INTERNAL MEDICINE: RESEARCH

All the medicine clinicians are involved in a wide range of research projects whose ultimate goal is to develop better treatments and outcomes for our patients. Over the past five years, the medicine team has published over 75 peer reviewed, original research papers. The results of our work has directly influenced our understanding of many common diseases and has improved our ability to diagnose and treat important diseases.

Our research programme can be broadly based into two main themes:

1) Infection and inflammation

The medicine team are engaged in a wide range of research projects which aim to better understand the prevalence and aetiopathogenesis of a wide range of infectious and inflammatory disorders.

We have undertaken a number of studies of infectious diseases in cats and dogs notably in Tritrichomonas and Mycobacteria infections in cats1-7. Work undertaken in Edinburgh has assessed the prevalence of Tritrichomonas in cats and has developed novel treatment strategies. We have also undertaken large scale studies on the epidemiology, risk factors and treatment outcomes in feline mycobacteria infections. Our work has explored risk factors for the development of mycobacteria infections and we recently reported that cats with mycobacteriosis have lower serum concentrations of vitamin D than healthy cats. Importantly, we have also worked with colleagues in other institutes to validate diagnostic tests for feline mycobacteria8 9. We have also investigated the role of Mycoplasma infections in lower airway disease in cats10.

We also have an active research programme exploring the pathogenesis and complications of canine inflammatory bowel disease11-16. We have characterised protein expression in the apical junction complex in the canine colon, have examined the validity of disease markers in dogs with inflammatory bowel disease and have described a novel syndrome of hypovitaminosis D in dogs with protein losing enteropathies. We have also completed several studies on haematological disorders including investigations on platelet activation in autoimmune haemolytic anaemia and the systemic consequences of severe anaemia17-19.

We have performed mechanistic studies on the role of T cells in autoimmune diseases that affect both cats, dogs and humans20-23.
2) Metabolism and endocrinology

The second major research theme of the medicine team is in the area of metabolism and endocrinology. Again, our key ambition is better understand common medical disorders in this area with the ambition of improving treatment outcomes for our patients.

We are actively investigating the pathogenesis of hepatic encephalopathy which is a disorder that is a major cause of morbidity and mortality in dogs with liver disorders. We have recently reported that dogs with liver diseases have disturbances in the metabolism of managanese which is known to have neurotoxic effects in humans. We have also found an association between inflammation and hepatic encephalopathy in dogs with liver diseases.

We have clinically validated parathyroid hormone related protein (PTHrp) and vitamin D metabolites tests which have proven to be diagnostically valuable in the evaluation of canine patients with a range of calcium metabolism disorders. We have characterised calcium metabolites in dogs with hypoadrenocorticism and examined how glucocorticoids modulate calcium homeostasis in dogs. With colleagues in the dermatology service, we have demonstrated that lower vitamin D status is associated with steroid unresponsiveness in dogs with atopic dermatitis.

Members of the medicine team are also leading mechanistic studies into cardiovascular function and aging in dogs, cats and humans.

References


24. Gow AG, Marques AI, Yool DA, Crawford K, Warman SM, Ekersall PD, et al. Dogs with congenital porto-systemic shunting (cPSS) and hepatic encephalopathy have higher serum concentrations of C-reactive protein than asymptomatic dogs with cPSS. *Metab Brain Dis* 2012;27(2):227-9.


