THE MECHANISM OF C-TYPE NATRIURETIC PEPTIDE PRODUCTION IN DOGS AND ITS USE AS A PROGNOSTIC INDICATOR IN CRITICALLY ILL DOGS

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ABSTRACT

The N-terminal portion of pro C-type natriuretic peptide (NT-pCNP) has shown promise as a diagnostic biomarker for sepsis in humans and dogs. The mechanism of NT-pCNP induction and its use as a prognostic indicator in dogs is unknown. Using a canine aortic endothelial cell culture model, we discovered that NT-pCNP concentrations were significantly greater after lipopolysaccharide, tumor necrosis factor-alpha, and interleukin 1-beta stimulation compared to control and these results were both time and dose dependent in nature.

To evaluate NT-pCNP as a prognostic indicator for critically ill dogs, serum NT-pCNP concentrations of critically ill dogs that survived were compared to serum NT-pCNP concentrations of dogs that did not survive. We also evaluated the prognostic capability of serial NT-pCNP concentrations. Serum NT-pCNP concentrations at admission have a sensitivity and specificity of 92% and 65%, respectively for predicting survival in critically ill dogs. To achieve a specificity of 90%, the sensitivity of serum NT-pCNP for predicting non-survival was only 20%. Evaluation of dynamic changes in serum NT-pCNP concentration over the first three days of hospitalization did not appear to be helpful in predicting outcome. Serum NT-pCNP does not appear to be a promising prognostic biomarker for critically ill dogs.