

Probiotics Potential to Fight Ear Infections in Children

Probiotics May Improve Effectiveness of Flu Vaccine

Prevention of Asthma Symptoms in Children with Eczema Using Probiotics

Chemotherapy-induced Gut Toxicity. Can Probiotics Help?

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Message from the President



Dear IPA Members,

As the official passing of the proverbial baton has now happened I am about to embark in my first address to you the IPA members as the newly elected president. I would like to thank all who have trusted in my candidature as the successor to Scott Bush who was a great president for the association; alongside his executive officer team they have realized great work to bring IPA to the association it is recognized in being today. Thank you again Scott, Dr. Dash, and Nancy for your hard work and dedication as the executive officer team of the last two years.

Since the election we now turn to a new page or should I say one that will continue writing the book of IPA's history. I would like to welcome our new executive officer team elected by you the members that will be key in growing the association: Nancy Hamren (Vice President), Michael Shahani, (Treasurer), and Peter Rothschild (Secretary). Equally as important is our Executive Director Ioannis Misopoulos, the ring master per se, who not only runs the day to day operations, but also participates strategically in making sure IPA is visible constantly in the international arena of probiotics with industry, regulators and medical professionals.

In all honesty it feels like yesterday since we have been working synergistically as the new team, but we have accomplished some interesting milestones since. The IPA can identify itself with a new association logo and new look web site, launched immediately after the turn of the New Year. This will go a long way in IPA's branding initiatives that are vital in our plans going forward in helping to attract

new member companies and achieving sustainable growth. Further regarding our web site, the IPA's marketing committee is in the process of recreating the content and making it a more functional site for our members and their customer base. This will be a great value add for all the companies involved with the probiotics segment, stretching across the entire value chain; manufacturers to finished product marketers and end users.

Additionally to some of the new initiatives we are pushing further ahead with creating more proactive committees in Regulatory Affairs and the Scientific Advisory Board. Increasing visibility and interaction amongst regulators around the globe will be one of the objectives in making IPA the "Global Voice of Probiotics" Conversing with the different agencies will increase our credibility and in parallel with the Scientific Advisory Board help in the setting of standards that has been lacking in our industry. Our Scientific committee will also help in identifying the next line up of speakers for the IPA World Congress for 2012, guaranteed to be an exciting event as the reported science and published research in our industry amplifies almost on a daily basis.

I think I have taken up enough space in our newsletter talking about all the exciting new initiatives for membership, I will leave some room for the great articles that we have lined up for this quarterly's newsletter – happy reading. We value your support in the IPA and will continue to strive in delivering value to membership; looking forward to seeing everyone soon again,

Thank you and best regards,
George

PROBIOTICS POTENTIAL TO FIGHT EAR INFECTIONS IN CHILDREN

Middle ear infection (otitis media) is the most common reason children visit their pediatrician in the United States. It accounts for over 10 million office visits a year and the number one reason for antibiotic use in children in the US according to the Center for Disease Control. Otitis media (OM) is proposed to arise in the microbial community of the upper respiratory tract. *Streptococcus pneumoniae* is a leading pathogenic bacteria that is associated with OM. *S. pneumoniae* must colonize the upper respiratory tract and compete with a complex community of nonpathogenic bacteria before infecting the middle ear.

Previous studies have demonstrated the safety and efficacy of administering probiotics to infants. In 2008, a randomized, double-blind placebo controlled study, featured in the journal, Pediatrics, showed that feeding a combination of pre-and probiotics to newborn infants was safe and seemed to increase resistance to respiratory infections during the first 2 years of life.



In a new cross-sectional study of 108 children aged 6 months to 6 years conducted by researchers at the Yale School of Public Health, the microbial communities of upper respiratory tracts in healthy children were compared to those affected by otitis media. The children were from the Philadelphia, PA area and the study was conducted during the 2008-2009 winter respiratory virus season. The upper respiratory microbes were cultured from nasal swabs collected from the subjects.

Microbial community samples collected from the children that were affected by OM and where *S. pneumoniae* was present was significantly less diverse than those found in cultures of the healthy subjects.



PROBIOTICS MAY IMPROVE EFFECTIVENESS OF FLU VACCINE

In the February 2011 issue, *The European Journal of Clinical Nutrition* featured a double blind randomized, placebo controlled study, that examined the effects of a *Lactobacillus* strain on healthy adults vaccinated for influenza. Previous studies in animals and adults have suggested that probiotics improve the activation of the immune system following vaccination.

In this study, 42 healthy adults were recruited during the 2007-2008 influenza season. All subjects received LAIV (live attenuated influenza vaccine) and then were randomized to the group receiving *Lactobacillus* or placebo, twice daily for 28 days. Blood tests were taken at baseline, at day 28 and at day 56 to determine the rates of seroconversion. Seroconversion is the standard parameter to determine vaccine efficacy, which measures the levels of antibody titers in blood serum to the particular vaccine agent.

The subjects were also evaluated for adverse events throughout the study period. A total of 39 subjects completed the entire study analysis. Seroconversion rates against the vaccine H1N1 and B strains were considered suboptimal in both subject groups receiving the probiotic and placebo. However, for the H3N2 strain, 84% receiving *Lactobacillus* vs 55% receiving placebo had a protective titer 28 days after vaccination. According to the authors, the findings suggest that the *Lactobacillus* strain has potential as an important adjuvant to improve influenza vaccine immunogenicity. Both the probiotic and vaccine were found to be well tolerated with no adverse effects.

The researchers at Tufts also argued that, "future studies of probiotics as immune adjuvants might need to specifically consider examining vaccine-naïve or seronegative subjects, target mucosal immune responses or focus on groups known to have poor response to influenza vaccines."

CHEMOTHERAPY-INDUCED GUT TOXICITY. CAN PROBIOTICS HELP?

In the January 2011 issue of the *Journal of Parenteral and Enteral Nutrition*, researchers from the University of Alberta, Canada explored current findings to help alleviate one of the most significant limitations of chemotherapy: Gastrointestinal toxicity. Chemotherapy-induced gastrointestinal toxicity is observed as mucositis, nausea and vomiting, and diarrhea. It is one of the

In the cultures obtained from the healthy children, members of the normal microbial community, such as *Corynebacterium* and *Dolosigranulum*, were found to be protective for *S. pneumoniae* colonization and OM. The genera *Haemophilus* was associated with otitis media. Also, what was not expected by the researchers, *Actinomyces*, *Rothia*, *Neisseria*, and *Veillonella* were found to be associated with an increased risk of OM.

The authors concluded, "These bacteria are not otitis media pathogens but may be associated with antibiotic use or involved in the causal pathway to disease. Increased understanding of upper respiratory tract microbial communities will lead to new ways to prevent middle ear infections, including probiotics."

PREVENTION OF ASTHMA SYMPTOMS IN CHILDREN WITH ECZEMA USING PROBIOTICS

Eczema, or atopic dermatitis (AD), is a common inflammatory condition of the skin that begins in infancy and may continue into adulthood. According to American Academy of Dermatology, this disease often appears before a child's first birthday and globally, it affects between 10% and 20% of children and about 1% to 3% of adults.

Previous studies suggest that infants with eczema commonly develop asthma during childhood. A study published in the journal, *Allergy*, in 2000 reported that 40 per cent of kids with eczema will develop asthma later in childhood.

New research reports that synbiotics (a combination of probiotic microorganisms and prebiotic fibers) may relieve and prevent asthma symptoms in children suffering from eczema. The placebo-controlled study, published in the journal, *Allergy*, investigated the effects of synbiotics on eczema and asthma in children. Researchers from Emma Children's Hospital in Amsterdam, Netherlands, recruited 90 infants, under seven months old, with a history of eczema.

The subjects were randomly assigned to receive infant formula with or without the *Bifidobacterium breve* formulation daily for 12 weeks.

The subject group was followed one year later. At this time data was collected from 75 children. Participant's IgE levels and questionnaires about respiratory symptoms and asthma medication were obtained and revealed that the absolute risk of asthma symptoms 'frequent wheezing' and 'wheezing and/or noisy breathing apart from colds' were, respectively, 20 and 28 per cent lower in the synbiotic group, compared with the placebo group. The findings also showed that 20 per cent fewer children were using asthma medication in the synbiotic group, compared with the placebo group.

"It is known that asthma-like symptoms are often related to respiratory infections and synbiotics have been shown to decrease the number of respiratory infections. Therefore, a hypothesis could be that, in our study, synbiotics reduced the prevalence of asthma-like symptoms by lowering the respiratory infection rate," the researchers added.

The authors will follow the infants through ages 5 to 6 and administer lung function tests for further analysis of asthma symptoms. The study team concluded, "These results suggest that this synbiotic mixture prevents asthma-like symptoms in infants with AD."

Current literature has examined possible agents that could alleviate some of the symptoms of chemotherapy-induced gut toxicity and potentially improve treatment compliance and outcomes. Nutritional agents such as glutamine, ω -3 polyunsaturated fatty acids, and probiotics/prebiotics have been to some extent examined for their use in mitigating the GI damage related to cancer chemotherapy.

A case study published by the same journal in 2009 at the University of Pittsburg, reviewed a patient receiving chemotherapy for advanced breast cancer who developed severe diarrhea. The grade 3 chemotherapy-induced diarrhea required discontinuation of her regimen and hospitalization for 2 weeks. The patient was then prescribed only a combination probiotic to be taken twice daily. The probiotic was reported to control the intestinal symptoms and diarrhea, and no adverse effects were observed. The study also noted that the diarrhea returned immediately upon discontinuation of the probiotic. The patient was discharged from the hospital and was able to continue the scheduled chemotherapy medications while taking the probiotic combination.

A randomized study published in 2007, in the British Journal of Cancer, examined the effect of *Lactobacillus rhamnosus* supplementation on the frequency of severe diarrhea in patients receiving chemotherapy for colon cancer. The researchers at Helsinki University Central Hospital found the diarrhea was reduced in the patients receiving the probiotic. In addition,



there was less abdominal discomfort, need for hospital care and fewer chemotherapy dose reductions due to bowel toxicity. No probiotic related toxicity was reported.

In the current review, the team of researchers at the University of Alberta reviewed preclinical as well as clinical evidence to define the possible benefits of these factors and their potential uses as adjuncts to cancer chemotherapy. Upon their review of findings, the authors note that although promising, "optimal strategies to translate these findings into clinical care still remain to be elucidated."

The authors also argued that there are gaps in the current literature pertaining to using nutrients such as glutamine, ω -3 polyunsaturated fatty acids and probiotics in cancer. Some of the missing elements include: therapeutic nutrients need to be specified for the type of chemotherapy and patient, mechanisms of action need to be elucidated and also dose and optimal method of administration of these therapeutic agents need to be clarified.

Although nutrients, including probiotic-based therapies, have been shown to exert beneficial effects, this review outlines the current evidence and suggests further research directions for the future.

About the Author: Helen Davakos, ND, DC, is board-certified in naturopathic and chiropractic medicine, and serves in a variety of professional roles including consultant, clinician, and educator. Dr. Davakos is the Vice President of the Illinois Association of Naturopathic Physicians. She lectures and writes about health and wellness for nationally recognized, professional and community organizations.

Probiotics in the News

Here are some of the latest highlights on probiotics from the media:

Strain of Probiotic May Help Treat Ulcers Caused by Helicobacter Pylori, Medical News Today, February 26, 2011
<http://www.medicalnewstoday.com/articles/217533.php>

Probiotics Move Way Beyond Yoghurt, The Los Angeles Times, March 11, 2011
<http://articles.latimes.com/2011/mar/11/news/la-heb-natural-products-probiotics-20110311>

Novel Strategies Target Health-care-associated Infections, Media-Newswire.com, March 17, 2011
http://media-newswire.com/release_1145768.html

Probiotic Chocolate, Food Product Design, March 18, 2011
<http://www.foodproductdesign.com/news/2011/03/probiotic-chocolate.aspx>

Probiotics Backed for Preterm Infants: Cochrane, Gastroenterology Update, March 23, 2011
<http://www.gastroenterologyupdate.com.au/news/probiotics-backed-for-preterm-infants-cochrane>

News from the IPA Office

Appointments: On January 1st, George Paraskevavos took over as the new President of IPA and will lead the organization until the end of 2013. Alongside George a new Executive Board was elected composed of Nancy Hamren (Vice President), Michael Shahani (Treasurer) and Peter Rothschild (Secretary). Dr. Fred Durmont of Lallemand took over as the new Chair of the Scientific Advisory Board and has selected the new team members of that committee. The members are, Lorenzo Morelli, Ger Rijkers, Brent Polk, Philippe Langella and Remy Burcelin. On March 1st, Miss Nevena Krstic joined the organization as the new Administration Manager. Her duties will include in assisting the Director General as well as the Executive Board on day to day operations. Miss Krstic has received a law degree from the University of Belgrade and speaks Serbian, English and Russian.

In other news, IPA has recently met with Health Canada NHPD and was informed about the new changes of the Canadian probiotic guidance which will be soon made public. IPA is also currently working along with 2 other organizations (EFFCA and IFAC) on a position paper to address FDA's New Dietary Ingredients (NDI) guidance. The goal of this paper is to help answer the question of whether each new isolate of a given microbial food culture is "new" even if the microbial food culture itself has a long history of safe use. This paper is expected to be published on our website sometime in the spring.

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