The aim of this cross-sectional study was to identify associations between respiratory clinical signs and disease localization in dogs and cats.

Dogs and cats with abnormal breathing patterns presenting to Fregis, University of Missouri, or University of Pennsylvania veterinary hospitals were recruited over a one-year period. Animals were included if case investigation allowed for respiratory disease localization and definitive diagnosis. Thoracic radiographs and minimal bloodwork were mandatory for inclusion. Associations between respiratory signs and disease localization were evaluated via two-level mixed-effects logistic regression, sensitivity, specificity, and likelihood ratio calculation.

One-hundred and eighteen dogs and 46 cats were included. Decreased nasal airflow accurately localized the disease to nasal cavities. Although stertor was most specific for pharyngeal diseases, it was also associated with nasal diseases in both species as well as laryngeal diseases in dogs. Although stridor was most specific for laryngeal diseases, it was also associated with nasal and extra-thoracic tracheal diseases. Inspiratory efforts were associated with extra-thoracic diseases. Goose honking and wheezes were more specific but less sensitive than tracheal sensitivity for intra-thoracic tracheal diseases. Expiratory efforts, expiratory snap and coughing were specific for bronchial localization, especially in cats, while crackles and increased respiratory rate referred to pulmonary diseases in both species. Combination of attenuated lung/cardiac sounds and paradoxical breathing was specific for pleural diseases.

Patterns of abnormal respiration can localize origin of respiratory disease, useful to tailor subsequent diagnostic evaluations.

Disclosures

No disclosures to report.

ESVIM-O-5

Association between tomodensitometry, rhinoscopy, and histopathology characteristics and treatment response in canine idiopathic rhinitis

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Treatment of canine idiopathic rhinitis may be frustrating, as the underlying causes are not identified and treatment response is often limited.

The aim of this retrospective observational study was to look for tomodensitometric (CT), rhinoscopic, and histopathologic parameters that would be associated with treatment response and risk of relapse in canine idiopathic rhinitis.

Dogs with a final diagnosis of idiopathic rhinitis after an appropriate diagnostic work-up, including CT, MRI and/or rhinoscopy, and histopathology, were screened over a 4-year period. Follow-up information regarding treatment response and relapse was gathered from owners and local veterinarians. Associations with treatment response or risk of relapse were screened across CT, rhinoscopic, and histopathologic findings via logistic regressions and calculation of predicted probabilities and Spearman's rank correlations.

Fifty dogs were included in the study. Most dogs were treated with corticosteroids (38 dogs) and antimicrobials (23 dogs), with a satisfactory overall treatment response: 7 failures (14%), 19 partial remissions (38%), and 24 complete remissions (48%). Irregular nasopharyngeal mucosal surface on rhinoscopy and presence of mucous exudate on histopathology were associated with a worse overall treatment response (p=0.02 and p=0.04, respectively). Twenty-eight dogs (56%) relapsed after treatment was discontinued. There was a high negative correlation between treatment response and risk of relapse (Spearman rho=-0.74, p<0.001). Furthermore, risk of relapse was significantly associated with intensity of the exudate on histopathology (p=0.02).

Relapse is common among dogs with idiopathic rhinitis and may be anticipated if treatment response is incomplete and if exudate is observed histologically on nasal biopsies.

Disclosures

No disclosures to report.

ESVIM-O-6

Pulmonary complications in canine acute pancreatitis: a pilot study

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In human beings, acute lung injury (ALI) and acute respiratory distress syndrome (ARDS) in acute pancreatitis (AP) represents important complications with a high mortality rate (30-40%). To our knowledge, there are no clinical veterinary studies on this topic. The aim of the present study is to evaluate pulmonary complications during canine AP and their association with the outcome. AP diagnosis was made if there were compatible clinical signs and laboratory parameters, abnormal SNAP cPL test and a positive abdominal ultrasound within 48 hours from the admission. Thoracic radiography was performed for each patient using a digital radiological equipment and subgraded base on the pulmonary pattern (normal, interstitial or alveolar). At the admission, arterial blood samples, obtained from the dorsal pedal artery, at room air (FiO_2=21%), were analyzed (ABL 700 series, Radiometer, Denmark). ALI/ARDS were diagnosed using the current veterinary consensus: (1) acute onset (<72 hours) of respiratory distress (RD) (tachypnea and laboured breathing at rest), (2) known risk factors, (3) evidence of pulmonary capillary leak without cardiac disease and (4) evidence of inefficient gas exchange. Dogs were divided into 2 groups according to outcome at 15 days from their admission: survivors and non-survivors. Normal distribution was assessed using D'Agostino-Pearson test. Welch's t-test was used to compare $PaCO_2$, $P[A-a]O_2$ gradient with the outcome; meanwhile, pH, PaO_2, PaO_2/FiO_2 were compared to the outcome using Mann-Whitney U-test. Exact tests were used to compare the presence of radiographic abnormalities, RD and ALI/ARDS to the outcome. Odds ratio (OR) was calculated. Twenty-three client-owned dogs with owners' consent, admitted to the Veterinary Teaching Hospital, were prospectively enrolled. Ten dogs (43%) died during the study period. Two out of 10 dogs were euthanized due to poor prognosis or to progressive disease. Ten out of 23 dogs showed RD which was associated with poor outcome (p=0.0001; OR 108 95% CI 7-1225). Nineteen dogs (83%) showed radiographic alterations (10 alveolar pattern and 9 interstitial pattern) and they were associated to death (p=0.04). Non-survivors

showed a lower $PaCO_2$ levels than survivors (p=0.009). $P[A-a]O_2$ gradient, pH, PaO2 and PaO2/FiO2 were similar between groups. ALI was diagnosed in seven dogs (30%) and no dogs had ARDS. The presence of ALI was associated with poor outcome (p=0.0005). In dogs with AP, pulmonary complications seemed to be frequent and associated with risk of death. Moreover, ALI/ARDS may be a severe pulmonary complication affecting the prognosis, as well as in human medicine.

Disclosures

No disclosures to report.

ESVIM-O-7

Effectiveness of aspirin versus clopidogrel in dogs with immune mediated haemolytic anaemia evaluated by serial thromboelastography and platelet mapping

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Immune mediated haemolytic anaemia (IMHA) is associated with a high risk of thromboembolism. Most dogs with IMHA are hypercoagulable, as measured by thromboelastography (TEG). Platelet mapping (PM) has been used to assess platelet function in human patients treated with aspirin or clopidogrel.

The aims of this study were to a) compare the efficacy of aspirin versus clopidogrel in inhibition of platelet activation in dogs with primary IMHA (pIMHA) and b) determine if TEG and/or PM are reliable to monitor treatment response.

This prospective double blinded study included 18 client-owned dogs with pIMHA randomized to receive aspirin (loading dose 10mg/kg, then 1mg/kg PO SID, n= 10) or clopidogrel (loading dose 10 mg/kg, then 2 mg/kg PO SID, n=8) in addition to standard therapy. TEG, haematocrit (HCT), platelet count (PLT), prothrombin time (PT), activated partial thromboplastin time (aPTT), fibrinogen concentration, antithrombin (AT) activity and D-dimers were measured before, and 1 and 4 days after commencing treatment. PM was performed on day 1 and 4. Non-responders were defined as <50% inhibition of thromboxane A_2-receptor activity (TXA_2-RA) stimulated by arachidonic acid (AA) in the aspirin group and <50% inhibition of ADP-receptor activity (ADP-RA) in the clopidogrel group, on day 4. For statistical analysis an Anderson-Darling test was used to determine normality with variables not meeting assumptions log_e transformed. A restricted maximum likelihood model was run for each measurement with fixed effects of treatment, day and their interaction and the random effect of patient. Significance was set at p<0.05.

Significant differences identified between the two groups at all time points included higher TEG G (clot strength) in the clopidogrel group (p=0.021) and lower PM MA_{AA} and PM G_{AA} (MA and G generated by TxA_2-RA) in the aspirin group (p=0.009 and 0.016, respectively). Mean platelet TxA_2-RA and platelet ADP-RA were not significantly different between groups. The overall mean % inhibition of TxA_2-RA was 25% (aspirin 33%, clopidogrel 15%), and of ADP-RA was 82% (aspirin 83%, clopidogrel 80%). On day four 6/9 dogs (66%) in the aspirin group and 2/8 dogs (25%) in the clopidogrel group were non-responders (p=0.086).

Overall, there was no significant difference in efficacy between aspirin and clopidogrel and TEG was not reliable for monitoring treatment response in dogs with pIMHA. PM is reliable to detect non-responders, monitor response to treatment and help adjust treatment in individual dogs.

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Disclosures to report.

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ESVIM-O-8

Platelet function in healthy dogs receiving sustained clopidogrel, prednisone, or combination therapy

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Clopidogrel is commonly administered to dogs receiving glucocorticoids for immune-mediated hemolytic anemia, but the impact of sustained therapy on platelet reactivity is currently unknown. The aim of this study was to compare platelet reactivity among dogs receiving sustained clopidogrel, prednisone, and combination therapy.

A double-blinded, placebo-controlled trial was performed using 24 healthy dogs that were randomized to 1 of 4 treatment groups: placebo, prednisone 2 mg/kg/d, clopidogrel 2-3 mg/kg/d, or combined prednisone/clopidogrel therapy PO for 28 days. Complete blood counts, manual platelet counts, PFA-100® closure times (collagen/ADP), and area under the curve (AUC) for Multiplate® whole-blood aggregometry (ADPtest) were determined at baseline, day 14, and day 28. Platelet reactivity was categorized as controlled if closure times increased ≥30% compared to baseline or AUC was ≤46U; control based on AUC was subcategorized into adequate (19-46U) and excess (<19U) control. Closure times, AUC, platelet reactivity control, and degree of control were compared among groups using mixed model, split-plot repeated measures ANOVAs, generalized estimating equation proportional odds models, and Fisher's exact tests as appropriate. P<0.05 was considered significant.

All dogs had normal hematocrits and platelet counts at all timepoints. Significant (P<0.01) group, week, and group*week interactions were present for closure times and AUC, due to significant differences for the clopidogrel and prednisone/clopidogrel groups compared to placebo and prednisone groups. Based on closure times on days 14 and 28, significantly more dogs had adequate control in the clopidogrel (5/6) and prednisone/clopidogrel (5/6) groups versus the placebo (1/6) and prednisone (0/6) groups. On days 14 and 28, all dogs in the clopidogrel and prednisone/clopidogrel groups were characterized as being controlled based on aggregometry, versus 1/6 dogs each in the placebo and prednisone groups. Dogs receiving prednisone/clopidogrel were 11 times (P=0.03) more likely to be over-controlled over time (day 14, 6/6; day 28, 6/6) than dogs receiving clopidogrel monotherapy (day 14, 5/6; day 28, 2/6).