

MITRAL VALVE DISEASE IN THE DOG

Degenerative valve disease (DVD) is the most common heart disorder in dogs. It is largely hereditary and is most common in smaller dog breeds, especially Cocker Spaniels, Boston Terriers, Poodles, Miniature Schnauzers, Chihuahuas, Yorkies, and Cavalier King Charles Spaniels.

In dogs with mitral valve disease, called MVI, for mitral valve insufficiency, the valve between the left atrium and the left ventricle “wears out” and becomes leaky. The murmur sound we hear with a stethoscope is created by turbulent blood flowing the wrong direction, back around the leaking valve, from the left ventricle to the left atrium.

The earliest symptom of a leaky mitral valve is a heart murmur. The murmur can be heard through a stethoscope and may become louder as the disease progresses. This handout details the stages of mitral valve disease in the dog, and outlines diagnostic tools and current treatment recommendations for each stage.

Stage A: Animals with the tendency to develop mitral valve disease but have not yet developed a murmur are in Stage A. No tests are needed at this time but there are things you can do to delay the onset of DVD. Keeping your pet free of dental disease and at a healthy weight is especially important for these animals. If you smoke, please stop, as second hand smoke will contribute to the progression of your pet’s disease.

The fatty acids EPA and DHA help to slow damage to heart valves, so it is highly recommended to start an Omega 3 fatty acid (fish oil) supplement at an early age in at risk breeds. Please ask us for a brand and dosage recommendation.

Stage B: Pets in stage B disease have a mitral valve murmur audible through a stethoscope. Murmurs are graded from 1 to 6, 1 being very faint and 6 being a very loud swish and turbulence that is so severe it can be felt when you’re your hand over the left side of the chest behind the elbow. Dogs are typically between the ages of 5 and 10 when a murmur first begins and the murmur is typically Grade 1 or 2 when we first hear it. No signs of heart disease (like coughing or exercise intolerance) are present yet. Stage B often lasts for 3-5 years before clinical symptoms of congestive heart failure will appear.

Recommended testing at this stage:

Chest X-rays allow your veterinarian to see if there are changes to the heart or lungs that may require treatment. Current cost for two views = \$185.

Laboratory tests (Biochemical profile and Urinalysis) allow your veterinarian to screen for kidney or liver disease and diabetes, which can contribute to heart disease. Current cost = \$110-160.

Blood pressure measurement will help us to decide how important a low-salt diet is for your dog and whether treatment with an ACE – inhibitor medication, such as enalapril or benazepril, is needed. Current cost = \$13.

An echocardiogram, or ultrasound of the heart, is also important to do sometime in the first few years after we first hear the heart murmur begin. An echocardiogram is an ultrasound of the heart. It allows the doctor to better assess changes to the heart's size and shape than an x-ray can do. It also allows us to watch the heart beating to see how much blood flow is backing up around the leaking valve and whether the heart muscle walls are of normal thickness and contracting properly. The louder the heart murmur or the larger the heart appears on x-ray the more urgent the echocardiogram is.

An "echo" costs about \$450.00, and is done here at our hospital by a veterinary cardiology specialist, Dr. Hattie Bortnowski. (You can read more about her at www.foxvalleycatclinic.com/site/view/132268_Cardiology.pml).

Recommended treatments for stage B:

Dental care as needed – infection in the mouth greatly contributes to the progression of heart disease, so we want to address tartar build-up before it advances to periodontal disease.

Weight control – The more overweight an animal is, the harder the heart must work. Weight control is essential to keeping your pet comfortable and symptom free as long as possible.

Avoid excess dietary salt. When a pet is in Stage B, Hill's K/D or an equivalent diet is generally recommended. This is a prescription diet that can only be purchased at a veterinary hospital. Over the counter dog and cat foods contain much more sodium than is safe for a pet with heart disease.

Pimobendan is the keystone of treatment for many forms of heart disease. A recent study has shown that dogs started on Pimobendan when they have a heart murmur and heart enlargement on x-rays, but no symptoms of heart disease yet, are much slower to progress to stage C heart disease.

An ACE-inhibitor drug may be prescribed to decrease high blood pressure (if present). ACE-inhibitors also block a chemical messenger in the body called Tissue Necrosis Factor (TNF), which contributes to further destruction of the leaky valve.

A 2013 heart study showed that pimobendan works better than benazepril at prolonging the duration between diagnosis and the onset of heart disease symptoms but there has not yet been a longevity study using both these drugs together for stage B heart disease. We may find that using both confers no additional benefit but we suspect that dogs on both drugs will do even better

than those receiving one or the other medication alone. Our current recommendation is to start pimobendan and fish oil right away & to add benazepril or enalapril if high blood pressure is present, the murmur we hear is loud or the heart is significantly enlarged. A soft murmur and mild heart enlargement are less worrisome.

Omega-3 fatty acids also help to decrease inflammation in the body and serve as antioxidants to protect heart cells. These are important to slow the progression of valve failure, and should be started as soon as a murmur is noted (or before in at risk breeds).

If you or someone else smokes in your household, please stop if you can, or at least smoke only outdoors. Smoking will contribute to your pet's discomfort and to the progression of your pet's disease.

Stage C: Dogs in stage C have symptoms of Congestive Heart Failure (CHF), which include a soft cough, exercise intolerance, or difficulty breathing. The cough often sounds like the dog is retching up a bit of mucous or phlegm and is usually noted just after the dog gets up from sleeping or lying down. It doesn't sound very dramatic at first but it's a very important sign that shouldn't be ignored. Please see our separate CHF handout for a more thorough explanation.

An echocardiogram is very important at this stage and is usually repeated every 6-12 months to monitor for progression of heart disease. The heart is usually significantly enlarged at this point and the right side of the heart may be involved as well as the left. Medications and dosages are based on how well the heart is functioning and whether the heart rhythm is affected.

Recommended testing at this stage includes everything for Stage B, plus a complete blood count to identify other problems (like pneumonia) that may worsen the pet's symptoms. Current cost = \$60.00.

Treatment will include pimobendan, an ACE – inhibitor, one or more diuretics (medications that decrease fluid buildup in the lungs), and possibly other medications as needed.

Heart disease progresses with age. Our goal is to institute treatment as needed to slow the progression of the disease. Examinations should be performed at least twice per year. We recommend repeating the chest X-rays and laboratory testing at least on an annual basis. As the disease progresses, exams and testing will be required more frequently.

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