

Osteoarthritis Summit delineates shortcomings of research and path forward

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A recent summit that brought together international multidisciplinary experts has provided a foundation for addressing what is the leading cause of disability in the United States: osteoarthritis.

Currently, validated pharmacologic interventions do not exist for effectively eliminating pain and restoring function during progression of [osteoarthritis](#), a disease whose prevalence is expected to dramatically rise within the next decade and inflict a huge economic impact on society. The summit, which was hosted by Hospital for Special Surgery in New York City, is a first step in building consensus about what needs to be done to advance treatments and design preventive strategies. Consensus statements and analysis from the summit appear as part of a series of papers in Volume 8, Issue 1, of the *Hospital for Special Surgery Journal* published on March 9.

"The summit included leading scientists and researchers across all of the broad disciplines related to osteoarthritis, ranging from very basic [cell and molecular biology](#), to biomechanics, to [epidemiology](#) and clinical trials," said Steven Goldring, M.D., chief scientific officer at Hospital for Special Surgery (HSS) who, along with Timothy Wright, Ph.D., Kirby chair of orthopedic biomechanics at HSS, co-directed the Osteoarthritis Summit: Frontiers in OA research, Prevention, and Care. "This is a clinical disorder in which there are multiple factors that contribute to the initiation, progression and disease outcome, and the only way we are going to be able to define the underlying mechanisms and develop effective therapies is to bring together individuals who are

experts in each of these disciplines and create a forum for discussion and exchange of knowledge," said Dr. Goldring.

Although joint replacement surgery is an effective late-stage treatment for osteoarthritis and much has been learned about the disease, little progress has been made in terms of preventing or slowing the progression of osteoarthritis. The summit brought together 35 experts in the field, including research scientists, clinicians, physical therapists, government officials, and members of the pharmaceutical, device and insurance industries. Over the two-day summit, the experts focused on the classification, pathology, diagnosis, assessment, treatment, and preventative and public health strategies for management of osteoarthritis.

"A forum for osteoarthritis that brings together experts from such diverse specialties and interests for discussion and exchange of knowledge doesn't really exist under normal circumstances because these communities tend to publish in their own specialty journal or attend their own specialty meeting," said Dr. Goldring, who is also the Richard L. Menschel Research Chair at HSS. "The summit opened the lines of communication that are needed to advance the understanding of the disease and come up with new treatments and more effective strategies for osteoarthritis prevention and management."

The summary of results in Volume 8, Issue 1, of the *HSS Journal* highlights a number of steps that need to be taken. For example, the summit concluded that the current classification system for osteoarthritis is inadequate. The experts proposed a classification tree that identifies osteoarthritis as spontaneous or induced, and further classifies the disease based on symptoms, associated bone structural abnormalities, cartilage and related joint tissue abnormalities, and stage of disease progression.

"Osteoarthritis is an extremely heterogeneous disorder in terms of the factors that contribute to the loss of joint function," said Dr. Goldring. "If we are going to design treatments for patients, we need to have a classification system that describes what is really driving the process. As the disease progresses, the mechanisms that contribute to signs, symptoms and destruction of the joint tissues vary in a given patient and throughout the course of the disease. We need to be able to know where a patient is in the progression of the disease to be able to target those specific processes that are responsible for the symptoms and loss of joint function and select the appropriate therapy."

To focus discussion at the summit, participants were challenged to develop answers to critical questions and issues, and these answers are elaborated on in the individual articles in Volume 8, Issue 1, of the *HSS Journal*. For example, a question regarding the optimal tools for diagnosis and for monitoring progression and response to therapy brought about a consensus about the current state and future of biomarkers for osteoarthritis. There is a great need to educate the government and regulatory agencies about realistic and more meaningful markers that can be used for disease staging and to evaluate therapies. Currently, early research has identified blood or urine markers that can provide researchers with an idea of what is going on inside an affected joint without clinicians having to do an invasive procedure, but further research is needed to validate these markers and find better ones.

Another hot topic was prevention, specifically weight loss in obese patients. Weight reduction is generally ignored among therapeutic interventions when, in fact, it has been shown to be successful in treating pain in obese patients with osteoarthritis. Encouraging insurance companies to pay for supervised exercise and weight loss interventions is one avenue that needs to be explored.

Another consensus reached was that treatment approaches that integrate

multidisciplinary health professions are needed, rather than a patient seeking a second and third opinion from multiple physicians. From a public health standpoint, there is a great need to emphasize nonpharmacological therapies, such as exercise, and physicians typically do not have the time to provide adequate lifestyle advice to patients.

"The summit is unique in that we brought together the most expert people in the world across all of the relevant disciplines. We spent the majority of our time engaged in breakout sessions in discussions to address the challenging questions and issues related to osteoarthritis diagnosis, treatment and management. It is probably the most current overview of where the field stands at this point," said Dr. Goldring, referring to the meeting summaries published in the journal.

According to the summit attendees, many pharmaceutical companies have dropped out of the field of osteoarthritis research and drug development because of the complexity of the disease and the regulatory barriers standing in the way of bringing a drug to market. Disseminating information from the summit will hopefully spur research forward and help to break down many of the barriers that have prevented advances in the care and management of patients with osteoarthritis.

The conference featured 35 distinguished speakers from institutions including the National Institutes of Health, the Arthritis Foundation, Hospital for Special Surgery, Rush Medical Center, Brigham and Women's Hospital, Tufts, Wake Forest, Duke University, McGill University in Canada, and the University of Sydney. Funding for the summit was supplied by the National Institutes of Health-funded Weill Clinical Translational Science Center, Amgen, Endo Pharmaceuticals, Genzyme Biosurgery, Novartis Pharmaceuticals, Pfizer and Zimmer.

Provided by Hospital for Special Surgery

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