Clinical Use of Probiotics: What Physicians Need to Know

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It is time for physicians to reject the notion that the only good bacteria are dead bacteria, and embrace the concept that the human body depends on its microbial residents for optimal functioning. In this issue of *American Family Physician*, Drs. Kligler and Cohrssen address the clinical relevance of beneficial bacteria.[1] Probiotics are live microorganisms that confer a health benefit on the host when administered in adequate amounts.[2] This suggests that adding certain types of microbes to an established microbial ecosystem can complement microbial functions.

Interest in probiotics has grown recently, fueled in part by commercial developments, but more importantly by an increasing number of published clinical studies documenting health benefits, which include intestinal and extraintestinal targets.[3,4] Additionally, the National Institutes of Health Roadmap for Medical Research (http://nihroadmap.nih.gov/hmp) now lists characterizing the human microbiome and analyzing its role in human health as a key priority.

Physicians should be familiar with some basic facts about probiotics. First, not all probiotics are the same. Probiotics vary widely as to where they were isolated, their microbiologic and physiologic characteristics, the clinical effects they produce, the doses needed to achieve those effects, and how extensively the effects have been studied. Different strains of the same species of probiotic may have different physiologic effects, just as classes of antibiotics and different antibiotic generations may have distinct effects. Furthermore, some products claiming to be probiotics are not actually probiotics because they lack evidence to support the effectiveness of the specific strains being used.

Second, physicians should understand how probiotics are marketed and sold. In the United States, probiotics are currently available only in foods or dietary supplement forms. Although many studies have examined the effect of probiotics on drug end points, probiotic foods or supplements cannot be marketed as products for treating diseases or managing symptoms. This creates a gap between how probiotics are studied and how they are typically marketed in the United States.

There are many studies on probiotics that evaluate drug end points, including reducing duration of infectious diarrhea, extending remission in pouchitis, treating symptoms of irritable bowel syndrome, reducing side effects of antibiotic treatment, reducing incidence of necrotizing enterocolitis in premature infants, and improving treatment outcome for bacterial vaginosis. However, product labels and communications are never tied directly to specific clinical benefits, which can be frustrating for physicians. Manufacturers who have clinical evidence supporting these end points can make only general statements that relate the product to its effects on healthy persons. For example, a product may

state that it improves digestive health when, in fact, it has been shown to reduce symptoms of irritable bowel syndrome.

Currently, probiotics are best regarded as dietary adjuncts to ease certain symptoms, shorten illnesses, and provide an edge to staying healthy. Foods containing probiotics can provide nutritional support along with probiotic-derived benefits. Patients who want to modulate intestinal symptoms, manage side effects of antibiotic therapy, prevent traveler's diarrhea, or improve immune function can consider probiotics. Because probiotics likely affect colonizing microbiota, and because each person has a unique microbiota, patients should be encouraged to use their own response to particular products as their guide.

Finally, physicians should recognize that clinical recommendations are based on studies that examine a specific probiotic strain or strain blend, condition, dose, and patient group. Because this is a rapidly evolving field, physicians should stay up-to-date by reading new studies that produce new recommendations, and they should be wary of companies that want to jump on the bandwagon without data to support their products. Products that have not been rigorously studied may be beneficial, but should still be tested for effectiveness.

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