View metadata, citation and similar papers at core.ac.uk

brought to you by CORE

provided by Nottingham ePrints

Dunning, Mark (2017) Improving IBD in dogs through exercise. Veterinary Record, 180 (9). pp. 222-223. ISSN 0042-4900

Access from the University of Nottingham repository:
http://eprints.nottingham.ac.uk/43247/8/VR%20editorial_exercise%20and%20CE%20in%20dogs%20Huang_MD.pdf

Copyright and reuse:

The Nottingham ePrints service makes this work by researchers of the University of Nottingham available open access under the following conditions.

This article is made available under the University of Nottingham End User licence and may be reused according to the conditions of the licence. For more details see: http://eprints.nottingham.ac.uk/end_user_agreement.pdf

A note on versions:

The version presented here may differ from the published version or from the version of record. If you wish to cite this item you are advised to consult the publisher's version. Please see the repository url above for details on accessing the published version and note that access may require a subscription.

For more information, please contact eprints@nottingham.ac.uk

Giving IBD the run around!

Mark Dunning MA VetMB PhD CertSAM DipECVIM-CA
School of Veterinary Medicine and Science, University of Nottingham, UK
mark.dunning@nottingham.ac.uk

Confirming (idiopathic) inflammatory bowel disease (IBD) in dogs can be difficult and continues to confound in achieving a definitive diagnosis in dogs presenting with chronic enteropathies (CE). It is recognised that intestinal inflammation can vary and may not correlate with disease activity and quality of life measures (Garcia-Sancho *et al* 2007, Procoli *et al* 2013, Walker *et al* 2013). These factors clearly contribute to the limitations in our understanding of canine CE which influences our therapeutic decision-making. One could therefore question the value of extensive investigations when the results of the tests do not invariably provide a definitive diagnosis. In dogs with severe protein-losing enteropathies, perhaps the rationale for such investigations may be much greater (Dandrieux 2016). Problems arise however in dogs that have less severe disease where the results of diagnostic investigations may be more equivocal. For example, the dog with a limited response to selected diet trials with low-grade lymphoplasmacytic inflammation on endoscopic biopsies. These dogs are all too common in practice and can lead to significant frustrations for vets and owners alike when managing them. Recently, Dandrieux (2016) presented an eloquent review of what IBD really means in dogs. This emphasised the importance of a systematic diagnostic approach, particularly in attempting to identify both food and antibiotic responsive enteropathies. Whilst this presented a very clear path for investigations, in reality the availability of non-invasive diagnostic testing is very limited. For example, serological and faecal biomarkers which are used extensively in humans for the diagnosis and management of IBD (Lopez *et al* 2016, Kochhar and Lashner 2017) are of limited availability in dogs and our ability to interpret any results is imperfect (Jergens *et al* 2010, Grellet *et al* 2014). In addition to these limitations, the diagnostic approach to and management of dogs suffering with CE also suffers from financial, clinical and ethical limitations. This can make for difficult decision-making. Therefore, making a 'diagnosis' by response to therapy is often necessitated, something specialists must accept, however dissatisfying. Given that this approach has clear limitations, the realities of managing these cases must also be appreciated. It is important that trial therapy, if it is introduced, has minimal side-effects which could lead to clinical deterioration or perhaps more worryingly to owners withdrawing treatment based on welfare grounds. In addition to the difficulties over diagnostic approaches and therapeutic decision-making in dogs with CE, clinical responses can also vary (Craven *et al* 2004, Allenspach *et al* 2007, Garcia-Sancho et al 2007). In this issue of the VR, Huang *et al* have undertaken a novel and very important study evaluating the role of exercise in managing dogs with CE. The dogs in this study were all suffering with CE and following the introduction of a structured exercise programme as part of their medical management plan, their respective disease activities were significantly improved compared with non-exercising controls after 10-weeks. This is an inspiring approach and provides an important starting point for understanding the role of novel adjunctive non-medical therapies for canine CE. There was no evidence in these dogs that the introduction of the exercise regime led to clinical deterioration. The results are compelling, leaving aside the limitations on case numbers, and elegantly introduce the concept that exercise can benefit dogs with CE. This study has great resonance for primary care practitioners given that not all dogs in the study had extensive investigations, including endoscopy to characterise their disease, yet demonstrated clinical benefit. Whilst novel in dogs, there is a significant amount of work on this area in humans with IBD. The studies to date would suggest a number of health benefits following the introduction of exercise whether this is structured or not. The benefits are seen in both immediate measures of disease activity and also in reducing the number of relapses and improving quality of life in individual patients (Packer *et al* 2010, Klare et al 2015, Shepherd 2016). Many of these benefits are understood to be directly on the immune system, which supports it's value in dogs with CE (Nehlsen-Cannarella *et al* 1991, Mackinnon 1994, Lui et al 2015). The

dogs in Huang's study are described as sedentary and it is therefore difficult to know how exercise might improve disease activity in dogs with CE which are taking 'normal' amounts of exercise. However, in support of Huang's findings, as little as 12 weeks of low-intensity exercise in humans with sedentary lifestyles can lead to improvements in both psychological and physiological wellbeing in patients with Crohn's disease (Loudon *et al* 1999). What constitutes normal exercise however and the variable amount of exercise taken by humans suffering with IBD is a consideration when assessing any intervention (Rawsthorne *et al* 1999, Chan *et al* 2014, Tew *et al* 2016). A recent study indicated that whilst exercise has important positive effects in humans with IBD, a significant proportion of patients reported that their disease limited their ability to take 'normal' exercise (Tew et al 2016). It is unclear whether similar limitations to taking voluntary exercise exist in dogs suffering with CE and this is an important consideration. If we reflect on how regular exercise effects humans with IBD, given the majority of UK dogs will be taking regular exercise, some humans will derive benefit (Jones et al 2015) and some will suffer relapses (Chan et al 2014). It is therefore vital to ensure that any exercise programme introduced is appropriate – perhaps akin to baby bear's porridge – being 'just right' is the ultimate goal. As discussed above (and highlighted by Dandrieux), the dissimilarities between human IBD and canine CE means that there are some difficulties in extrapolating either the benefits or complications of exercise in non-sedentary dogs with CE. Therefore, in order to answer this question, which may be more applicable to dogs with CE in the UK, Europe and the USA, further work is required using Huang *et al*'s study to form the basis of an exciting new area of investigation. I would therefore like to congratulate the authors in beginning to tackle this poorly explored area in dogs with CE and I very much look forward to seeing this study serve as an important starting point for future work.

References:

ALLENSPACH, K., WIELAND, B., GRÖNE, A., GASCHEN, F. (2007) Chronic enteropathies in dogs: evaluation of risk factors for negative outcome. J Vet Intern Med. **21**, 700-8.

CHAN, D., ROBBINS, H., ROGERS, S., CLARK, S., POULLIS, A. (2014) Inflammatory bowel disease and exercise: results of a Crohn's and Colitis UK survey. Frontline Gastroenterology **5,** 44-48.

CRAVEN, M., SIMPSON, J. W., RIDYARD, A. E. & CHANDLER, M. L. (2004) Canine inflammatory bowel disease: retrospective analysis of diagnosis and outcome in 80 cases (1995–2002). The Journal of Small Animal Practice **45**, 336–342

DANDRIEUX, J.R.S. (2016) Inflammatory bowel disease *versus* chronic enteropathy in dogs: are they one and the same? The Journal of Small Animal Practice **57**, 589–599

GARCÍA-SANCHO, M., RODRÍGUEZ-FRANCO, F., SAINZ, A., MANCHO, C., RODRÍGUEZ, A. (2007) Evaluation of clinical, macroscopic, and histopathologic response to treatment in nonhypoproteinemic dogs with lymphocytic-plasmacytic enteritis. J Vet Intern Med. **21**, 11-7.

GRELLET, A., MILA, H., HEILMANN, R.M., FEUGIER, A., GRUETZNER, N., SUCHODOLSKI, J.S., STEINER, J.M., CHASTANT-MAILLARD, S.(2014) Effect of age, gestation and lactation on faecal IgA and calprotectin concentrations in dogs. J Nutr Sci. **30**, e41.

JERGENS, A.E., CRANDELL, J., MORRISON, J.A., DEITZ, K., PRESSEL, M., ACKERMANN, M., SUCHODOLSKI, J.S., STEINER, J.M., EVANS, R. (2010) Comparison of oral prednisone and prednisone combined with metronidazole for induction therapy of canine inflammatory bowel disease: a randomized-controlled trial. J Vet Intern Med. **24**, 269-77

JONES, P.D., KAPPELMAN, M.D., MARTIN, C.F., CHEN, W., SANDLER, R.S., LONG, M.D. (2015) Exercise decreases risk of future active disease in patients with inflammatory bowel disease in remission. Inflamm Bowel Dis. **21**, 1063-71.

KLARE, P., NIGG, J., NOLD, J., HALLER, B., KRUG, A.B., MAIR, S., THOERINGER, C.K., CHRISTLE, J.W., SCHMID, R.M., HALLE, M., HUBER, W. (2015) The impact of a ten-week physical exercise program on health-related quality of life in patients with inflammatory bowel disease: a prospective randomized controlled trial. Digestion. **91**, 239-47.

KOCHHAR, G., LASHNER, B. (2017) Utility of Biomarkers in the Management of Inflammatory Bowel Disease. Curr Treat Options Gastroenterol. doi: 10.1007/s11938-017-0129-z. [Epub ahead of print]

LIU, W.X., ZHOU, F., WANG, Y., WANG, T., XING, J.W., ZHANG, S., SANG, L.X., GU, S.Z., WANG, H.L. (2015) Voluntary exercise protects against ulcerative colitis by up-regulating glucocorticoid-mediated PPAR-γ activity in the colon in mice. Acta Physiol (Oxf). **215**, 24-36.

LOPEZ, R.N., LEACH, S.T., LEMBERG, D.A., DUVOISIN, G., GEARRY, R.B., DAY, A.S. (2016) Faecal Biomarkers in Inflammatory Bowel Disease. J Gastroenterol Hepatol. **32** doi: 10.1111/jgh.13611. [Epub ahead of print]

LOUDON, C.P., CORROLL, V., BUTCHER, J., RAWSTHORNE, P., BERNSTEIN, C.N. (1999) The effects of physical exercise on patients with Crohn's disease. Am J Gastroenterol. **94**, 697-703.

MACKINNON, L.T. (1994) Current challenges and future expectations in exercise immunology: back to the future. Med Sci Sports Exerc. **26**, 191-4.

NEHLSEN-CANNARELLA, S.L., NIEMAN, D.C., BALK-LAMBERTON, A.J., MARKOFF, P.A., CHRITTON, D.B., GUSEWITCH, G., LEE, J.W. (1991) The effects of moderate exercise training on immune response. Med Sci Sports Exerc. **23**, 64-70.

PACKER, N., HOFFMAN-GOETZ, L., WARD, G. (2010) Does physical activity affect quality of life, disease symptoms and immune measures in patients with inflammatory bowel disease? A systematic review. J Sports Med Phys Fitness. **50**, 1-18.

PROCOLI, F., MÕTSKÜLA, P.F., KEYTE, S.V., PRIESTNALL, S., ALLENSPACH, K. (2013) Comparison of histopathologic findings in duodenal and ileal endoscopic biopsies in dogs with chronic small intestinal enteropathies. J Vet Intern Med. **27**, 268-74.

RAWSTHORNE, P., SHANAHAN, F., CRONIN, N.C., ANTON, P.A., LÖFBERG, R., BOHMAN, L., BERNSTEIN, C.N. (1999) An international survey of the use and attitudes regarding alternative medicine by patients with inflammatory bowel disease. Am J Gastroenterol. **94**, 1298-303.

SHEPHARD, R.J. (2016) The Case for Increased Physical Activity in Chronic Inflammatory Bowel Disease: A Brief Review. Int J Sports Med. **37**, 505-15.

TEW, G.A., JONES, K., MIKOCKA-WALUS, A. (2016) Physical Activity Habits, Limitations, and Predictors in People with Inflammatory Bowel Disease: A Large Cross-sectional Online Survey. Inflamm Bowel Dis. **22**, 2933-2942.

WALKER, D., KNUCHEL-TAKANO, A., MCCUTCHAN, A., CHANG, Y.M., DOWNES, C., MILLER, S., STEVENS, K., VERHEYEN, K., PHILLIPS, A.D., MIAH, S., TURMAINE, M., HIBBERT, A., STEINER, J.M., SUCHODOLSKI, J.S., MOHAN, K., EASTWOOD, J., ALLENSPACH, K., SMITH, K., GARDEN, O.A. (2013) A comprehensive pathological survey of duodenal biopsies from dogs with diet-responsive chronic enteropathy. J Vet Intern Med. **27**, 862-74.