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Introduction

Feline infectious diseases: Our curiosity could be their salvation

The Veterinary Journal's Special Issue for 2015 focuses on feline infectious diseases and features among the authors a host of luminaries from all over the world. While of course we would all agree that even '*the smallest feline is a masterpiece*' (with apologies to Leonardo da Vinci), the study of the pathogens that plague them is (to me at least) the most fascinating aspect of feline medicine. Perhaps part of the reason that cats are so adept at procreation is to stay one step ahead of an abundance of infectious agents, often lurking in clinical silence, waiting to seize on any chink in the armor of the feline immune system.

The Special Issue commences with a much-anticipated two-part state of the art review on feline infectious peritonitis by Professor Niels Pedersen of UC Davis (Pedersen, 2014a, 2014b). While we inch tantalizingly closer each year to understanding this most intriguing of feline viral diseases, our hopes for reliable diagnostic methods and treatment protocols seem to move one step forward and two steps back – a classic story of the more you know, the more you know you don't know. At least three types of mutations in feline enteric coronaviruses (FECVs) now command our attention in the transition of a FECV to a feline infectious peritonitis virus (FIPV), two in the spike and one in the accessory 3c genes. They tease us with the possibility of unveiling the molecular secrets underlying the transition from FECV to FIPV and the immune response to infection.

We turn then from an old foe to a relatively new one, Borna disease virus, or 'staggering disease', well known in Europe and emerging internationally as infection markers are reported in cats around the world (Wensman et al., 2014). A bonus is the compelling clinical snapshot of affected cats that can be viewed as a supplementary video file online.

Disease prophylaxis rather than treatment or management is a cardinal principle of modern veterinary medicine, and one of the most effective weapons we have in the war against feline viral diseases is still vaccination. This point is elegantly made in the review paper on feline parvoviruses (Stuetzer and Hartmann, 2014) and in the experimental study on the efficacy of intranasal and subcutaneous vaccination against feline herpesvirus (Reagan et al., 2014).

The manifestations of infectious disease are as varied as the pathogens themselves and the Special Issue features cutting edge reviews and original research articles on the topic. As any feline clinician will tell you, examination of the eyes is a mandatory component of any thorough physical examination and the ocular manifestations of feline viral diseases are here reviewed meticulously by Dr. Jean Stiles from Purdue University (Stiles, 2014). Additionally, Dr. Anja Kipar leads a team of researchers who report here for the first time the involvement of alveolar macrophages in pulmonary feline calicivirus infection (Monné Rodriguez et al., 2014).

T.S. Eliot was probably not alluding to animal models of human disease when he wrote '*You now have learned enough to see that cats are much like you and me*', but nonetheless the sentiment rings true for a number of the articles featured in this issue. The link between infection and cancer is explored in Dr. Julia Beatty's cutting edge review on viral causes of feline lymphoma, in which she announces the successful molecular identification of the first gammaherpesvirus of the domestic cat, *Felis catus* gammaherpesvirus 1 (FcaGHV1), and explores a possible role for these novel viruses in the pathogenesis of feline lymphoma (Beatty, 2014). Feline immunodeficiency virus (FIV) is the infectious agent most frequently linked with lymphoma in cats, so this novel discovery is exciting news indeed. New information on potential markers of disease progression in FIV-infected cats is also featured in a short communication by Dr. Joanne Meers' group from the University of Queensland (Kann et al., 2014), while the risks of horizontal and vertical transmission of naturally acquired FIV infection are investigated in a two-part US-based study (Litster, 2014).

The control of infectious disease transmission and the management of clinical cases are fundamental to the discipline of shelter medicine, and populations of shelter-housed cats are a rich source of information on infectious agents. Dr. Julie Levy leads the Maddie's Shelter Medicine Program at the University of Florida and presents two thought-provoking articles exploring the host–pathogen–environment triad. The first paper reports a study which investigated infectious agents identified in cats rescued from large-scale hoarding situations (Polak et al., 2014), while in a second article, the effect of different kinds of shelter management models on the prevalence of upper respiratory pathogens is reported (McManus et al., 2014). This is an excellent reminder of the vital role veterinarians play as animal welfare advocates, particularly for homeless animals.

Our Special Issue also pushes back the boundaries of science in the area of feline bacterial infections with a review on pradofloxacin, the most recent quinolone approved for veterinary medicine. This novel veterinary fluoroquinolone has an interesting dual target mechanism of action and a number of approved clinical indications for feline infections (Sykes and Blondeau, 2014). Dr. Scott Weese's group from the University of Guelph also describes the rich and diverse bacterial population of the feline oral cavity, using modern next-generation sequencing technology. This is a window into a new dimension in microbiology, allowing us to explore the microbiome in an anatomical site of critical importance in feline medicine (Sturgeon et al., 2014).

New information on feline fungal infections is included, specifically in a report on a novel study that used computed tomography to investigate sino-nasal and sino-orbital aspergillosis (Barrs et al., 2014). Feline upper respiratory tract aspergillosis is a very topical area and this article reports infections caused by the emerging pathogen, *Aspergillus felis*, as well as four other *Aspergillus* species that have not previously been reported at this anatomical site in cats.

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Finally, Dr. Danielle Gunn-Moore offers a very timely and comprehensive review paper on feline mycobacterial infections. Interest in feline mycobacterial infections has peaked recently with the first reports of transmission of *M. bovis* from cats to humans after an unusual cluster of this rare feline infection was reported in Berkshire and Hampshire, UK, earlier this year.[1] Dr. Gunn-Moore's article provides all the practical tools that veterinary clinicians need to accurately identify, diagnose, treat and prognose mycobacterial infections in cats (Gunn-Moore, 2014).

I would like to thank all of the reviewers who devoted their time and expertise to our Special Issue. Like the authors of the articles, they are world leaders in their fields and do their utmost to ensure that *The Veterinary Journal's* standards and impact remains high.

Scientific curiosity is a powerful tool that drives us all; perhaps rather than 'killing the cat', it is the means by which we can ensure that these small masterpieces enjoy long and healthy lives in our care.

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[1] See: DEFRA News Release, Thursday March 27. Cases of TB in domestic cats and cat-to-human transmission – risk to public very low. http://www.defra.gov.uk/ahvla-en/files/20140327-cat-tb-news-release.pdf (Accessed 19 May 2014).

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