VALIDATION OF DIFFERENTIAL DIAGNOSIS OF DYSPNOEA BY FOCUSED ASSESSMENT BY SONOGRAPHY OF THE THORAX ($FAST_X$) IN AN EMERGENCY SETTING: PRELIMINARY RESULTS

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Dyspnoea is a common clinical finding seen in patients admitted to an emergency facility. Appropriate first treatment is based on a rapid and correct diagnosis of the underlying cause. The clinican would profit from a tool that facilitates on -the–spot differential diagnosis. Ultimately this should lead to an improved outcome. In this study the diagnostic accuracy of Focused Assessment by Sonography of the Thorax ($FAST_X$) was compared with the results of classical radiographical examination for the differential diagnosis of dyspnoea.

Dyspnoeic animals (cats or dogs) admitted to the emergency clinic were examined with $FAST_X$ for the presence of pneumothorax, pleural effusion and/or pericardial effusion by a clinician without specific training in ultrasonography. An ultrasound device (50S Tringa Vet/PieMedical) with a 3,5/5 Mhz sector probe was used and sonographic examination carried out in 4 different positions (ahead of the heart, behind the elbow, ventrally from the 6-7-8th rib and dorsally from the 8-9-10th rib) on both sides of the chest. The amount of free fluid and free air in the thorax as well as the amount of pericardial effusion was scored between 0 and +++. Classical thoracic radiographs were made and checked by a radiologist who was unaware of the results of $FAST_X$. Results of $FAST_X$ were compared with radiographic examination in 6 dogs and 14 cats. Pleural fluid has been detected in 15 cases, 10 of them confirmed by radiography. Pneumothorax was diagnosed in 4 cases, two confirmed by radiography. No cases of pericardial fluid were diagnosed neither by $FAST_X$ nor by radiography. Based on these preliminary results $FAST_X$ produces a 66% positive predictive value and a 100% negative predictive value for the presence of pleural effusion. For the presence of pneumothorax the positive predictive value is 100% and the negative predictive value 88%.

In conclusion the $FAST_X$ examination has the potential to be a useful tool to evaluate quickly the presence or absence of pleural fluid and free air in the thorax.