



Cancer Drug Combinations for Canine Tumors

This study examined the efficacy of oral docetaxel in combination with cyclosporine for treatment of canine epithelial cancer. Docetaxel, a human anticancer drug with a wide spectrum of activity, is usually given IV. In dogs, the IV route carries a high anaphylaxis risk, but the drug has limited oral bioavailability, unless given after a PO cyclosporine dose. Dogs ($n = 51$) with confirmed epithelial neoplasia were given 5 mg/kg PO cyclosporine followed (5–15 minutes later) with 1.625 mg/kg docetaxel. Both drugs were administered through a stomach tube. Treatments were planned for 2-week intervals. Forty-eight of the dogs were evaluated for treatment response (2 dogs died during treatment, 1 dog was withdrawn at owner request). An overall response rate of 16.7% was seen: 8 dogs showed a partial response ($\geq 50\%$ reduction in tumor volume), 24 dogs had stable disease ($< 50\%$ or $< 25\%$ increase in

tumor volume), and 16 dogs showed progressive disease ($\geq 25\%$ increase in tumor volume or identification of new lesions). Oral squamous cell carcinoma (SCC) had the highest response rate; 50% of oral SCC dogs had partial responses. Transitional cell carcinoma appeared to be nonresponsive. GI toxicity was the most common adverse effect and could be managed effectively with dose reduction, treatment delay, oral medications, or hospitalization. Because of the possible risk for significant drug–drug interactions (blamed for one of the fatalities), vigilant monitoring is imperative.

■ Commentary

Prompted by human data, this study's authors evaluated a docetaxel–cyclosporine combination in dogs with carcinomas; it mostly failed to show marked efficacy against the tumors evaluated. Partial

responses in SCC are encouraging, as this disease is typically extremely chemoresistant. Taxanes are an underutilized family of chemotherapy drugs in veterinary patients, mostly because of their toxicity (particularly hypersensitivity caused by the cremophor excipient). In humans, taxanes have a broad spectrum of activity. Recently, a cremophor-free formulation of paclitaxel was conditionally approved for treatment of SCC and mammary tumors in dogs. Further studies are to be published in the coming years to clarify the role of taxanes in veterinary medicine.—*Cecilia Robot, DVM, DACVIM (Oncology)*

■ ■ Source

Phase II study of oral docetaxel and cyclosporine in canine epithelial cancer. Waite A, Balkman C, Bailey D, et al. *VET COMP ONCOL* 12:160-168, 2014.

Cardiomyopathy in Hedgehogs

Cardiomyopathy has been reported postmortem in hedgehogs, but there have been no published reports of its treatment. This report detailed the diagnosis and treatment of congestive heart failure (CHF) secondary to dilated cardiomyopathy (DCM) in a 1-year-old African pygmy hedgehog (*Atelerix albiventris*) that presented in severe respiratory distress after 1 week of nighttime coughing and decreased appetite. The hedgehog weighed 175 g and was cyanotic, dyspneic, tachypneic, and laterally recumbent with a thin body score and harsh lung sounds.

The patient was stabilized in a heated oxygen cage before intramuscular sedation with butorphanol and midazolam for radiographs, which showed generalized cardiomegaly and severe pulmonary edema. Echocardiogram revealed markedly decreased systolic function, an increased left-ventricular internal dimension, and an enlarged left atrium consistent with DCM.

Treatment was initiated with furosemide 5 mg/kg IM q6h and enalapril 1 mg/kg PO q24h. The patient showed vast clinical improvement over 12 hours, with radiographic resolution of edema at 24 hours. L-carnitine (50 mg/kg) and pimobendan (0.3 mg/kg) were added, both PO q12h. Furosemide was decreased to q8h. Although the patient appeared clinically normal 10 days later with echocardiographic improvement in cardiac contractility, it was found dead at home 1 month after presentation and was not presented for necropsy. Because of the high incidence of cardiomyopathy in hedgehogs, practitioners are encouraged to establish baseline cardiac data when patients are young.

■ Commentary

Heart disease is not limited to domestic animals. A 2011 informal review of records from an exotic animal practitioner identified heart disease in at least 20% of all avian patients; this statistic should be



considered when evaluating any other species. However, cardiac tissue has similar structure, properties, and response to therapy across species, thus strengthening the principle of One Medicine. Not only should heart disease be considered in exotic patients with suggestive presentations, but the attending veterinarian should be confident about successful management.—*Adolf Maas, DVM, DABVP (Reptile & Amphibian)*

■ ■ Source

Diagnosis and treatment of congestive heart failure secondary to dilated cardiomyopathy in a hedgehog. Delk KW, Eshar D, Garcia E, Harkin K. *J SMALL ANIM PRACT* 55:174-177, 2014.

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