

# 2<sup>nd</sup> WORLD HEART CONGRESS

May 14-16, 2018 Tokyo, Japan

## Determination of diastolic dysfunction by conventional and Doppler tissue echocardiography in dogs

Murat Kibar<sup>1</sup>, Mato Markovic<sup>2</sup>, Ursula S Kolm<sup>2</sup> and Johann Thalhammer<sup>2</sup><sup>1</sup>Kyrgyz Turkish Manas University, Kyrgyzstan<sup>2</sup>University of Veterinary Medicine, Austria

**Statement of the Problem:** Diastolic dysfunction is common in cardiac disease and contributes to the signs and symptoms of heart failure. Doppler echocardiography has become the non-invasive technique of choice for evaluating diastolic function. Doppler tissue echocardiography (DTE), a new application recently developed for clinical use, has made possible the acquisition of myocardial wall and mitral annular velocities online during examination. However, investigations in dogs with diastolic dysfunction are scarce. The aim of this study was to explore the feasibility and the diagnostic value of conventional Doppler parameters of transmitral inflows and Doppler tissue echocardiography parameters of septal annulus motion for the assessment of diastolic dysfunction in dogs with cardiac failure.

**Methodology & Theoretical Orientation:** 31 consecutive patients (age 4.0-14.5 years; mean (SD) age, 10.25 (3) years; body weight 2.7-30.0 kg; mean (SD) weight, 8.65 (5.6) kg; 17 male, 14 female) with normal and diastolic dysfunction were studied prospectively. Mitral inflow and DTE signals were recorded in all patients. The LV diastolic mitral flow patterns were divided into normal diastolic flow pattern (group 1), delayed relaxation pattern (group 2), pseudonormal flow pattern (group 3) and restrictive pattern (group 4).

**Findings:** In our study population, 17 patients had normal mitral inflow variables ( $E/A$  ratio  $>1$  and  $Dt < 109$  ms). The other 7 patients were classified as having abnormal mitral inflow pattern ( $E' > 8$  cm/s,  $E'/A' > 1$ ). Early diastolic annular velocity ( $E'$ ) was lower in group 3 (PN) than in group 1. Eight patients had delayed relaxation ( $E/A$  ratio  $< 1$ ,  $Dt > 109$  ms and  $E' < 8$  cm/s). Additionally, six patients had a restrictive pattern in our study ( $E/A > 2$  and  $E' < 8$  cm/s). In the PN group, a significant reduction in  $E'/A'$  ( $0.71 \pm 0.10$ ,  $P < 0.01$ ) and a significant increase in  $A'$  ( $10.35 \pm 3.60$  cm/s,  $P < 0.01$ ) and  $E/E'$  ( $14.32 \pm 3.50$ ,  $P < 0.05$ ) were detected.  $E'$  velocity was lower in group 1 than in group 3 ( $9.02 \pm 2.90$  cm/s vs.  $7.46 \pm 2.17$  cm/s,  $P = ns$ ). When the combination of  $A' > 7.6$  cm/s and  $E'/A' < 1$  was used as a cut point, PN could be identified with a sensitivity of 90% and a specificity of 88%.

**Conclusion & Significance:** In conclusion, the combination of Doppler tissue echocardiography of the mitral septal annulus and mitral inflow patterns by conventional Doppler indices provides better estimates of diastolic dysfunction in dogs.

### Biography

Murat Kibar has his expertise in diagnoses and evaluation to animals with heart disease. His Doctoral thesis was about Doppler echocardiographic examination of atrio-ventricular valves in dogs. He has done investigations about effects of some drugs in dogs with heart failure. He has completed his Post-doctoral research in Austria, Israel and USA. He has got 28 articles in journals indexed by SCI and SCI Expanded and 28 articles in other national journals and published 4 books.

muratkibar@yahoo.com

### Notes: