

## Anger Is Linked to ICD Shocks, Arrhythmias

BY MITCHEL L. ZOLER  
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CHICAGO — Episodes of extreme anger were linked to ventricular arrhythmias and shocks from implantable cardioverter defibrillators in a study of more than 1,000 patients.

Although the findings do not prove that severe anger triggers arrhythmias, the results are suggestive enough for physicians to advise patients with implantable cardioverter defibrillators (ICDs) to try to stay calm and avoid moments of rage, Dr. Christine A. Albert said while presenting a poster at the annual scientific sessions of the American Heart Association.

"Just knowing about the relationship [between anger and shocks] may help people [with ICDs] modify their behavior," said Dr. Albert, director of the Center for Arrhythmia Prevention at Brigham and Women's Hospital, Boston. "There is a lot of anxiety associated with getting shocks. Patients ask what they can do to minimize their shocks."

Although Dr. Albert stopped short of recommending interventions with medications or psychotherapy in patients with ICDs who have trouble controlling anger, she suggested that physicians may want to refer certain patients to psychiatrists.

The Triggers of Ventricular Arrhythmia (TOVA) study was done at seven centers in the United States. Patients who had received ICDs were interviewed regarding their usual frequency of anger at entry into the study and at follow-up visits. In addition, after an ICD discharge, patients were interviewed within 72 hours of the shock to collect information on their emotional state during the period just before the shock. Most patients were on an antiarrhythmic drug; about 60% received a  $\beta$ -blocker, and about 25% were taking amiodarone.

During a median follow-up of 562 days, 1,149 patients in the study had a total of 414 shocks, of which 324

were triggered by ventricular tachycardia or fibrillation. Postshock interviews were completed within 72 hours of the episode for 197 of the ventricular arrhythmia shocks, in 161 patients. Patients were asked to characterize their emotional state on a scale of 1-7, with 1 defined as calm, 4 defined as moderately angry, 5 defined as very angry, 6 defined as furious, and 7 defined as enraged. Of the 197 shocks, 12 (6%) occurred following an episode that the patients classified as grade 4-7 anger.

In a case-crossover analysis, patients who had grade-4 anger or higher had a fivefold increased risk of receiving a shock during the first 30 minutes after the episode, compared with patients who were not as angry. Patients with grade-5 anger or higher had about a 30-fold increased risk of a shock during the first 30 minutes after the episode, and within the first 2 hours after the episode their risk of a shock was elevated about 10-fold compared with calmer patients, Dr. Albert reported.

The elevated risk that was apparently triggered by anger was not significantly influenced by age, gender, or education level. But the effect was magnified in patients who had worse ventricular function at baseline, in those who previously received an ICD shock, in patients who had received their ICD within the prior 6 months, and in patients who were employed.

It's not surprising that anger has this effect. Prior findings showed that the simulation of anger in patients with coronary heart disease who were asked to perform mental arithmetic can cause electrophysiologic instability. And a similar link between anger and ICD shocks was seen in an earlier, 49-patient study. All of the findings suggest that something occurs during anger to make the heart more electrically unstable. And anger activates the sympathetic nervous system, which also probably plays a role in arrhythmias, Dr. Albert said. ■

## Counseling Curbs Anxiety and Depression in ICD Recipients

BY BRUCE JANCIN  
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CHICAGO — A brief psychoeducational intervention quelled anxiety and depression during the year after implantable cardioverter defibrillator insertion in the randomized multicenter PEACE trial, Sandra B. Dunbar, D.S.N., reported at the annual scientific sessions of the American Heart Association.

The counseling intervention in the PEACE (Psychoeducational Intervention in Internal Cardiac Defibrillator Patients) trial emphasized proactive coping skills geared to help patients live with serious arrhythmias, declining heart function, and the constant threat of device shocks, Dr. Dunbar said.

Many studies have documented that 20%-50% of implantable cardioverter defibrillator (ICD) recipients experience pronounced psychological distress. That's important not only because anxiety and depression take a heavy toll on quality of life, but also because such psychologic distress predisposes to additional arrhythmias, in turn triggering further ICD discharges, noted Dr. Dunbar, the Charles Howard Candler Professor of Cardiovascular Nursing at Emory University, Atlanta.

PEACE was a five-center trial funded primarily by the National Institutes of Health. It involved 266 unselected new ICD recipients randomized to usual care or to the counseling intervention conducted either in groups or over the phone.

The psychoeducational intervention was provided by cardiovascular nurses. It consisted of a half-hour one-on-one session on the day of discharge following ICD insertion, then four 90-minute face-to-face group or individual telephone sessions starting about 6 weeks post discharge. Because the study results were the same regardless of whether patients were counseled by telephone or in groups, data from the two intervention arms were combined.

The day-of-discharge session was devoted to training in acute symptom management; participants learned strategies to deal with

the ICD shocks, including the associated pain and sleep disruption. They were sent home with a supporting audiotape and workbook. In the subsequent sessions, they learned standard cognitive behavioral techniques to deal with fear and anxiety, stop negative thoughts, seek out constructive social support, and engage in positive self-talk, along with relaxation skills.

At 12 months, mild to severe depressive symptoms as assessed by the Beck Depression Inventory-II were present in 31% of the usual care group, compared with 15% of psychoeducational intervention recipients.

Anxiety levels as measured by the State-Trait Anxiety Inventory generally declined over time in both groups; however, anxiety dropped significantly faster in the intervention arms.

Moreover, at baseline one-fifth of PEACE participants scored 40 or higher on the State-Trait Anxiety Inventory, consistent with a moderate to severe anxiety disorder. By 3 months the prevalence had climbed to 34% in controls, compared with a 23% rate in the 111 patients in the combined intervention group.

Standardized testing also showed significantly lower illness appraisal scores in the intervention arms, meaning the counseling recipients had a lower level of perceived threat and distress regarding living with an ICD and life-threatening arrhythmias, Dr. Dunbar continued.

In an interview, Dr. Lynne Warner Stevenson called the PEACE findings "incredibly important."

"In terms of the quality of life while the devices are in, it's critical that we not be doing harm by increasing the patient's anxiety and depression," said Dr. Stevenson, director of the cardiomyopathy and heart failure program at Brigham and Women's Hospital, Boston.

"I'm hoping that preparing people for the fact that the device will go off and how to deal with that may help decrease the PTSD problem," Dr. Stevenson said.

Medtronic Inc. and Guidant Corp. provided secondary funding for PEACE.



**Mental distress predisposes to additional arrhythmias, in turn triggering further ICD discharges.**

DR. DUNBAR

## Apnea Seen as an Independent Cardiovascular Risk Factor

CHICAGO — Obstructive sleep apnea is associated with subclinical coronary artery disease independent of the traditional cardiovascular risk factors, Dr. Dan Sorajja reported at the annual scientific sessions of the American Heart Association.

Moreover, the severity of subclinical CAD as reflected by the extent of coronary artery calcium (CAC) on electron beam CT increases with obstructive sleep apnea severity. For this reason, the

presence and severity of obstructive sleep apnea ought to be incorporated into CAD risk stratification and preventive cardiology efforts, according to Dr. Sorajja of the Mayo Clinic, Rochester, Minn.

He reported on 202 consecutive patients with no history of CAD who underwent electron beam CT within 3 years of polysomnography at the Mayo Clinic. They were a median of 50 years old, with a mean body mass index of 33 kg/m<sup>2</sup>. More than

half were dyslipidemic and 44% had hypertension. CAC was present in 67% of patients with and in 31% without obstructive sleep apnea. And apnea, in turn, was present in 76% of those with CAC. The mean CAC score was 144 Agatston units in those with obstructive sleep apnea and 26 Agatston units in those without.

In a multivariate analysis, the adjusted odds ratio for CAC increased in stepwise fashion with each increasing quartile of ob-

structive sleep apnea severity as determined by the apnea-hypopnea index (AHI). The prevalence of CAD was 2.1-fold greater in patients in the second obstructive sleep apnea severity quartile, with an AHI of 5-13, than in those in the lowest quartile. The CAC prevalence was 2.4-fold greater among patients in the third quartile, with an AHI of 14-32, than in the first. And in individuals in the top quartile, where the mean AHI was 63, the

prevalence of CAC was 3.3-fold greater than in the first quartile.

The chief limitation of a cross-sectional study such as this one is the potential for selection bias, he conceded.

Obstructive sleep apnea is a common medical condition, with an estimated prevalence of 4%-9% among middle-aged adults. The condition has previously been shown to be a cause of hypertension, Dr. Sorajja noted.

—Bruce Jancin