VETERINARY EMERGENCY CLINIC

South Clinic: 920 Yonge St, Toronto ON – (416) 920-2002
North Clinic: 280 Sheppard Ave. E., Toronto ON - (416) 226-3663

VEC CARDIAC NEWS

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You may have heard a lot about BNP lately, but what is BNP and when should you use this new blood test?

BNP (brain naturetic peptide) is a hormone that is released by the atria in small concentrations and the ventricles in larger concentrations when they experience an increase in wall stress (or stretch) or undergo hypertrophy. The purpose of BNP in the body is to increase naturesis and diuresis by inhibiting sodium transport in the kidney and to create vasodilation at the level of the blood vessel. Unfortunately, its effects are unusually minimal in contrast to the potent renin-angiotensin-aldosterone system (RAAS).

While the effects of BNP are small and largely ignored in the physiology of congestive heart failure (CHF), BNP is now gaining some favor as a diagnostic tool in patients with varying degrees of heart disease. Early studies have proven that N-terminal pro-BNP (the inactive peptide cleaved from the prohormone when it is activated) is elevated above normal values in patients with occult mitral valve disease, dilated cardiomyopathy, and hypertrophic cardiomyopathy. BNP appears to increase in concentration with severity of disease and reaches the highest levels in patients with CHF.

As you can imagine, this may provide very useful information in some animals about status of heart disease and even stage of heart disease. It may help to distinguish between primary respiratory disease and CHF in dogs and especially in cats that do not have to have an auscultatory abnormality or classic radiographic findings as part of their heart disease. (However, many small breed, older dogs with primary respiratory disease will also have mitral valve disease and therefore, elevated BNP values making the results ambiguous.) This test may also be useful in helping to recommend more expensive testing, such as echocardiography, in certain patients with abnormal radiographs or auscultory findings. Finally, BNP may become a useful screening tool in cats with previously diagnosed physiologic murmurs.

While BNP appears to elevate with various heart diseases, there is a fair amount of variation and some overlap between certain groups (normal vs. affected) and there is also significant diurnal variation in individual animals. Coexisting diseases may also affect BNP levels. Renal disease, pulmonary artery hypertension, and volume status will all affect results. It is also possible that hyperthyroidism, systemic hypertension, and other diseases may also increase BNP.

Finally, BNP will take 24 to 48 hours for turnaround time and will not help immediately in an emergency situation.

BNP may become a useful test in diagnosing and better treating heart disease and failure. This test, however, cannot replace your history, physical exam, and other diagnostic tests. IT IS USEFUL AS AN ADJUNCT TO YOUR CURRENT DIAGNOSTIC WORK-UP, NOT AS A REPLACEMENT FOR PHYSICAL EXAMS, RADIOGRAPHS, OR ECHOCARDIOGRAMS.

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