

Role of complementary and alternative medicine in the field of allergy and clinical immunology

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As one of my Presidential Initiatives, I hoped to increase the awareness of American Academy of Allergy, Asthma & Immunology members and physicians—translational researchers worldwide to the potential benefits of complementary and alternative medicine (CAM). Therefore, I was delighted when I learned that this month's issue of the Journal would publish a theme issue on CAM, becoming the first peer-reviewed allergy/immunology journal to address this topic in such a comprehensive fashion. This issue is especially timely because the National Center for Complementary and Alternative Medicine (NCCAM), 1 of 27 centers and institutes that make up the National Institutes of Health, and the National Center for Health Statistics, a branch of the Center for Disease Control, just released new findings in December 2008 on the use of CAM by the American public. Using data from the 2007 National Health Interview Survey, an annual in-person survey of 23,393 adults >18 years of age and 9417 children <17 years of age, they found that approximately 38% of adults and approximately 12% of children in the United States use some form of CAM (<http://nccam.nih.gov/news/camstats.htm>). Of note, the annual expenditure for CAM by the American public exceeds \$30 billion, slightly higher than all other out-of-pocket expenses (~\$29 billion) for all other US physician services.¹

CAM

As posted on the NCCAM website (<http://nccam.nih.gov/>), CAM is defined as “a group of diverse medical and health care systems, practices, and products that are not generally considered part of conventional medicine. Complementary medicine is used together with conventional medicine, and alternative medicine is used in place of conventional medicine. Integrative medicine combines conventional and CAM treatments for which there is

evidence of safety and effectiveness.” NCCAM categorizes CAM into 4 basic domains, as well as *whole medical systems*. Examples of whole medical systems include homeopathy, naturopathic medicine, and traditional Chinese medicine. The 4 domains are *mind-body medicine*, which uses a variety of techniques designed to enhance the mind's ability to affect bodily function and symptoms, such as meditation, prayer, yoga, music, and so forth; *biologically based practices*, which use substances found in nature to treat various disorders, such as herbs, foods, vitamins, minerals, and so forth; *manipulative and body-based practices*, which apply controlled force to joints, moving them beyond the normal range of motion in an attempt to aid in restoring health, such as chiropractic and osteopathic manipulation, massage, rubbing, and so forth; and *energy medicine*, which may use biofield therapies or biomagnetic-based therapies.

NCCAM

In 1991, the US Congress passed legislation (PL102-170) that provided \$2 million in funding for fiscal year 1992 to establish an office within the National Institutes of Health “to investigate and evaluate promising unconventional medical practices.” The following year, a workshop was held to establish priorities for this new office, and in 1993, the NIH Revitalization Act of 1993 (PL103-43) formally established an Office of Alternative Medicine within the Office of the Director of the National Institutes of Health. The purpose of this Office was to “facilitate study and evaluation of complementary and alternative medical practices and to disseminate the resulting information to the public.” In 1998, Congress established NCCAM under Title VI, Section 601, of the Omnibus Appropriations Act of 1999 (PL105-277), which elevated the status of the Office of Alternative Medicine to a National Institutes of Health Center. Finally, in 1999, the US Secretary of Health and Human Services signed an organizational change memorandum that created NCCAM and made it the 25th independent component of the National Institutes of Health, the National Advisory Council on Complementary and Alternative Medicine was chartered, and Stephen E. Straus, MD, who will be honored at a special symposium on CAM at the 2009 Annual Meeting of the American Academy of Allergy, Asthma & Immunology in Washington, DC, was appointed the first director of NCCAM. The mission of the National Center for Complementary and Alternative Medicine is to “advance research to yield insights and tools derived from complementary and alternative medicine practices to benefit the health and well-being of the public, while enabling an informed public to reject ineffective or unsafe practices” (<http://nccam.nih.gov/>). Initial annual funding for the center was \$50 million, and in the past decade, this has grown to an annual budget of \$121.5 million in 2008. NCCAM has used its resources to fund scientific research in a variety of areas, including the field of allergy/immunology, such as traditional

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Chinese medicine, antioxidants, vitamins, prebiotics and probiotics, sublingual immunotherapy for peanut allergy, and so forth; train new investigators in CAM; disseminate new findings and information on CAM; and support the integration of proven CAM therapies into traditional Western medicine.

In this issue of the Journal, there are 3 outstanding review articles on various aspects of CAM. Renata Engler, MD, and colleagues² stress the increasing popularity of CAM therapies among the American public, the overwhelming amount of information (good and bad) available to patients, and the need for allergists/immunologists to learn more about this field and even consider integrating CAM into their practices. They provide a "12-Step Approach to Patient-Provider Partnerships in Exploring Therapeutic Alternatives." In their review, the authors highlight the Natural Medicines Comprehensive Database, which is an objective, evidence-based resource designed for health care professionals. This database provides a comprehensive listing of available brand name product ingredients and a summary of the safety, effectiveness, adverse effects, and drug interactions for each ingredient contained in the various products. It also has 2 clinical tools, a Natural Product/Drug Interaction Checker, which allows the clinician to enter all of a patient's conventional drugs and natural products and then generate a potential interaction report, and a Natural Product Effectiveness Checker, which allows the physician to enter any condition or disease and find out what natural products have an evidence-based Effectiveness Rating for that condition. (The Natural Medicines Comprehensive Database is available to all American Academy of Allergy, Asthma & Immunology members at no charge through the Members Section of the American Academy of Allergy, Asthma & Immunology web site [<http://www.aaaai.org>]).

In their review, "Complementary and Alternative Medicine: Herbs, Phytochemicals, and Vitamins and their Immunologic Effects," Timothy Mainardi, MD, MS, and colleagues¹ note the dramatic increase in publications on "complementary medicine" cited on PubMed in 2007 (1700 articles) compared with 1990 (355 articles). The authors review the effects and potential mechanisms of various herbs and vitamins that have been extensively studied, especially as they relate to various atopic disorders. In the third review, Xiu-Min Li, MD, and her colleagues³ review the data on 2 herbal remedies that they have developed using murine models of asthma and peanut-induced anaphylaxis, and delineate basic immunologic mechanisms shown to be affected by these herbal preparations. Both of these herbal preparations,

anti-asthma herbal medicine intervention for asthma and Food Allergy Herbal Formula-2 (FAHF-2) for food allergy, are now being investigated in phase II and phase I clinical trials, respectively. In addition, this issue of the Journal contains 3 interesting peer-reviewed articles on CAM, 1 on probiotics for prevention of atopy in high-risk newborns, 1 on potentially preventing the transmission of HIV by ingesting green tea, and a third on the long-term protective effect of FAHF-2 in peanut-allergic mice.⁴⁻⁶

This issue of the Journal clearly highlights some of the exciting new findings that are being reported with CAM using standard Western scientific methods of validation. Not only will some of these remedies that were developed over thousands of years supply us with new approaches to treat our patients, but they also are providing us with new insights into the basic underlying mechanisms of many disorders. Over the past decade, NCCAM has been funding an increasing variety of traditional scientific trials of complementary and alternative therapies and healing systems. A number of these studies may have significant impact on the field of allergy and immunology, providing new tools to treat our patients. Given the increasing interest by the general public and the expanding fund of scientific knowledge on CAM, it behooves the allergists/immunologists of tomorrow to develop a fundamental knowledge of this field and consider integrating it into their practice. There are several excellent sources of information on CAM, including the NCCAM web site and the Natural Medicines Comprehensive Database, which should facilitate the expansion and use of this emerging field into the practice of allergy and immunology.

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