

Pacific Tide

An informational newsletter

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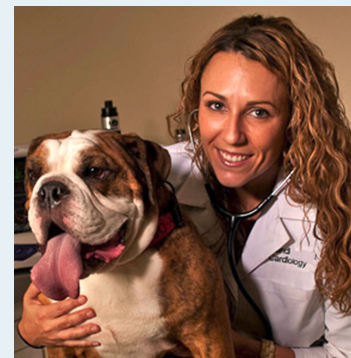
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About our Author

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Dr. Kleman received her DVM from the University of Florida followed by an internship at the University of Pennsylvania and a cardiology residency at the University of Florida. Dr. Kleman conducted a prospective study funded by the AKC and the ACVIM SAIM - novel and successful interventional balloon valvuloplasty techniques for dogs with severe subaortic stenosis, which she has subsequently taught to other cardiologists throughout the US. In addition to life-saving interventional procedures, she is interested in complex arrhythmia diagnosis/management and novel approaches to chronic congestive heart failure. Most importantly, Dr. Kleman is passionate about helping to provide happy and fulfilling lives for dogs and cats with heart disease. Her philosophy balances the importance of communication, compassion, and knowledge while working closely with the families and veterinarians of her patients. When not working, Dr. Kleman loves to travel with her family and enjoys spending time at the beach.



**Mandi Kleman,
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An update on Occult DCM in Doberman Pinschers

Veterinary cardiologists are commonly asked by both clients and referring veterinarians about medical therapy options for those patients with asymptomatic heart disease. Unfortunately, evidence based medicine supporting therapeutic options for asymptomatic patients is largely lacking. However, there have been some recent exciting new options for Dobermans with occult Dilated Cardiomyopathy (DCM). I'd like to present these exciting developments and summarize how we can best identify which patients will clinically benefit from these therapies.

Dilated Cardiomyopathy (DCM)

DCM is a devastating myocardial disease, which most commonly afflicts larger breed dogs, with the Doberman Pinscher being over-represented. In the Doberman, we know this inherited disease is characterized by a prolonged occult phase (2-3 years) before overt clinical signs of arrhythmias or heart failure (dyspnea, exercise intolerance, syncope) develop (median age 7.5 years of age). Once heart failure develops, the prognosis is grave with average survival times reported in months and a 90% fatality rate by 1-year post diagnosis. In the last five years, two studies have demonstrated the importance of early detection of occult disease as it provides an opportunity to prolong the lives of affected Dobermans.



In 2012, the multi-center prospective, and blinded PROTECT study screened Dobermans for occult DCM. If affected, they were randomized to receive pimobendan at standard dosages (0.25 mg/kg dose twice daily) or placebo and were followed over time. The study revealed a significant delay to heart failure or sudden death (718 days versus 441 days) for Dobermans receiving pimobendan versus those receiving placebo¹. Furthermore, the study also showed that the median survival time was significantly longer in the pimobendan versus the placebo group (623 versus 466 days). Additionally, a retrospective study in 2009 demonstrated that therapy with benazepril (0.5 mg/kg dose once daily) in the occult phase of disease significantly delayed the onset to overt disease compared to those dogs who did not receive benazepril (454 versus 356 days)². These results are similar to the human literature where ACE inhibitors are an important therapeutic option for those patients with asymptomatic ventricular dysfunction. Based on these two studies, if these Doberman patients are identified prior to the development of overt clinical disease, we can notably prolong their life. This extra time is significant, especially given the poor prognosis once symptoms develop.

How should we screen for occult DCM in the Doberman breed?

Given the prevalence of DCM in the Doberman breed (estimated at 45-63% of adult dogs affected), the current recommendation is to screen Dobermans with echocardiography and a 24hr holter monitor annually after 5 years of age. These screening recommendations are important in order to begin medical therapy for occult DCM as soon as possible, but also to prevent sudden death in these patients. Sudden death, caused by ventricular tachycardia-fibrillation, occurs during the occult phase in at least 25 to 30% of affected dogs.

The echocardiogram and 24hr holter monitor are considered equally important as it has been determined that arrhythmias are often the first abnormality detected (i.e. prior to functional changes) and 37% of Dobermans with occult DCM have only VPCs without echocardiographic changes. Additionally, a 5-minute ECG cannot replace a 24hr holter monitor as false negatives are common in these particular patients (approximately 40%)³. At least 1 VPC in a 5-minute ECG strongly warrants further examination with a 24hr holter monitor.

Advances in veterinary echocardiography, such as volume assessment and tissue Doppler imaging (which assesses the speed of wall motion), are now allowing earlier detection of dogs with occult disease. Similar to human literature, data has shown that volume assessment is superior to conventional M-mode measurements in its ability to detect early echocardiographic changes associated with left ventricular dysfunction. Volume assessment has been shown to detect early echocardiographic abnormalities correctly in Dobermans that only later also became abnormal using M-mode⁴. Therefore, volume assessment can be considered as the new gold-standard in the diagnosis of echocardiographic changes in the Doberman breed.



What about screening tests for breeding animals?

The present recommendations are yearly echocardiograms and a 24hr holter monitor starting at 2 years of age for all breeding Dobermans. This early age for screening has been selected because affected dogs typically do not develop the disease until they are beyond the age of selection for breeding purposes (median age of overt DCM is 7.5 years of age). Thus, a dog may produce several litters before it develops any clinical signs and is found to be affected with DCM. Early identification of affected animals would allow for exclusion of these dogs from breeding programs with early medical intervention.

Genetic testing for DCM in the Doberman breed is available at NC State University. Dilated Cardiomyopa-

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thy in the Doberman pinscher appears to be inherited as an autosomal dominant trait with incomplete penetrance. A genetic deletion has been identified in a gene that helps regulate mitochondrial energy in at least some Doberman pinschers with DCM. Since this mutation is an autosomal dominant trait, breeding of affected individuals is generally not recommended. If a dog is homozygous for the genetic mutation, it would certainly pass on the trait. If a dog is heterozygous it would have a fifty percent chance of passing on the trait, and a fifty percent chance of not passing on the trait. Additional genetic mutations are suspected, based on human and canine data, therefore a negative genetic test does not indicate a dog will not develop DCM in the future. All breeding animals should continue to be screened with echocardiography and yearly 24hr holter monitors.

For more information and to submit DNA, please visit <http://www.ncstatevets.org/genetics/>.

In summary, the utility of echocardiography and holter monitors is that we may identify those Doberman patients with early evidence of occult disease in an effort to significantly delay their progression and prolong their life with medical therapy, especially given the grave prognosis, even with supportive therapy, once symptoms develop.



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Our Doctors

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About Our Hospitals

Pacific Veterinary Specialists was founded to provide high quality, specialized medical care to companion animal patients. Our practice is dedicated to serving the veterinary community as a partner in total patient care. We offer comprehensive specialized services including endoscopy, Doppler ultrasound, surgery, 24-hour ICU care, and emergency and critical care. Our staff is committed to providing compassionate and thorough medical care that meets the needs of the patient, client, and referring veterinarian. In September 2011 we opened PVSM and offer internal medicine, oncology, dermatology and cardiology Tuesday through Thursday in Monterey. Behavior consultations by appointment are available on Mondays.

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