR) assays offered by commercial diagnostic laboratories for the diagnosis of FIV infection in cats. Blood was collected from 124 cats. One group of cats were neither infected with nor vaccinated against FIV; another group were uninfected cats that were vaccinated with a licensed FIV vaccine; the last group of cats were experimentally and naturally infected with FIV. These samples were sent to 3 laboratories in the United States and Canada offering PCR assays for diagnosis of FIV infection to veterinary practitioners. The FIV infection status in all cats was confirmed by virus isolation. Sensitivity, specificity, and correct results were calculated for each PCR assay.

Sensitivity ranged from 41% to 93%. The specificity in unvaccinated cats ranged from 81% to 100%; specificity in vaccinated cats ranged from 44% to 95%. Of the 124 cats tested, correct results were obtained for 58% to 90%. All tests misidentified both uninfected and infected cats. Since false-positive results by all the laboratories were higher in cats vaccinated against FIV than in unvaccinated cats, it would appear that vaccination interferes with the performance or interpretation of PCR assays used for diagnosis of FIV infection.

The diagnostic accuracy dilemma resulting from vaccination of cats against FIV has not been resolved and remains a critical problem.

JOURNAL of the American Animal Hospital Association, March/April, 2005, "Evaluation of Extended Release Diltiazem Once Daily for Cats with Hypertrophic Cardiomyopathy." Hypertrophic cardiomyopathy (HCM) is a common disease of cats. Researchers M. Wall, DVM, Dipl. ACVIM, C. A. Calvert, DVM, Dipl. ACVIM, S. L. Sanderson, DVM, PhD, Dipl. ACVIM, Dipl. ACVN, A. Leonhardt, BS, LVT, C. Barker, DVM, Dipl. ACVIM, and T. K. Fallaw, BS, all of the College of Veterinary Medicine at the University of Georgia, evaluated serum diltiazem concentrations of an extended release form of diltiazem in hopes of resolving the non-compliance problems with the conventional dosage of diltiazem in 30-mg tablet form. This most frequently prescribed dosage requires that a quarter tablet be given every eight hours, and many owners find this schedule difficult to maintain. Researchers also studied and determined the incidence of adverse effects associated with a 60-mg dose of diltiazem administered once daily.

Unfortunately, the results of this study indicated that serum concentrations produced by the drug were erratic and excessively high with both a 60-mg and 30-mg dose, no matter the weight of the cat. Adverse side effects of lethargy, decreased appetite, vomiting, and diarrhea were common. These did resolve quickly, however, once the drug was discontinued. While it may prove helpful to investigate the twice-daily dosage of 30-mg diltiazem, this study suggests that excessive serum concentrations are likely.

Journal of the American Veterinary Medical Association (JAVMA), March 15, 2005, "Red Blood Cell Transfusions in Cats: 126 cases (1999)." The objective of this study was to determine the number of and reasons for red blood cell transfusions, the incidence of acute transfusion reactions, the prevalence of blood types, the volume of blood administered, the change in packed cell volume (PCV), and the clinical outcome in treated cats. Researchers were D. A. Klaser, DVM, N. J. Reine, DVM, DACVIM, and A. E. Hohenhaus, DVM, DACVIM, from the Bobst Hospital and the Jaqua Transfusion Medicine Service, The Animal Medical Center, New York, NY. In this retrospective study, medical records of 126 cats that received red blood cell transfusions were studied. Ninety-four percent of cats had blood type A. Blood loss caused anemia in 52% of the cats, 10% had anemia attributed to the breakdown of red blood cells (hemolysis), and 38% had anemia caused by the lack of production of red blood cells (erythropoietic failure). Acute transfusion reactions occurred in 11 cats. Sixty percent of the cats survived until discharge.

In cats suffering from all causes of anemia, the red blood cell transfusions resulted in an increase in PCV. While the rate of death was greater in those cats receiving transfusions, the seriousness of the underlying disease in the two groups may not be comparable. Nor was the death rate of cats receiving transfusions caused by a high rate of transfusion reactions. **The study results confirm that pre-transfusion blood typing or cross-matching is required to minimize the risk of adverse reactions in cats.**

Veterinary Immunology and Immunopathology, May 1, 2005, "Measurement of Serum Immunoglobulin E (IgE) Specific for House Dust Mite Antigens in Normal Cats and Cats with Allergic Skin Disease." The purpose of this study was to determine whether there is a specific correlation between house dust mites and feline allergic skin disease. Researchers were K. Taglinger, C. R. Helps, M. J. Day, and A. P. Foster, of the School of Clinical Veterinary Science, University of Bristol, U.K. Serum samples were obtained from 59 cats with allergic skin disease and 54 clinically normal cats. Cats with symptoms of feline allergic skin disease were grouped according to differing symptoms into five groups; the control normal cats comprised the final group (group 6). Although the test was able to detect house dust mite-specific feline IgE, the presence of this allergen-specific IgE correlated poorly with the presence of clinical manifestations of allergic skin disease. The results of this study question the clinical relevance of house dust mites in feline allergic skin disease.

Journal of Feline Medicine & Surgery, April, 2005, "Epidemiologic Evaluation of Multiple Respiratory Pathogens in Cats in Animal Shelters." Upper respiratory tract infection (URI) pathogens reproduce at will within cats in shelters and often cause the euthanasia of affected cats. M. J. Bannasch and J. E. Foley of Maddie's Shelter Medicine Program, Center for Companion Animal Health, UC Davis, California, report on a case-control evaluation of 573 cats in eight shelters in California in 2001 and 2002. They found the prevalence of feline calicivirus (FCV) to be from 13%-36%, feline herpesvirus (FHV) to be from 3%-38%, and *Bordetella bronchiseptica*, *Chlamydomphila felis* (*C. felis*), and *Mycoplasma* species to be from 2%-14%. Cats with URI were often housed in isolation, were dehydrated, and were younger in age than cats without URI, and they were also infected with FHV, *Mycoplasma* species, FCV, or *C. felis*. While shelters differed in the prevalence of specific pathogens, many cats appeared positive for infection after only approximately one week of sheltering. Antitherpetic and antimycoplasmal drugs may be beneficial for individual cat care. These results document the usefulness to shelters of comprehensive URI surveillance and management of numbers of felines (herd medicine) for typical specific pathogens. [*Editor's Note: This would also be true in cattery situations where URI presents a problem.*]

Investigative Ophthalmology and Visual Science, May, 2005, "Early-Onset, Autosomal Recessive, Progressive Retinal Atrophy in Persian Cats." H. Rah, D. J. Maggs, T. N. Blankenship, K. Narfstrom, and L. A. Lyons characterized this early-onset retinal degenerative disease genetically, clinically, and histologically. A breeding colony was established to aid in identifying the causative gene and to provide a resource for vision research. Test breedings confirmed an autosomal recessive mode of inheritance. Early clinical signs of reduced pupillary light reflexes were seen at 2-3 weeks of age, with retinal degeneration complete by 16 weeks of age. This study indicated that this autosomal recessive, early-onset, retinal degenerative disease in Persian cats is likely to be more prevalent than previously suspected.

This feline disease model may identify a new gene or provide biological insight into some forms of early-onset retinal disease in humans and heritable retinal degenerations in other species.

JAVMA, April 1, 2005, "The Role of Glucosamine and Chondroitin Sulfate in Treatment for and Prevention of Osteoarthritis in Animals." Many animals, including cats, as well as human beings, suffer joint disease, particularly osteoarthritis. Clinical trials in humans of glucosamine and chondroitin sulfate have been encouraging, although ongoing trials in veterinary patients have been limited. *In vitro* veterinary studies have been most promising, and K. M. Neil, BVSc, J. P. Caron, DVM, MVSc, DACVS, and M. W. Orth, PhD, discuss the most up-to-date information regarding the mechanism of action, how the products work in the body, clinical efficacy, and safety of glucosamine and chondroitin sulfate.

Trauma may precipitate osteoarthritis in the previously normal joints in veterinary patients. Age and genetics, of course, are also factors. Although all the tissues in the joint are damaged by the disease, the hallmark of osteoarthritis is the progressive and permanent degeneration of joint cartilage. While lameness and general debilitation can be observed, a patient's joints are further evaluated by the use of radiographs. Human trials involving glucosamine and chondroitin sulfate suggest that the combination appears to be of most benefit in patients with radiographically mild to moderate osteoarthritis.

Safety issues are discussed. Oral administration of glucosamine hydrochloride, low-molecular-weight chondroitin sulfate, and manganese ascorbate at doses exceeding the recommended daily dose in cats has a good safety profile, with adverse effects limited to gastrointestinal upset. No clinically important alterations in blood indices are apparent, and clotting profiles are unaltered in cats. Nonetheless, because of the structural similarity of these compounds to heparin, the concurrent use of these products with other platelet inhibitors, such as phenylbutazone or aspirin, is cautioned.

Since nutraceuticals are classified as dietary supplements by the FDA and, as such, are not subject to strict regulation, commercially available products vary widely in terms of purity. One study suggests that liquid formulations are absorbed better than capsules, but direct comparison of the efficacy of differing products is lacking. Another problem is the veracity of label claims. The results of one study indicate that 84% of human over-the-counter products do not meet their label claim. Veterinary nutraceuticals mirror this widely varying difference between "guaranteed analysis" and product content. Four studies indicate that only a small number of products consistently meet label claims. Despite these issues, glucosamine and chondroitin sulfate products continue to gain favor with the populace.

In vitro studies in several species have established that the use of glucosamine and chondroitin sulfate either alone or in combination produces beneficial effects. These compounds have the potential to provide both protection of joint cartilage and the relief of clinical signs of osteoarthritis. The extrapolation of human results suggests that most of the benefits will be obtained by patients with mild to moderate disease. As use of the compounds becomes more widespread, further studies will be needed to increase understanding of the mechanism of action and how it works in the body.