Probiotics in eczema

Nataly Martini  BPharm, MSc, PhD

Probiotics are live microbial food supplements that when consumed in sufficient quantities, are believed to play an important role in regulating proper intestinal function and digestion. Purported health benefits of probiotics are considered to be strain-specific. While evidence supports the use of probiotics in bacterial vaginosis, diarrhoea, and irritable bowel syndrome for instance; many other claims remain largely unsubstantiated by research. This review will focus on the use of probiotics in eczema.

PREPARATIONS: Probiotic cultures are available in several food sources; particularly fermented products (eg picked vegetables, miso, kimchi and dairy). Commercially available products such as tablets, capsules, powders and sachets use microencapsulation techniques to prevent the freeze-dried bacteria from being destroyed in the acid environment of the stomach.

COMMON NAMES: Yoghurt, sour milk and other fermented food preparations are often associated with probiotics.

LATIN NAME: Lactobacillus spp. (eg L. acidophilus, L. casei, L. rhamnosus, L. bulgaricus, L. plantarum, L. helveticus), Bifidobacterium spp. (eg B. bifidum, B. longum, B. breve, B. infantis), Saccharomyces boulardii, Streptococcus salvarius, Enterococcus faecium.

ACTIVE CONSTITUENTS: Different commercial preparations contain different combinations and numbers of active microbial strains in their products, which are measured as colony forming units (CFU) per tablet/capsule or per g/ml. Lactobacillus rhamnosus and Bifidobacterium spp. are two of the probiotic strains most commonly mentioned for eczema treatment.

MEDICAL CLAIMS: Probiotics are claimed to be effective in preventing and/or reducing the rate of development of eczema. Some claims propose that they may be beneficial in treating the symptoms of eczema.

EVIDENCE: Probiotics given during pregnancy and early infancy show more promising results in reducing the incidence of eczema. One study suggested a decrease in the incidence of 26%, expanded to 52% when L. paracasei was included in the supplement. Heterogeneity was a limitation in studies, with some strains exhibiting greater effectiveness than others. This was not considered to be significant however.

Meta-analysis of data from five trials identified in a Cochrane systematic review found no significant effect of probiotics on reducing symptoms of itch and sleep disturbance. Furthermore, eczema severity was reduced by less than 7.45 points on the 102-point SCORAD scale. Substantial heterogeneity was found among the 12 included trials, suggesting that different probiotic strains may have different effects on eczema management. Three trials using the probiotic strain L. rhamnosus resulted in an increase in eczema severity, while other Lactobacillus strains reduced severity compared with placebo. These inconsistencies are thought to be due to different anti-inflammatory properties of various strains.

ADVERSE EFFECTS: Probiotics are considered relatively safe for use. They may cause mild stomach upset, flatulence, diarrhoea and bloating, especially during the first few days of use; however these often disappear with regular use. Isolated case reports link probiotics to serious adverse effects such as sepsis and bowel ischaemia. Caution is advised for patients at risk of opportunistic infections.
infections and in those with badly damaged gastrointestinal tracts. Safety and efficacy of the different strains of probiotics in pregnancy and lactation is lacking, despite studies being conducted in pregnant women for the prevention of atopic eczema in children.

**DRUG INTERACTIONS:** Lactobacillus may affect insulin sensitivity and caution is advised if concurrent medication is taken that may affect blood glucose levels. Antibiotics should be taken separately from probiotics by at least two hours and *S. boulardii* may be inactivated by antifungals. Caution should be exercised with immunosuppressants, antidiarrhoeals, oral contraceptives, proton pump inhibitors, iron salts, benzodiazepines and vaccinations.

**Summary message**

Probiotics supplementation during pregnancy and first several years of life showed a significant reduction in the development of eczema. Benefits may depend, however, on factors such as bacterial strain, duration of administration, pathology and patient characteristics (age, diet, allergy predisposition). In the treatment of eczema, studies are less promising with evidence suggesting that probiotics are not effective.

While considered relatively safe for use, probiotics may cause sepsis and bowel ischaemia, and caution is advised for patients at risk of opportunistic infections and in those with badly damaged gastrointestinal tracts. Interactions may occur with antibiotics and antifungals, immunosuppressants, antidiarrhoeals, oral contraceptives, proton pump inhibitors, iron salts, benzodiazepines and vaccinations.

**Key references**