Risk Factors for Feline UTI

A veterinary teaching hospital's medical records from 1996 through 2003 were reviewed for prevalence of urinary tract infections (UTIs) in cats with 3 common diseases: hyperthyroidism, diabetes mellitus (DM), and chronic kidney disease (CKD). The study included 224 cats: 90 with hyperthyroidism, 57 with DM, and 77 with CKD. Only cats with documented urinalysis, urine culture with urine collected by cystocentesis or catheterization, and definitive evidence of the primary diagnosis were included. Positive urine cultures were found in 11 (12%) of the hyperthyroid cats, 7 (12%) of the cats with DM, and 17 (22%) of the cats with CKD. Urinalysis served as a useful predictor for UTI, as associations were found between positive urine cultures and bacteriuria and increased leukocytes in the urine sediment. However, 8 of the cats with UTIs had no bacteriuria and 6 of these had no abnormal findings in urine sediment. In addition, only 6 of the 35 cats with UTIs showed clinical signs of lower urinary tract disease (LUTD). Urine culture results revealed *Escherichia coli* to be responsible for 46% of the infections. Of the bacteria cultured, 89% were sensitive to amoxicillin/clavulanic acid and 83% to enrofloxacin, making amoxicillin/clavulanic acid a good first-choice antibiotic. The study concluded that there is a high prevalence of UTI in cats with hyperthyroidism, DM, and CKD; however, many cats show no clinical signs of LUTD or changes in blood or urinalysis values that are indicative of UTI. Thus, UTIs should not be excluded on the basis of urinalysis alone: urine cultures should be performed with follow-up antibacterial sensitivity testing for positive cultures.

**COMMENTARY:** This retrospective study strengthens the claim that quantitative urine culture is the gold standard for diagnosing bacterial UTIs. It is particularly important to consider urine culture as a routine part of the diagnostic plan in the type of patients studied, given their greater risk for persistent UTIs or pyelonephritis, especially if clinical signs or other basic laboratory diagnostics cannot be relied on to diagnose UTI. A surprising finding in this study was that hyperthyroid cats also seem to be at greater risk for UTI. Unlike DM and CKD, in which there are both human and veterinary reports of increased risk, studies have not documented UTI as being common in humans or cats with hyperthyroidism. It would be interesting to see further studies evaluating the renal and immune function of such cats.—Jennifer L. Schori, VMD


Canine Hemangiosarcoma: Another Tumor Vaccine?

Adjuvant chemotherapy is currently the only treatment proven to be effective for dogs with hemangiosarcoma (HSA), an aggressive and highly metastatic tumor. However, it yields only modest benefits. Targeted immunotherapy is a promising new treatment for human and veterinary cancer patients, and administration of immunotherapy combined with chemotherapy reportedly improves survival time in dogs with HSA. This study assessed the safety and immunologic responses in dogs with HSA to a novel allogeneic tumor vaccine combined with doxorubicin (DOX) chemotherapy. Survival time in a subset of dogs with stage II HSA was also evaluated. Twenty-eight patients received a series of 8 intraperitoneal tumor vaccines over a 22-week period. Chemotherapy protocols were followed concurrently with the vaccines, usually on alternating weeks. The vaccine was found to be well-tolerated by the dogs. The most common adverse effects, diarrhea (18% affected) and anorexia (11% affected), occur at a similar rate in patients receiving DOX alone. A strong humoral immune response was elicited in vaccinated dogs against a novel antigen incorporated into the vaccine, and most dogs were also found to mount an antibody response against canine HSA cells, although the specificity of this immune response was not definitively determined. For the 13 dogs with stage II splenic HSA that were evaluated for disease-free interval and survival time, median survival time was increased over chemotherapy alone (182 days vs. 133 days). There was no significant difference in median disease-free interval for dogs receiving the vaccine and DOX (146 days) versus dogs receiving DOX alone (126 days). Randomized prospective trials are necessary to better compare these survival and disease-free interval results.

**COMMENTARY:** This study is at the exciting forefront of new and innovative treatment modalities for cancer therapy in companion animals. These therapies are rapidly translating into clinical application. A tumor vaccine has received conditional licensure from the USDA for the treatment of canine oral melanoma, and the allogeneic tumor vaccine described in this study shows sufficient promise for the treatment of canine hemangiosarcoma to warrant further clinical trials.—Bess J. Pierce, MZS, DVM, Diplomate ABVP & ACVIM