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Managing Heart Failure in Dogs: Treatment Options

- **75% of canine heart failure cases are the result of myxomatous mitral valve disease (MMVD)¹**
- **In MMVD-based congestive heart failure one or more of the valves in the heart malfunctions and causes impaired circulation, which means the heart cannot pump as effectively as before¹**
- **The aims of managing MMVD-based congestive heart failure are to improve quality of life and survival times²**

In an ideal situation, dogs could be cured of heart disease and heart failure by undergoing surgery to correct the underlying condition. Currently however, valve replacement surgery in dogs is very rare and so for the majority of dogs a surgical cure is not possible.¹

The management of MMVD-based heart failure in dogs is therefore concerned with improving quality of life by reducing the symptoms of heart failure and improving survival.¹ Strategies to achieve these include:

- Decreasing the build up of excess fluid, especially in the lungs²
- Maintaining an adequate blood flow from the heart to vital tissues in the body²



Medicines

Angiotensin-Converting Enzyme (ACE) Inhibitors reduce pressure on the heart by inhibiting the angiotensin enzyme² which causes the blood vessels to constrict. Thus, blood is allowed to flow more freely through the widened vessels, thereby reducing the amount of work the heart has to do. There are numerous ACE inhibitors licensed for use in dogs, a number of which have been shown to achieve similar degrees of ACE inhibition (50% through 12 hours).² Evidence has shown that in combination with diuretics and sometimes inotropes (discussed below) ACE inhibitors can extend life-span in canine congestive heart failure caused by MMVD.^{2,3}

Diuretics are an older, established therapy, useful for the long-term treatment of canine patients with congestive heart failure.² They are effective in controlling and reducing the accumulation of fluid, especially in acute heart failure emergency cases. As the congestive heart failure process continues, however, larger doses of diuretics are required to overcome resistance to their effect on fluid accumulation.⁴ Diuretics are only occasionally used as a stand-alone therapy and tend to be used in combination with other medicines.²

Pimobendan is known as an inodilator, because it has both inotropic and vasodilator properties. This means that it increases the efficacy of cardiac contraction as well as opening up blood vessels,⁴ thereby improving the efficiency of the heart and reducing the amount of work it is required to do. Recent evidence confirms that pimobendan improves clinical outcomes and increases survival time in dogs with heart failure caused by MMVD.⁵



Positive inotropes such as digoxin increase the contraction of the heart muscle. They can do this by increasing the concentration of calcium in heart muscle cells. This may improve the efficiency of the heart. These are among the older types of drugs used to treat heart failure, and whilst often prescribed in conjunction with another drug², are not approved (licensed) for use in dogs in the UK.

For further information on managing heart failure
in dogs, please visit www.questtrial.com

References

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² Bulmer BJ, Sisson D. "Therapy of heart failure" in Ettinger SJ, Feldman EC (Eds). Textbook of veterinary internal medicine: diseases of the dog and cat. 2005 (6th edition)

³ BENCH Study Group. The effects of benazepril on survival times and clinical signs of dogs with congestive heart failure: results of a multicentre, prospective randomised, double-blinded, placebo controlled, long term clinical trial. *Journal of Veterinary Cardiology* 1999; 1: 7-18

⁴ Ware WA. Cardiovascular disease in small animal medicine. 2007

⁵ Lombard CW, Jons O, Bussadori C. Clinical efficacy of pimobendan versus benazepril for the treatment of acquired atrioventricular valvular disease in dogs. *Journal of the American Animal Hospital Association* 2006; 42: 249-261