

EVALUATION OF A COMMERCIAL NT PRO-BNP ASSAY IN A CANINE CARDIORESPIRATORY REFERRAL POPULATION IN BELGIUM.

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Brain Natriuretic peptide (BNP) is a hormone manufactured in and released from the ventricular myocardium in response to stretch and increased wall stress. Concentrations of its propeptide (PRO-BNP) can be measured in the circulation and increase significantly with cardiac disease. NT-PRO-BNP is the physiologically inert front-end of PRO-BNP. Aims of the study were to assess the potential of this assay to differentiate respiratory disease from cardiac disease, to investigate the ability of this test to differentiate heart disease from heart failure, to differentiate the stages C1, C2, C3 and D of the CHIEF classification system, to differentiate between a cough caused by cardiac or respiratory problems and to differentiate between dyspnoea of cardiac or respiratory origin. It was also investigated whether this test is useful in case of concurrent renal disease or if these animals should be excluded.

Serum samples from 46 dogs out of a cardiorespiratory referral population were taken, spun and frozen immediately and then sent in bulk to Guildhay under temperature controlled conditions with ice packs and analysed for NT PRO-BNP.

“Abnormal” samples were those animals diagnosed on the basis of a full cardiac work-up (ECG, thoracic radiographs and echocardiography) as having heart disease, being in heart failure or having respiratory disease.

Analysis showed that on the current UK NT PRO-BNP cut off value of 300 pmol/L this study has 1) a specificity of 53% and a sensitivity of 85% when distinguishing cardiac from non-cardiac problem dogs when including renal patients; 2) a specificity of 58% and a sensitivity of 92% when distinguishing cardiac from non-cardiac problem dogs excluding renal patients; 3) a specificity of 36% and a sensitivity of 100% when distinguishing heart disease from heart failure patients; 4) a specificity of 38.5% and a sensitivity of 100% when distinguishing a cardiac from a respiratory cause of dyspnoea; 5) a specificity of 60% and a sensitivity of 100% when distinguishing a cardiac from a respiratory cause of coughing.

The AUC in all cases showed good accuracy with very good accuracy in the distinction of cardiac and respiratory causes of coughing and dyspnoea as well as distinguishing respiratory from cardiac populations, when renal patients were excluded from the study.

The 100% positive predictive value for NT PRO-BNP, when including renal patients, was 3840 pmol/L and when excluding renal patients is 660 pmol/L.

The 100% negative predictive value for NT PRO-BNP regardless of the renal status of the animal was 80 pmol/L.