

SPOTLIGHT ON ELECTROPHYSIOLOGY

EP 2001: Physicians' Source for Concentrated Updates on Arrhythmia Management

By devoting an entire day to the latest advances in arrhythmia management, the planners of EP 2001—the new American College of Cardiology spotlight session focused on electrophysiology—have created a venue for heart rhythm experts and other physicians to immerse themselves in issues relevant to the care of arrhythmia patients.



Gerald V. Naccarelli, MD

EP 2001 has been designed to highlight recent advances in arrhythmia trials, implantable devices in heart failures, new mapping and ablation techniques, and the therapy of atrial fibrillation.

Gerald V. Naccarelli, MD, Planning Committee co-chair, explained that his committee has created a mixed presentation format that will appeal to a broad audience. In addition to didactic presentations, expert panel discussions, and case presentations, the controversies surrounding these techniques and therapies will be covered.

“Holding this symposium in conjunction with the Annual Scientific Session affords the perfect opportunity to highlight cardiac rhythms in a focused, one-day format for physicians who have an interest in learning more about cardiac arrhythmias,” he said.

Dr. Naccarelli is a professor of medicine, chief of the Division of Cardiology, and director of the Cardiovascular Center at Pennsylvania State University College of Medicine in Hershey. Dr. Naccarelli's co-chair is Mark Schoenfeld, MD, director of the Cardiac Electrophysiology and Pacer

Laboratory at the Hospital of St. Raphael and associate clinical professor of medicine at Yale University School of Medicine in New Haven, Conn.

EP 2001 will begin with an arrhythmia/device clinical trial update. In addition to brief updates on pacing and sudden cardiac death trials currently in the news, two presenters will give attendees a sneak peek at their own implantable cardioverter defibrillator and atrial fibrillation trials.

Drs. Naccarelli and Schoenfeld expect that the information presented during the EP 2001 session on pacing and implantable cardioverter defibrillators in heart failure should generate a great deal of interest. This session will examine the role of implantable devices in treating congestive heart failure in addition to the use of standard pharmacologic measures. After a presentation on the physiologic impli-



Mark Schoenfeld, MD



EP 2001, designed for clinical practitioners and cardiac electrophysiologists involved in the care of arrhythmia patients, covers the latest advances in arrhythmia management.

cations of biventricular pacing in congestive heart failure, two case presentations and two panel discussions will address biventricular pacing and implantable cardioverter defibrillators.

Another session will focus on new mapping techniques and systems. With a variety of commercial mapping sys-

tems now available, curing arrhythmia is becoming easier for physicians, said Dr. Schoenfeld. “Expert presenters at EP 2001 will provide hints and updates on where we are with these constantly evolving systems,” he said.

Dr. Naccarelli noted that the most

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Mapping Systems: Do They Measure Up?

For physicians seeking information about the best mapping techniques and systems for the treatment of ablations and when to use them, the American College of Cardiology spotlight session Electrophysiology 2001 is the place to be.

“In the old days, we operated on a patient with a heart rhythm problem,” said Eric N. Prystowsky, MD.

“Today, we can cure these problems in the electrophysiology laboratory with ablation and sophisticated mapping.”

Although the advances are extraordinary, such technologically advanced systems are expensive, costing as much as \$250,000. To help EP 2001 attendees to select the system that is best for their needs, presenters

will describe the best conditions for their use.

Dr. Prystowsky, director of the Clinical Electrophysiology Laboratory at St. Vincent Hospital in Indianapolis and a consulting professor of medicine at Duke University in Durham, N.C., is co-chairing the presentation with Shih-Ann Chen, MD, of the

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Speaker Asks Physicians to Consider Hybrid Approach to Atrial Fibrillation

Atrial fibrillation is an enormous public health problem in the United States, affecting approximately 5 million Americans annually. With the average atrial fibrillation patient admitted for two hospital stays each year at a cost of \$10,000 annually, it is one of the top five cardiac discharge diagnosis-related groups in the country.

Yet, no long-term effective treatment for preventing atrial fibrillation is readily available, according to Sanjeev Saksena, MD, director of the Cardiovascular Institute at the Atlantic Health System in Passaic, N.J.

“The problem with atrial fibrillation is that no treatment has been particularly successful in keeping patients out of atrial fibrillation for any prolonged length of time,” said Dr. Saksena.

For the past 100 years, the treatment of choice has been pharmacologic agents. Of the half-dozen drugs available today, most fail in six months, he said. Those that provide longer-term relief such as amiodarone, can do so for one to five

years, but significant side effects can develop in this period, added Dr. Saksena, who is also a professor of medicine at the Robert Wood Johnson School of Medicine in New Brunswick, N.J.

During the “Hybrid Therapy for Atrial Fibrillation in 2001” session, Dr. Saksena will describe three non-pharmacologic approaches devised to attack different elements in the mechanisms that lead to atrial fibrillation to provide relief from the arrhythmia. He will discuss “Pacemaker/Atrial Defibrillator/Drug Hybrid Treatment of Atrial Fibrillation.”

When drug treatment is unsuccessful, he recommends an incremental approach to treatment—first with either arrhythmia mapping and catheter ablation or a new pacemaker equipped to override the patient’s own rhythm pacing using a triple-chamber pacing system developed by Dr. Saksena, and finally physicians can employ back-up defibrillation shocks to cardiovert atrial fibrillation episodes if they occasionally recur.

Dr. Saksena has tested this hybrid approach over the past seven years

on 125 patients with dual-site pacemakers and 50 patients with various types of ablations. He will present the results of a pivotal trial in the “Arrhythmia/Device Trial Update” portion of the “Late-Breaking Atrial Fibrillation Trials” session. This study, the Dual-Site Atrial Pacing for Prevention of Atrial Fibrillation Trial, conducted at 12 North American centers, lends credence to his contention that these new pacing techniques and devices can be instrumental in the hybrid treatment of atrial fibrillation. In his own seven-year experience with dual-site atrial pacing, he has found that 90 percent of the participants were free from permanent or chronic atrial fibrillation after five years, and the stroke rate in these patients was 0.8 percent per year.

“We can start with drugs. If those fail, we can increase our efforts by adding ablation, a pacemaker, or both,” he said. “If anything escapes these therapies, we can use the defibrillator back up to shock or pace them out of the recurrence.”

With catheter ablation, physicians

can target areas where atrial fibrillation first develops or destroy large areas of tissue to stop atrial fibrillation from being maintained, he said. If catheter ablation is unsuccessful, Dr. Saksena recommends a dual-site pacemaker recently developed to control the patient’s heart rhythm. This device, created with an extra wire placed at the ostium of the coronary sinus, allows for the stimulation of the left atrium. This pacemaker electrically synchronizes the two atria, he said. The final alternative is patient-activated implantable atrial defibrillation, which allows patients to shock themselves to restore heart rhythm.

Dr. Saksena asks physicians to consider these nonpharmacologic therapies when drugs fail their patients. “Cardiologists and internists can know that atrial fibrillation is no longer an arrhythmia without the opportunity for control,” he said. “With this incremental approach to treatment, we’ve found that even the most resistant forms of atrial fibrillation can be put back into rhythm.”

Expert Calls for Evidence-Based Selection of Pacemakers

Incredible strides have been made in the development and use of pacemakers since they were introduced more than 50 years ago. The question is whether the refinements of the past half-century have brought improve-

ments in patients’ survival or quality of life. That debate will be the focus of a key session during EP 2001, the new American College of Cardiology spotlight session focused on electrophysiology.

Gervasio A. Lamas, MD, who conducts pacing trials as the director of Cardiovascular Research and Academic Affairs at Mt. Sinai Medical Center in Miami Beach, Fla., will present “Update on Pacing Trials” during the Arrhythmia/Device Update session. He plans to discuss the advantages and disadvantages of technological innovations in cardiac pacing and why carrying out randomized clinical trials to test treatment modalities should be the gold standard in deciding whether a technological innovation really benefits the end-user patient.

According to Dr. Lamas, single- and dual-chamber pacemakers have both benefits and drawbacks. For example, single-chamber ventricular pacemakers cost less, can be implanted more easily and quickly, are less subject to lead malfunction, and last longer than dual-chamber devices.

Despite these advantages, ventricular pacing is associated with loss of atrioventricular synchrony. In occasional ventricular-paced patients, loss of atrioventricular synchrony may lead to pacemaker syndrome, which can result in a surgical upgrade to a dual-pacing unit. In contrast, dual-

chamber pacemakers permit maintenance of atrioventricular synchrony; however, such devices are more expensive and more complex to implant, and they require more follow up. Dual-chamber pacemakers are also subject to malfunction in two leads instead of one, and they generally have a shorter battery life than ventricular pacemakers. According to Dr. Lamas, retrospective studies comparing single- and dual-chamber pacemakers have painted an overly optimistic picture of the potential benefits of dual-chamber pacing. Indeed, randomized trials, such as PASE and CTOPP, have not uniformly supported the benefits of dual-chamber pacing.

Likewise, other innovations in permanent pacing, in particular, multi-sensor rate modulation, may more closely mimic the heart’s rate response to exercise but may not provide a clear advantage to the patient.

“The field of cardiac pacing stamperes towards new technology without clear proof of benefit. This leads to turmoil. Randomized trials must be carried out to determine how to deliver optimum benefit to our patients,” he added.

Career Development Award in Arrhythmias

Physician Recognized for Electrophysiology Research

The 2000–01 American College of Cardiology/Procter & Gamble Pharmaceuticals Career Development Award in Arrhythmias will be awarded to Samir F. Saba, MD. Dr. Saba is an assistant professor of medicine at the University of Pittsburgh in Pennsylvania.

Dr. Saba will receive the award Tuesday, during the annual Convocation ceremony. His project, titled “Is Female Gender Protective Against Sudden Cardiac Death? Insights From a Mouse Model of Heart Failure,” aims to 1) quantify atrial and ventricular arrhythmias in tumor necrosis factor—transgenic and control mice of both sexes, and 2) unmask gender differences in electrophysiologic parameters that can constitute a substrate for cardiac arrhythmia and death using invasive cardiac electrophysiology testing.



Dr. Saba

The ACC gratefully acknowledges Procter & Gamble Pharmaceuticals for its support of the ACC/Procter & Gamble Pharmaceuticals Career Development Award in Arrhythmias.



Clinical Trials Suggest Place for Resynchronization in Heart Failure Treatment

Until recently, treatment of heart failure was limited to drug management of pump dysfunction and transplantation. In the past few years, however, research has suggested that cardiac resynchronization therapy can be effective for selected patients with heart failure.

These new biventricular pacing and implantable cardioverter defibrillator (ICD) systems are designed to resynchronize the heart electrically. With lead wires placed in both the right and left chambers of the heart, more optimal or synchronous heart activity can be achieved.

Two lectures scheduled to be presented at EP 2001 examine the role of these devices as part of the spotlight session's focus on "Pacing/Implantable Cardioverter Defibrillators in Heart Failure."

Leslie A. Saxon, MD, associate professor of medicine at the University of California in San Francisco, will dis-

cuss "Biventricular Pacing/ICDs in Congestive Heart Failure," and Steven L. Higgins, MD, director of the Regional Cardiac Arrhythmia Center at Scripps Hospital in San Diego, will present "Techniques for Insertion of Biventricular Pacing and ICD Systems."

According to Dr. Saxon, these device-based therapies are emerging as an important and useful adjuvant to drug therapies for heart failure patients. "Preliminary clinical trials have had promising results related to improved quality of life, symptom status, and mortality, although there is no U.S. trial that has completed the follow-up interval required for Food and Drug Administration (FDA) approval," she noted.

Dr. Saxon will look more closely at these benefits during EP 2001 and will examine the role of these devices for improving heart failure status, early

diagnosis and prevention of atrial arrhythmias, prevention of sudden death, and management of drug therapy.

Dr. Saxon is cautious, however. "The issues of accurate profiling of the ideal heart failure patient for these devices and the role of these emerging technologies in treating heart failure patients with existing pacemakers have not been resolved," she said.

When compared to coronary artery bypass graft surgery, this procedure is less invasive, noted Dr. Higgins. Although approved in many foreign countries, it has not been approved by the FDA. Dr. Higgins and his team are participating in clinical research studies and have implanted cardiac resynchronization therapy systems in more than 100 patients.

"About 5 million Americans suffer from heart failure," said Dr. Higgins. "Of these, half may have symptoms

severe enough to justify treatment more involved than drug therapy. Of those, one-third have a widened QRS, or synchronicity problem, that could improve with cardiac resynchronization therapy. Thus, cardiac resynchronization therapy has huge implications for patient care, as there may be as many as 800,000 Americans who could benefit."

Dr. Higgins' presentation will highlight the technique for inserting the coronary sinus ventricular pacing leads, and he will discuss the preliminary results of his trials.

Panel discussions will follow each case presentation. In addition, David A. Kass, MD, professor of medicine and biomedical engineering at The Johns Hopkins Medical Institute in Baltimore, will address the physiologic implications of biventricular pacing in congestive heart failure.

Physician to Present Clinical Trial Results on Linear Catheter Ablation

Given the side effects of some drug therapies and the risks of surgery, physicians who treat patients with atrial fibrillation will be interested in some clinical study findings to be presented during EP 2001. These findings focus on recently developed techniques called "catheter ablation of atrial fibrillation," which may have great potential to treat the many patients whose condition does not respond to medication.

"In a given year, only about half of the 100,000–200,000 patients with new-onset atrial fibrillation will respond to drug therapy, which is the first line of treatment," noted Douglas Packer, MD, who has been conducting research on the new technique at the Mayo Clinic in Rochester, Minn. "Of these patients, about 10–40 percent cannot continue drug therapy because of side effects."

Dr. Packer explained that in some patients, linear ablation is used to isolate a pulmonary vein responsible for triggering atrial fibrillation, while in other cases linear ablation is used to compartmentalize the atrial muscle responsible for maintaining this arrhythmia. This kind of linear catheter ablation is a procedure that mimics a

physician's scalpel in the surgical maze procedure without the associated risks of open-heart surgery.

"Surgical treatment of atrial fibrillation started about 10 years ago," he said. "It's a very effective procedure, with an 80–90 percent cure rate, but there are risks."

The less invasive technique may be a good alternative for some patients, according to Dr. Packer, who is a professor of medicine and co-director of the Clinical Electrophysiology Laboratory at the Mayo Clinic. He will discuss findings of international clinical trials on catheter ablation as well other findings during the EP 2001 session titled "Hybrid Therapy for Atrial Fibrillation."

Citing cure rates between 40 and 70 percent, Dr. Packer noted that patients may require one or two follow-up ablation procedures before success is achieved. "However, those not cured by linear ablation may respond to drug therapy that previously had been ineffective for them," he added. "This approach is like a combination therapy."

Despite high hopes for catheter abla-

tion, Dr. Packer emphasized the importance of taking a step-by-step approach to treating atrial fibrillation, which affects 2.2 million Americans. "First,

drug therapy, then focal ablation of pulmonary vein trigger of atrial fibrillation, and then catheter maze ablation in appropriate patients," he stressed.

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Veterans General Hospital in Taipei. A panel discussion will follow three case presentations. Gregory K. Feld, MD, director of the electrophysiology program and professor of medicine at the University of California in San Diego, will present "Atrial Flutter Ablation/Initial Failed AFL Ablation—What to Do Now? Is There a Role of Mapping Technology?"

For a patient with a failed atrial flutter ablation, a fine-tuned mapping system can be used to detect a discontinuity of the attempted line of block, explained Dr. Prystowsky. "Although the standard is to go back and try to produce another line of block and call it a day, a mapping system might be helpful in detecting a small area to spot-weld," he said.

Bruce D. Lindsay, MD, associate professor of internal medicine and director of the Clinical Electrophysiology Laboratory at Washington University School of Medicine in St. Louis, will address complex atrial tachycardia.

For Dr. Prystowsky and his team, mapping systems for complex atrial

tachycardia are quite useful: "They are faster than conventional methods, especially in patients with multiple types of atrial rhythms," he added.

John M. Miller, MD, professor of medicine and director of clinical cardiac electrophysiology at Indiana University's Krannert Institute of Cardiology in Indianapolis, will tackle the subject of ischemic ventricular tachycardia ablation.

The potential of mapping systems for ischemic ventricular tachycardia ablation, said Dr. Prystowsky, lies in the ability to determine whether muscle is alive or likely to be scarred. "This is important because one proposed approach is to ablate around the scar to wall it off," he added.

Dr. Prystowsky hopes that EP 2001 attendees leave the session with new knowledge about when to use these mapping systems. "I hope people come to realize when these systems should be applied, which are better for one rhythm vs. another, and when not to use them," he said.

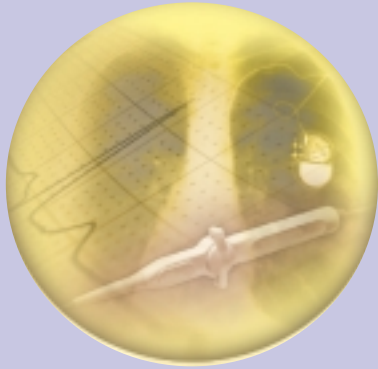
The American College of Cardiology expresses gratitude and appreciation to the North American Society of Pacing and Electrophysiology (NASPE) for its co-sponsorship of EP 2001.



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Late-Breaking Clinical Trials at EP 2001

Always a highlight of the Annual Scientific Session are the clinical trials sessions, which offer participants late-breaking results of some of the most important studies being conducted in the field of cardiovascular medicine. The following sessions and presenters are scheduled for Sunday's EP 2001 spotlight session:

Sunday

Session 61—Arrhythmia/Device Trial Update — 8:00–10:00 a.m.

- *Prophylactic Use of Implantable Cardioverter Defibrillators in Patients With Idiopathic Dilated Cardiomyopathy: The Cardiomyopathy Pilot Trial (CAT)—Seven Year Follow-up*—Karl-Heinz Kuck, MD, of Hamburg, Germany; and
- *Dual-Site Atrial Pacing for Prevention of Atrial Fibrillation Trial (DAPPAF)*—Sanjeev Saksena, MD, of Passaic, N.J.

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common problem physicians face is atrial fibrillation, with several million patients suffering from the condition each year. "It's not just an issue for electrophysiologists and other cardiologists; it's also of concern to family physicians," he added.

To address this issue, the final session of EP 2001 will cover hybrid therapy for atrial fibrillation. Two of the lectures will cover pacemaker, atrial defibrillator, and drug hybrid treatments as well as new techniques for pulmonary vein focus ablation.

EP 2001 is not a replacement for, but rather is a complement to, the ACC Annual Scientific Session, emphasized Dr. Naccarelli. "This spotlight session is an opportunity for attendees to concentrate on some of the more recent developments in clinical electrophysiology. We obviously can't review everything there is to know about cardiac heart rhythm problems in one day, but we can highlight some of the most important ones. This meeting provides concentrated, up-to-date information that will be useful in physician practices."