Socioeconomic Correlation to Lepto?

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This study investigated the association of housing, population, agriculture, and proximity to public spaces with incidence of canine leptospirosis in Kansas and Nebraska, using a retrospective case-controlled method. The sample population consisted of 94 dogs testing positive for leptospirosis and 185 negative controls. Diagnosis was based on a positive PCR test for leptospires in urine, positive urine culture for leptospires, a single serum titer of ≥12,800, or a 4-fold rise in serum titers over 2–4 weeks. Absence of infection was based on negative urine PCR and serum titers <400. Multivariable logistic regression analysis was performed across all variables. Results showed a positive association between leptospirosis and areas with household income below the poverty line in 1999, households lacking complete plumbing facilities, and proximity within 2500 m to university and/or college campuses or public parks and/or forest areas. Vaccination status of dogs was not clear but may have been a factor, given the higher risk for impoverished owners failing to vaccinate their dogs. Public parks and college and/or university campuses provide ample open spaces where increased dog-to-dog contact could occur; contaminated flooding and runoff near parking lots and landscaped areas may be problematic. Dogs in these neighborhood conditions should be vaccinated for leptospirosis.

Commentary

This study provided a good reminder that dogs in urban areas are at risk for leptospirosis necessitating vaccination for dogs in urban areas. The leptospirosis vaccination status of the dogs in this study was unknown. The dogs may be at increased risk for exposure to leptospirosis because of substandard housing conditions, or the increased risk found in such areas may be a result of failure to vaccinate. The role of poverty status or physical conditions as risk factors or markers for lack of vaccination could not be determined from this study.—*Laura Tonkin, DVM*

Source

Neighborhood-level socioeconomic and urban land use factors of canine leptospirosis: 94 cases (2002-2009). Raghavan RK, Brenner KM, Higgins JJ, et al. *PREV VET MED* 106:324-331, 2012.

Defining Metabolic Acidosis

Metabolic acidosis is common in ill and injured animals. In humans, metabolic acidosis has diagnostic, therapeutic, and prognostic value; this may also be true in animals. Metabolic acidosis occurs when the accumulation of nonvolatile acids or loss of bicarbonate exceeds the body's buffering capability. Acid base parameters, electrolytes, and lactate concentrations were reviewed from dogs and cats admitted to a veterinary medical teaching hospital over 13 months. Values were measured from heparinized blood samples immediately after collection on a point-of-care machine. Metabolic acidosis was defined as a standardized base excess of <-4 mmol/L (dogs) and <-5mmol/L (cats). Of the 1805 dogs and cats having ≥1 blood sample analyzed, 887 (49%) had metabolic acidosis (753 dogs, 134 cats). Metabolic acidosis was associated with various underlying diseases; neoplasia was most common in dogs and renal disease most common in cats. The most common acid–base abnormality was primary metabolic acidosis. Mixed acid–base disorders were more common in both dogs and cats than were simple disorders; primary respiratory alkalosis was the least common abnormality. Hyperchloremic metabolic acidosis was more common than high anion gap (AG) metabolic acidosis. Twenty-five percent of dogs and 34% of cats with metabolic acidosis could not be classified as having either hyperchloremia or high AG. Routine categorization of metabolic acidosis based on high AG or hyperchloremia alone may be misleading.

Commentary

AG, bicarbonate/TCO_2, and chloride levels are all means by which acid–base status can be evaluated in practice. Even without a blood gas analyzer, a potential metabolic imbalance can be gleaned via serum biochemistry panel and evaluation. Metabolic acidosis results from either a high AG and diminished bicarbonate or hyperchloremia with a normal AG. High lactate was (not surprisingly) the biggest contributor to metabolic acidosis. High lactate is the second most common cause of metabolic acidosis in dogs and the first most common cause in cats. A patient can have a high lactate and a normal AG from low albumin from protein loss, inadequate production, or third spacing—this may explain the lack of either a high AG or hyperchloremia in many acidotic patients in this study. Albumin and lactate levels may be helpful in assessing a patient suspected of having an acid–base imbalance. Additionally, respiratory depression—from anesthesia or disease comorbidity—can cause increased serum bicarbonate, leading to mistaken respiratory acidosis for metabolic alkalosis. There is a complexity to acid–base disturbances that can evade standard detection in private practice. It is important to consider lactate, albumin, free water excess, chloride levels, clinical condition of the patient and respiratory status before ruling out referral for blood-gas analysis.—*Ewan Wolff, DVM*

Source

Incidence, nature, and etiology of metabolic acidosis in dogs and cats. Hopper K, Epstein SE. *JVIM* 26:1104-1114, 2012.