

Moving Photodynamic Medicine Forward by Stimulating Collaboration Between the Laboratory and the Clinic

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Photodynamic therapy (PDT) is alive and well in the United States. Although many contemporary research scientists and clinicians still consider PDT a niche therapy, with little appeal in mainstream medicine, PDT is an approved treatment in oncology for airway malignancies, Barrett's esophagus with high-grade dysplasia, and nonmelanoma skin cancer. In addition, PDT has been used in the laboratory and in some investigational clinical settings for high-grade gliomas, oral and laryngeal lesions, inoperable cholangiocarcinomas, and lung-sparing surgery for malignant pleural mesothelioma.

To crystallize the wealth of preclinical and clinical experiences with PDT in oncology and to explore potential emerging indications and refinements in technique, various colleagues from both sides of the Atlantic joined me at the inaugural International Photodynamic Medicine Symposium at The Ohio State University Comprehensive Cancer Center–James Cancer Hospital and Solove Research Institute in Columbus, Ohio, on May 11 and 12, 2012. This collaborative think tank included clinicians in thoracic surgery, gastroenterology, dermatology, and hepatology, and immunologists, physicists, biochemists, and photobiologists. Speakers from Great Britain represented the University of Leeds, Yorkshire Laser Center, and the University College of London. Speakers from the United States represented the University of Pennsylvania, Roswell Park Cancer Institute, Medical College of Wisconsin, University of Miami, Harvard Medical School, Children's Hospital of Los Angeles, Wayne State University, Mayo Clinic, Tufts University, and Weill Cornell Medical College, in addition to The Ohio State University.

As intended, this meeting stimulated a cross-specialty collaborative exchange of ideas about PDT, focusing on the unique interplay between the laboratory and the clinic. The symposium packed 19 diverse yet related presentations into 2 full days. During the day, participants explored basic science, reviewed technical considerations, discussed joint research projects, and shared clinical experiences. In the evenings, they networked and often renewed fond personal connections. From translational work to the possibility of newer drugs on the horizon, discussions centered on the present and future roles of PDT in oncology as well as some of the obstacles that hinder its acceptance in mainstream medicine.

The articles in this supplement to *JNCCN—Journal of the National Comprehensive Cancer Network* are based on the proceedings of this unprecedented symposium. One special highlight was the keynote presentation by the internationally renowned global pioneer in PDT, Harumi Kato, MD, PhD, a professor in the Department of Surgery at Tokyo Medical University in Japan. In 1978, Dr. Kato was the first person in the world to apply PDT clinically to the treatment of early-stage lung cancer.

As with any symposium worth its salt, this meeting was marked by a healthy exchange of ideas and occasionally diverse perspectives on PDT and its future role in oncology. However, the overall consensus is that PDT is a safe treatment for which a better understanding of its benefits and uses is needed for many mainstream health care professionals. It is more than a palliative alternative for patients with no other treatment alternatives. PDT has a broader use in oncology than is currently recognized, including in a curative setting for patients who may not be candidates for



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surgery and radiation therapy and in multidisciplinary treatment strategies. Further investigation into the indirect systemic effects and associated inflammatory reactions with PDT may also broaden its clinical applications in the future.

The presenters agreed that more formal randomized controlled trials comparing PDT with standard treatment options are needed to validate its role in oncology. To address this need for evidence-based data, The Ohio State University has created a Web-based PDT registry, assembling outcomes data and linking institutions. Each medical center enters its own data through the Web and has access to retrospective cases. This registry represents the largest single accumulation of data on PDT that can be analyzed and stratified, and it will perhaps help to identify specific patient groups who may benefit from PDT compared with standard treatments.

We hope that the information in this supplement will help practicing oncologists become more familiar with the use of PDT in oncology. Better understanding of current and emerging clinical applications shows that the time for PDT to enter the mainstream has come, joining other effective treatments for improving the outcomes of people with cancer.