A RANDOMISED DOUBLE BLINDED PLACEBO CONTROLLED STUDY OF SPIRONOLACTONE AS ADJUNCT TO CONVENTIONAL CONGESTIVE HEART FAILURE TREATMENT IN DOGS: CLINICAL, BIOCHEMICAL AND NEUROHORMONAL PARAMETERS

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Aldosterone plays an important role in the pathophysiology of heart failure. Evidence from the Randomized Aldactone Evaluation Study (RALES) demonstrated that aldosterone receptor blockade by spironolactone at subdiuretic dosage reduced morbitity and mortality in human patients with severe congestive heart failure. Aims of this longitudinal randomized placebo controlled clinical trial were to evaluate the effect of spironolactone in addition to conventional treatment including furosemide (n=18) and angiotensin-converting enzyme inhibitors (enalapril n=3 ; benazepril n=15), pimobendan (n=9) and digoxin (n=2) on the clinical outcome and biochemical parameters in dogs with CHF. Eighteen client-owned dogs with advanced CHF (Modified NYHA Classification Stage II (n=12) and III (n=6)) due to either degenerative valve disease (n=7) or dilated cardiomyopathy (n=11) were enrolled in the study. After initial stabilisation, spironolactone at a subdiuretical dose (mean dose 0.58 mg/kg/24h (range 0.49-0.8 mg/kg q 24h) ; n=9) or a placebo (n=9) was added to the treatment and the dogs were reassessed 1 week, 3 months and 6 months later. History, clinical examination, sodium, potassium, urea, creatinine and ALT measurements were evaluated at all visits. Systemic blood pressure measurement, serum aldosterone and proANP measurements were performed at baseline, 3 months and 6 months. Clinical parameters were evaluated using a scoring system. Mean overall age was 9.6±2.2 years (range 4-13 years). Overall clinical scores at baseline were significantly higher ($p< 0.01$) in the spironolactone group (spiro). On average, the body weight stayed stable over time ($p=0.080$). The respiratory rate and heart rate decreased over time in the spiro group. The overall clinical score and BP increased in the placebo group but decreased in the spiro group. No significant difference was found in the two treatment groups regarding urea, creatinine, ALT, sodium and aldosterone. Serum potassium while being within the normal range at all time points, was significantly higher in the spironolactone group at baseline ($p <0.01$) but no difference in the evolution was found over time. Serum proANP significantly ($p<0.0001$) increased over time in the spironolactone group and decreased in the placebo group. No adverse reactions were reported.

In conclusion, the results of this study suggest that spironolactone is safe and well tolerated when used in addition to conventional treatment. However, larger studies are warranted to confirm the clinical beneficial tendencies.