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Popular Article

Role of Probiotic and Prebiotic Therapeutics in Canine Chronic Enteropathy

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Abstract

The use of probiotics in veterinary practice had grown in recent years, owing in part to increased understanding of the microbiome of the intestinal tract, and in part to a reluctance to use antibiotics long term. Probiotics when added to the treatment of Chronic enteropathy act as anti-inflammatory and when administered in sufficient amounts, probiotics were live microorganisms that provide a health benefit to the host.

Keywords: Probiotic, Prebiotic, Canine, Chronic enteropathy

Introduction

In Veterinary Medicine, a condition that was once known as inflammatory bowel disease (IBD) is now more frequently referred to as Chronic enteropathy (CE). CE term is used for diseases of intestines regardless of etiology and pathogenesis. The term is widely used to describe the disease in canines with chronic gastrointestinal complaints, and when the intestinal inflammation is suspected but not confirmed or when no biopsies have been taken. CE is preferred to IBD because it recognises the differences between these disorders in humans, and in animals.

The term "probiotic" derives from the Greek words 'pro, which means "promoting," and biotic, which means "life." Probiotics are defined as live microorganisms that benefit the host's health when consumed in sufficient quantities. Prebiotics are ingredients that have been selectively



fermented in such a way that the composition or activity of the gastrointestinal microbiota is altered while also benefiting the host organism. Synbiotics are products that combine probiotics and prebiotics. It's important to remember that probiotics and prebiotics complement each other. Probiotics can also be added to the treatment. Probiotics cause levels of the pro-inflammatory interleukin-6 to drop, and the anti-inflammatory interleukin-10 to rise.

Gut Health

Gut health is now a major research topic not only in humans but also in animals. The gut is also the body's largest immunological organ. Not only is the gut the primary organ for nutrient digestion and absorption, but it also serves as the first line of defence against exogenous pathogens that can colonise and/or enter host cells and tissues. It is now widely acknowledged that 'gut health' maintenance or enhancement is far more complex than simply modulating gut microflora with probiotics or prebiotics. This is not surprising given that the gut contains over 640 different species of bacteria, over 20 different hormones, digests and absorbs the vast majority of nutrients, and accounts for 20% of total body energy expenditure. Gut is considered as the largest immune organ of the body. Gut health research has its roots in human health programmes that use nutritional interventions like probiotics and prebiotics to treat conditions like inflammatory bowel disease and chronic enteropathy.

The gastrointestinal (GI) microbiota is a diverse group of microorganisms that play important roles in both health and disease. Archaea, bacteria, fungi, protozoa, and viruses are all members of these communities. Probiotics have been shown to benefit the microbiota; they may have anti-inflammatory properties and may compete with pathogenic bacteria, reducing the possibility of those bacteria adhering to the intestinal mucous membrane and causing further disease. The mechanisms by which probiotics exert their beneficial effects, however, remain unknown.

Prebiotics, Probiotics and Synbiotics

Prebiotics influence intestinal bacteria by increasing the population of beneficial anaerobic bacteria while decreasing the population of potentially pathogenic microorganisms. Probiotics influence the intestinal ecosystem by influencing mucosal immune mechanisms, interacting with commensal or potentially pathogenic microbes, producing metabolic end products such as short-chain fatty acids, and communicating with host cells *via* chemical signaling. These mechanisms can result in pathogen antagonism, an improved intestinal environment, strengthening the intestinal barrier, decreased inflammation, and increased immune response to antigenic challenges. These phenomena are thought to mediate the majority of beneficial effects, including a reduction in the incidence and severity of diarrhoea, which is one of the most widely recognised uses of probiotics.

The use of prebiotics, probiotics, or their combination (so-called synbiotics) in chronic



enteropathy in both humans and animals has received a lot of attention. Because probiotics are not considered drugs, they are not required to demonstrate their efficacy in treating conditions, diseases, or even target species. Many branded products containing bacterial strains are currently on the market for the treatment of acute and chronic enteropathies, but only a small number of these have been shown to be effective. Furthermore, it is not uncommon for the concentration and viability of microbiological agents in readily available products to be questioned. Probiotics have been shown to support the microbiota; they may also have anti-inflammatory effects and compete with pathogenic bacteria, making them useful. Probiotics have been shown to support the microbiota; it has also been reported that they may have anti-inflammatory effects and may compete with pathogenic bacteria, making it less likely for those bacteria to stick to the intestinal mucous membrane and spread disease. The precise mechanisms by which probiotics produce their beneficial effects were unknown.

For canines with CE, the most popularly prescribed therapies aim to suppress the overactive immune responses that were the source of the symptoms. Non-immunosuppressive therapies, on the other hand, could play a significant role in helping patients achieve a better balance between risk, and benefit. They could reduce mucosal inflammation, combat microbial dysbiosis, and more. As a result of this need, probiotics, prebiotics, and synbiotics had been clinically evaluated for the treatment of CE.

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