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Popular Article

Therapeutic Management of Cardiorenal Syndrome in A Non-Descript Dog

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Abstract

Cardiorenal syndrome is a multi-organ disorder of heart and kidneys whereby acute or chronic dysfunction in one organ may induce acute or chronic dysfunction of the other. Cardiorenal syndrome occur mostly due to decreased glomerular filtration rate and cardiac dysfunction include hypertension, diabetes mellitus, old age and severe atherosclerosis. The following case study was carried out with the aim of diagnosis and therapeutic management of cardiorenal syndrome in a non-descript dog. 9.6 years old non-descript male dog was presented to the Veterinary Clinical Complex, Veterinary College and Research Institute, Namakkal, with the history of anorexia, retching movement of neck, coughing and mucus coated faeces. The clinical examination revealed including arrhythmia, coughing, retching and mild respiratory distress on lung auscultation. Echocardiography, abdominal ultrasonography, electrocardiography and hematobiochemical analysis was performed for confirmation of heart and kidney disease. The case was diagnosed as cardiorenal syndrome. The dog was treated parenterally with Ringer lactate and Normal saline, Pantoprazole Ondansetron for seven days along with tablet Enalapril, Lasix and Wy Salone. The significant recovery from retching and coughing signs were noticed with above protocol of treatment.

Keywords: Cardiorenal syndrome, glomerular filtration rate, coughing, echocardiography, enalapril, lasix

INTRODUCTION

Cardiorenal syndrome (CRS) is a multi-organ illness characterised by a wide range of disorders caused by the intimate interaction of the heart and kidney during acute or chronic failure of one of these organs. The pathophysiological mechanism of CRS involves a number of mechanisms. Each of them plays an important part in CRS development and should not be seen as a separate entity, but rather as a component of greater multifarious and complicated pathophysiological pathways. As like hemodynamic mechanism, neurohormonal dysregulation, oxidative stress and inflammation.



CASE HISTORY AND OBSERVATION

9.6 years old non-descript male dog was presented with the history of anorexia, retching movement of neck, coughing and mucus coated faeces. Arrhythmia, coughing, retching and mild respiratory distress on lung auscultation were revealed on clinical examination. Pink and moist conjunctival mucus membrane, pale penile mucus membrane, rectal temperature 38.5⁰c and heart rate (142/ min) were observed. Elevated blood urea nitrogen (68 mg/dl), creatinine (2.5 mg/dl) and phosphorus (7.6 mg/dl) were the significant haematological alteration. The left radiography of thorax revealed cardiomegaly (VHS=13.5) (Fig.1) with pleural effusion (Fig.2). The right lateral echocardiography revealed cardiomegaly (LVDd=59.5 mm) with reduced ejection fraction (36%) and fractional shortening (17%). On abdominal ultrasonography of kidney that revealed the proportion of kidney diameter with aorta was more than 9.0.

TREATMENT

A provisional diagnosis of cardiorenal syndrome was made based on history, clinical examination, haematological findings, radiographic examination, echocardiography and abdominal ultrasonographic examination. The dog was treated with Ringer lactate and Normal saline @ 10 ml/kg body weight intravenously, Pantoprazole @ 1mg/kg body weight intravenously and Ondansetron @ 0.5 mg/kg body weight intravenously for seven days along with tablet Enalapril @ 0.5 mg/kg body weight orally bid, tablet Lasix @ 4 mg/kg body weight orally bid and tablet Wysalone @ 1 mg/kg body weight orally bid tapering dose. The dog showed clinical improvement on first week onwards. Cough and respiratory distress started to resolve on ten days onwards. After two weeks of treatment dog had good appetite and respiration was normal without coughing. Decrease in blood urea nitrogen (26 mg/dl), creatinine (1.2 mg/dl) and phosphorus were noticed (5.2 mg/dl). The dog had recovered completely with no obvious clinical sign within three weeks of treatment.

DISCUSSION

The term “cardiorenal syndrome (CRS)” defined as “disorders of the heart and kidneys whereby acute or chronic dysfunction in one organ may induce acute or chronic dysfunction of the other” (Ronco *et al.*, 2010). Renal impairment is one of the most serious complications of heart failure. A lower estimated glomerular filtration rate appears to be an effective indicator of cardiovascular problems and mortality. Furthermore, increasing heart failure or acute decompensated heart failure (ADHF) could accelerate the loss of renal function, a condition known as cardiorenal syndrome (CRS) (Koniari *et al.*, 2010). A reduction in cardiac output in CHF, which results in decreased renal perfusion, might be a simple explanation for the



decreasing renal function. However, deteriorating renal function has been observed in ADHF patients with unaltered left ventricular ejection fraction (Gembillo *et al.*, 2021).

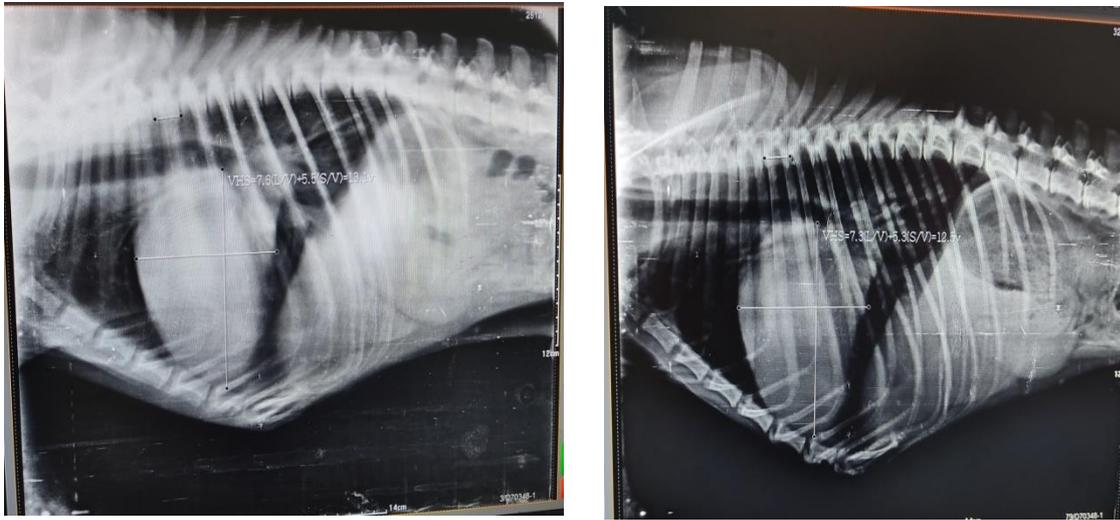


Fig. 1 Thorax radiography revealed cardiomegaly Fig. 2 Pleural effusion

REFERENCE

- Gembillo, G., Visconti, L., Giusti, M. A., Siligato, R., Gallo, A., Santoro, D. and Mattina, A. (2021). Cardiorenal syndrome: new pathways and novel biomarkers. *Biomolecules*, 11(11): 1581.
- Koniari, K., Nikolaou, M., Paraskevaidis, I. and Parissis, J. (2010). Therapeutic options for the management of the cardiorenal syndrome. *International journal of nephrology*, 2011.
- Ronco, C., McCullough, P., Anker, S. D., Anand, I., Aspromonte, N., Bagshaw, S. M., and Acute Dialysis Quality Initiative (ADQI) consensus group. (2010). Cardio-renal syndromes: report from the consensus conference of the acute dialysis quality initiative. *European heart journal*, 31(6): 703-711.

