Bordetella bronchiseptica & *Mycoplasma cynos* in Dogs with Inflammatory Airway Disease

Shawn Kearns, DVM, DACVIM
Angell Animal Medical Center
Boston, Massachusetts

In the Literature

Canonne AM, Peters I, Roels E, Desquilbet L, Clercx C. Detection of specific bacterial agents by quantitative PCR assays in the bronchoalveolar lavage fluid of dogs with eosinophilic bronchopneumopathy vs dogs with chronic bronchitis and healthy dogs. *Vet J*. 2018;232:52-56.

FROM THE PAGE ...

Eosinophilic bronchopneumopathy (EBP) is characterized by eosinophilic infiltration of the bronchial mucosa and the lungs of young adult dogs that leads to coughing. The cause is unknown, but evidence has suggested an immunologic or aeroallergen component may be involved, as the response may be similar to a type 1 hypersensitivity reaction.[1-3] Diagnosis is based on an increased eosinophil component in tracheal or bronchial fluid collection. Testing to exclude infection from bacterial and parasitic diseases should be performed prior to treatment, and culture and PCR results should always be interpreted with cytology, as presence of oral contamination may lead to false positive results.[4]

Infection with certain respiratory pathogens (eg, *Mycoplasma pneumoniae*) has been shown to favor asthma development in human patients. This study sought to determine if similar pathogens were present in dogs with EBP and whether infection was related to the severity of respiratory signs. Healthy patients and those with chronic bronchitis were also evaluated. Bacteria evaluated included *Mycoplasma canis*, *Mycoplasma cynos*, and *Bordetella bronchiseptica*. *M cynos* and *B bronchiseptica* are known causative agents of respiratory signs in dogs. Quantitative polymerase chain reaction (qPCR) was used to detect these organisms in bronchoalveolar lavage fluid (BALF) samples, and the results were reported as cycle threshold (CT) values. No significant difference in qPCR detection rates for each of the bacterial agents was found between dogs with EBP and chronic bronchitis or between healthy dogs and dogs with EBP. However, in dogs that tested positive for *M cynos*, CT values corresponding to a very high bacterial load were found only in patients with inflammatory

bronchial disease (both chronic bronchitis and EBP). CT values corresponding to a moderate-to-high load of *B bronchiseptica* were found only in patients with EBP; subjectively, these patients had more severe clinical signs based on the authors' scoring system. Median neutrophil counts were also higher in BALF samples positive for either *M cynos* or *B bronchiseptica*.

Despite some study limitations, results suggest that infection with specific organisms may contribute to or worsen clinical signs of airway disease in patients with EBP. The exact role these or other organisms may play in inflammatory respiratory diseases has yet to be determined.

… TO YOUR PATIENTS

Key pearls to put into practice:

1. Culture and qPCR of BALF should always be performed when samples are collected in a coughing patient.
2. Collection of BALF samples should occur prior to antibiotic administration or after a washout period to decrease the risk for false negative results. Results should be interpreted with caution if oral bacterial contamination is present.
3. If clinical signs worsen acutely or do not respond to traditional therapies (ie, glucocorticoids) in patients with known EBP, infection should be considered.

References

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2. Clercx C, Peeters D, German AJ, et al. An immunologic investigation of canine eosinophilic bronchopneumopathy. *J Vet Intern Med*. 2002:16(3):229-237.
3. Peeters D, Day MJ, Clercx C. Distribution of leucocyte subsets in bronchial mucosa from dogs with eosinophilic bronchopneumopathy. *J Comp Pathol*. 2005;133(2-3):128-135.
4. Chan CM, Ridgway MD, Mithcell MA, Maddox CW. Association between *Mycoplasma*-specific polymerase chain reaction assay results and oral bacterial contamination of bronchoalveolar lavage fluid samples from dogs with respiratory tract disease: 121 cases (2005-2012). *J Am Vet Med Assoc*. 2013;243(11):1573-1579.