Cambridge Bioceuticals Ltd | Article by Peter Cartwright MSc, MA

Probiotic News

Probiotics for Inflammatory Bowel Disease

(Crohn's disease and ulcerative colitis)

The following article is written by Peter Cartwright. Peter is the author of 'Probiotics for Crohn's and Colitis' and 'Coping Successfully with Ulcerative Colitis' . He is the former Assistant Director of the National Association for Colitis and Crohn's disease and has an MSc in Microbiology.

Introduction

Inflammatory bowel disease (IBD) is a long-term condition in which the immune cells lining the wall of the intestine get out-of-control. Inflammation occurs, which causes abdominal pain and altered bowel function (diarrhoea or constipation). The continuing inflammation causes damage to the gut wall and, in severe cases, surgery is needed to remove the damaged section. The two main types of IBD are Crohn's disease and ulcerative colitis (UC).

The cause or causes of IBD are unknown, but it is known that the gut microflora is being mis-read by the immune cells. In people with UC or Crohn's, the bacteria in the intestine are of a different mixture from those without these conditions. The thought that it might be possible to reduce the disease by changing the gut microflora to a healthier mixture has prompted research into probiotic use in people with IBD.

What is the gut microflora?

As human beings, we live in close association with bacteria from the moment we are born. Bacteria are miniscule single-cell organisms that live on the surfaces of our bodies. Such surfaces include the skin, the mouth, the nose, the intestine and the vagina. The intestine is the most heavily populated part of the body, with up to 100 trillion bacterial cells.

These resident bacteria (known as the microflora) are present because the intestine is an attractive environment for their growth and multiplication. It is wet and warm, and there is a regular supply of nutrients. Why does the human body put up with them? The reason is that the microflora provide a number of important benefits. They:-

•Stimulate the development in infants of the intestinal immune tissues (part of the body's defence system)

•Protect against infection by harmful germs

•Provide nutrients and vitamins by digesting food our body's enzymes cannot break down

The microflora consists of many different types of bacteria that are found in different parts of the intestine. More than 500 different species have been found. The greatest numbers of such bacteria are in the large intestine and in the last part of the small intestine (terminal ileum). These are the parts of the intestine that are commonly affected in IBD.

Research on probiotics and Inflammatory bowel disease

Probiotics have been defined by a joint committee of the United Nations and the World Health Organisation as “live microorganisms which when administered in adequate amounts confer a health benefit on the host” (FAO / WHO, 2001). In addition to describing beneficial bacteria, the term probiotics is also used to describe products that contain such beneficial bacteria.

So far, research on the effects of probiotics in people with IBD has been much more positive in UC than in Crohn's disease. There have been eight randomised controlled trials involving people with UC and seven showed significant benefit. Of the seven successful studies, probiotics were shown to extend the period of remission or reduce active disease. A majority of these studies used lactic acid probiotic bacteria. Some probiotics were used instead of 5-ASA drugs (standard treatment) and some were used in addition to 5-ASA drugs.

Can probiotics be used in children? IBD in children is essentially the same condition as in adults and the drugs used are the same in most cases. Therefore, although there have been no studies of probiotics in children with IBD, there is no reason to believe that they will not be effective. But are probiotics safe in children?

There have been plenty of studies of probiotics used in children with severe infectious diarrhoea and it is very rare for any side effects to be experienced. While probiotics are very safe, there is no such thing as a 100% safe bacterium. If a patient has a very weakened immune system then probiotic bacteria might behave in a harmful way. For this reason, people who are severely immuno-compromised should not be given probiotics, as a precaution. This can be discussed with your doctor.

Identifying a good quality probiotic

Are the probiotic products available in supermarkets of any use for people with IBD? It is difficult to answer this question, because most of these products will have no research evidence with regard to IBD. The main way of finding out would be to try a product, for at least one month.

In supermarkets, most probiotic products are in milk form, either as milky drinks or as a yoghurt. Almost all of these products contain lactic acid bacteria, such as lactobacillus and bifidobacterium species. With yoghurts, it is important to purchase a product that has not been pasteurised, as this heating process kills the probiotic bacteria. Yoghurt is made by the action of two bacteria, Lactobacillus bulgaricus and Streptococcus thermophilus, but it is better if additional probiotic species have also been added.

Other types of probiotic products are found in health food stores and from specialist companies. These products are usually in capsule form and contain freeze-dried bacteria. Freeze-drying is a way of putting the bacteria into a form of 'suspended animation', from which they become active again when water is added (e.g. on swallowing the capsule).

As there can be a bewildering number of probiotics to choose from, how can you distinguish them? Here is a list of desirable characteristics:-

- ***A large number of live microbial cells***
- ***Bacteria capable of surviving passage through stomach acid and intestinal secretions***
- ***Containing strains that can colonise the human gut, at least temporarily***
- ***Scientific evidence of benefit from particular species***
- ***A multi-strain product, as a wider range of beneficial mechanisms may occur.***

Some of this information will be on the product label, while additional information may be available on the company website. Few products will have all five characteristics listed above, but the more the better.

Summary

The gut microflora is involved in the inflammation of IBD, and good quality studies have consistently shown improvement in ulcerative colitis from the consumption of probiotics.

References

Kruis, W. Schultz, E., Fric, P., Fixa, B., Judmaier, G & Stolte, M. (1997) Double-blind comparison of an oral Escherichia coli preparation and mesalazine in maintaining remission of ulcerative colitis. Alimentary Pharmacology & Therapeutics 11: 853-8.

Kruis, W., Fric, P. Pokrotnieks, J. et al. (2004) Maintaining remission of ulcerative colitis with the probiotic Escherichia coli Nissle 1917 is effective as with standard mesalazine. Gut 53: 1617-1623.
Rembacken,

Rioux, K.P. & Fedorak, R.N. (2006) Probiotics in the Treatment of Inflammatory Bowel Disease. Journal of Clinical Gastroenterology 40:260-263.

Tursi, A., Brandimarte, G., Giorgetti, G.M., Forti, G., Modeo, M.E. & Gigliobianco, A. (2004) Low-dose balsalazide plus a high-potency probiotic preparation is more effective than balsalazide alone or mesalazine alone in the treatment of acute mild-to-moderate ulcerative colitis. Medical Science Monitor 10: PI126-131.

Zocco, M.A., Zileri dal Verme, L., Cremonini, F., Piscaglia, A.C., Nista, E.C., Candelli, M., Novi, M., Rigante, D., Cazzato, I.A., Ojetti, V., Armuzzi, A., Gasbarrini, G. & Gasbarrini, A. (2006) Efficacy of Lactobacillus GG in maintaining remission of UC. Alimentary Pharmacology and Therapeutics 23: 1567-1574.

Cambridge Bioceuticals Ltd are the manufacturers of Bio-Kult; the leading practitioner probiotic in the UK for Intervention, with over seven years clinical use.

Cambridge Bioceuticals Ltd
38, Paddock Street, Soham, Cambridgeshire, CB7 5JB
e-mail: nash@bio-kult.com, www.cambridgebioceuticals.com