Preliminary results of the French bulldog study – A novel technique allowing testing of non-invasive respiratory function 19th June 2013

The initial objectives of our work are to explore the use and practicality of a new non-invasive technique for respiratory monitoring in dogs and to understand the characteristics of the respiratory cycle in normal French bulldogs compared with those that show moderate or acute respiratory distress caused by brachycephalic obstructive airway syndrome (BOAS). Over the last few months we have been recruiting French bulldogs from the breed clubs to participate in our brachycephalic study. Over 30 volunteer French bulldogs have undergone the non-invasive respiratory function test – Whole body barometric plethysmography (WBBP).

Over the past year we have been looking at the surgical outcome of upper airway corrective surgery in dogs that suffer from brachycephalic obstructive airway syndrome (BOAS). Thanks to the great assistance from the breed clubs, we were able to compare the plethysmographic data between BOAS-affected French bulldogs from our clinical database and BOAS-free dogs from the breed clubs. The WBBP test provides an opportunity to monitor respiratory flow traces in each dog in real time.

Our preliminary results show that BOAS-affected French bulldogs have different respiratory patterns to BOAS-free French bulldogs. From analyzing the flow traces, the BOAS-affected French bulldogs displayed fluctuating waveforms with disordered flow peaks over both inspiratory and expiratory phases in comparison with the traces displayed by BOAS-free French bulldogs. Statistically, we also found significant differences among several respiratory parameters in terms of respiratory rate, peak flow rate, minute volume etc. between BOAS-affected and BOAS-free groups. Interestingly, although the BOAS-free group shows slightly different respiratory patterns to that of non-brachycephalic controls, these dogs seem to be able to maintain ventilation levels comparable to the non-brachycephalic dogs.

The initial results confirm the sensitivity and clinical applicability of the WBBP technique and also provide objective information on respiratory function. Since the issue of BOAS has been widely discussed in veterinary medicine, we hope that this technique will help with better understanding the pathophysiology of the disease in order to enhance the welfare of brachycephalic breeds.

In order to improve the power of the study, we would like to increase our sample size by recruiting more brachycephalic dogs to contribute to the data. We would be happy to arrange your visit to the Queen's Veterinary School Hospital (QVSH) in Cambridge.

Please contact Nai-Chieh Liu via email at ncl25@cam.ac.uk or the QVSH by email at hospital@vet.cam.ac.uk or by telephone on 01223 337621. If you have any questions about taking part in the study, please contact the study investigators:

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