R-2

EFFECT OF OBESITY ON PULMONARY FUNCTION IN CATS WITH NATURAL BRONCHIAL DISEASE. L García-Guasch1, A Caro-Vadillo2, J Manubens1, JA Montoya-Alonso2, AA Camacho1, 1HV Molins, Barcelona, Spain. 2Med. Cir. Anim., UCM, Madrid, Spain. 3Int. Med., ULPGC, Las Palmas, Spain. 4UNESP - Sao Paulo - BR, Jaboticabal, Brazil.

Feline bronchial disease (FBD) is a common inflammatory disease of the lower airways. Human medicine researchers have found that obesity may play a significant role in the pathogenesis of pulmonary diseases through mechanisms that may involve proinflammatory mediators. Barometric whole-body plethysmography (BWBP) is a noninvasive pulmonary test that allows a dynamic study of breathing patterns. The objective of this preliminary study was to evaluate if there were significant differences in tidal volume (TV) and bronchoconstriction index (EC200Raw) between natural FBD cats and obesophagitis cats. Forty-five client-owned cats with natural FBD were included. Cats did not have a previous history of upper airway, cardiac or systemic diseases and had negative results when tested for heartworm, FeLV and FIV diseases. Thirty-two of them were NW-FBD (NW-FBD) and thirteen were O-FBD (O-FBD) cats by using BWBP. TV, Penh and Pause were measured at baseline and EC200Raw using OsiriX v. 3.8.

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While not significantly (p = 0.18) different, three asthmatics reached EC200Raw at low (<2 mg/ml) MCh doses; all healthy cats required the highest MCh dose to reach EC200Raw. There was a significant (p = 0.008) increase in soft tissue attenuation in the left lung field in asthmatic versus healthy cats at baseline (-826.6 ± 11.1 vs. -873.6 ± 8.6 HU, respectively) and throughout MCh nebulization. In expiration, dorsal lung field attenuation significantly increased at EC200Raw in asthmatic cats while it remained similar to baseline in healthy cats. No significant difference between the left lung field inspiratory/expiratory CT scans between groups was noted at baseline, but it significantly (p = 0.034) increased at EC200Raw in asthmatic compared to healthy cats.

Pilot findings suggest tandem pulmonary mechanics and CT imaging may detect AHR and remodeling in asthmatic cats.

R-4

SHORT TERM USE OF MESENCHYMAL STEM CELLS FAILS TO MODULATE BGA-SPECIFIC AIRFLOW LIMITATION IN EXPERIMENTAL FELINE ASTHMA. JE Trzil1. CH Chang2, T Webb4, JR Dodam4, LA Cohn1, H Liu3, S Dow2, CR Reinero4. 1Comparative Internal Medicine Laboratory, College of Veterinary Medicine, University of Missouri, Columbia, MO. 2Comparative Internal Medicine Laboratory, College of Veterinary Medicine, University of Missouri, Columbia, MO. 3Center for Immune and Regenerative Medicine, Colorado State University, Fort Collins, CO.

Pilot data suggested adipose-derived mesenchymal stem cells (aMSCs) diminished some aspects of the immune response in experimental feline asthma. We hypothesized that aMSCs would improve Bermuda grass allergen (BGA)-induced airflow limitation.

While not significantly (p = 0.18) different, three asthmatics reached EC200Raw at low (<2 mg/ml) MCh doses; all healthy cats required the highest MCh dose to reach EC200Raw. There was a significant (p = 0.008) increase in soft tissue attenuation in the left lung field in asthmatic versus healthy cats at baseline (-826.6 ± 11.1 vs. -873.6 ± 8.6 HU, respectively) and throughout MCh nebulization. In expiration, dorsal lung field attenuation significantly increased at EC200Raw in asthmatic cats while it remained similar to baseline in healthy cats. No significant difference between the left lung field inspiratory/expiratory CT scans between groups was noted at baseline, but it significantly (p = 0.034) increased at EC200Raw in asthmatic compared to healthy cats.

Pilot findings suggest tandem pulmonary mechanics and CT imaging may detect AHR and remodeling in asthmatic cats.

We must keep in mind some limits of this study as the high variability in bronchial involvement and to have the chance of doing bronchoactivity tests. Although in human and canine respiratory obesity is clearly associated with increased asthma severity, measured results suggest that obesity do not worse TV and bronchoconstriction indexes in natural FBD cats.