New Studies in Tumor Treatment

Paclitaxel, part of the taxane family of microtubule inhibitors, suppresses spindle microtubule dynamics. Its use in veterinary medicine has been limited because of hypersensitivity reactions to the carrier. Paccal Vet (oasmia.com), a water-based formulation of paclitaxel, was evaluated for its safety and efficacy as treatment for canine mast cell tumors. In this prospective trial, 29 dogs (mean age, 8 years) were treated. Tumor distribution was grade 2 (n = 18), grade 3 (n = 9), and ungraded (n = 2) masses. The median lesion number per dog was 1 (range, 1–4); mean lesion diameter was 65 mm. The median Paccal Vet dose was 145 mg/m² IV q3wk for 3 cycles. The median study duration was 197 days; of 29 dogs, 23 received ≥2 cycles of therapy, and 19 received ≥3 cycles. Complete or partial responses were seen in 59% of dogs (median response time, 15 days). Median time to progression (discontinuation, tumor progression, death) was 247 days (range, 42–268 days). Adverse events were reported in all dogs; 19 had a total of 40 serious adverse events, the most common being neutropenia, leukopenia, lethargy, and vomiting. However, adverse events were most often seen in the first cycle and were classified as mild or moderate. Nine dogs were euthanized, and 1 died from disease progression.

**Commentary**
Paclitaxel has proposed efficacy in managing canine mammary carcinoma, other carcinomas, osteosarcoma, melanoma, and mast cell disease. Previously, severe acute hypersensitivity reactions necessitated premedication and prolonged infusion duration, but this novel formulation has seemingly eliminated these, rendering it more practical. At appropriate doses, Paccal Vet’s adverse event profile is now similar to conventional cytotoxic chemotherapeutics, including GI upset and bone marrow suppression, adverse events readily managed with antiemetics, GI tract protectants, antidiarrheals, and/or antibiotics. This study reported high response rates using paclitaxel when treating mast cell disease, compared with rates cited in a prior trial, which suggested its use as a rescue drug for mast cell disease. Further studies are required to investigate other clinical scenarios, including availability and expense.—Raelene M. Wouda, BVSc (Hons), MACVS (Internal Medicine)

**Source**

Viral Vaccines Preventing *Bordetella*

This study investigated whether an intranasal (IN) vaccine for FHV-1 and feline calicivirus (FCV) may protect against IN challenge with *Bordetella bronchiseptica*, an agent not contained within the vaccine. Twenty specific-pathogen–free kittens were divided into 2 groups: 1 group was administered an IN FHV-1 and FCV vaccine (FVRCP) on day 0; the other group was unvaccinated. All kittens were administered a small volume of *B bronchiseptica* inoculum into each naris on day 7, with scoring performed daily for 20 days. Evidence of upper respiratory disease was defined as conjunctivitis, blepharospasm, ocular discharge, sneezing, nasal discharge, nasal congestion, and/or elevated body temperature. All except 1 vaccinated cat cultured positive for *B bronchiseptica* after inoculation.

Disease signs were mild in both groups, with sneezing as the predominant sign. No cats were considered inappetent or lethargic; fevers were rare. Antibiotic therapy was not warranted in any cases. Nine of 10 unvaccinated and 2 of 10 vaccinated cats sneezed at least once in days 1–10 post-inoculation. This study supported the hypothesis that IN vaccination against FHV-1 and FCV may provide cross-protection against challenges with an infectious agent not contained in the vaccine. However, measured effects were gone after 10 days of observation, suggesting protection was short-lived and not as effective as direct vaccination against *B bronchiseptica*, which offers 12 months of immunity.

**Commentary**
Despite a small sample size, the findings are interesting in that cross-protection for cats exposed to *B bronchiseptica* may transiently occur. This would be especially useful in large populations with frequent influx and efflux of animals. IN vaccination is well tolerated in cats but would not be a good option for fractious animals or those with sinus or nasal disease. This case also provided academic information regarding the benefits of cross-protection; future studies should investigate implications of improving nonspecific immunity stimulation in cats, especially since adjuvanted parenteral vaccines present their own health concerns.—Heather Troyer, DVM, DABVP, CVA

**Source**