

Evidence Backs Tensing Exercises for Syncope

BY BRUCE JANCIN
Denver Bureau

ATLANTA — Providing a few simple muscle-tensing exercises to patients with vasovagal syncope significantly reduced their syncope recurrence rate in the randomized Physical Counterpressure Maneuver trial, Dr. Nynke van Dijk reported at the annual meeting of the American College of Cardiology.

“Physical counterpressure maneuvers should be administered as a first-line treatment in every patient presenting with vasovagal syncope and recognizable prodromal symptoms,” said Dr. van Dijk of the University of Amsterdam.

Recurrent vasovagal syncope is a common condition that patients find frightening and disruptive. It is caused by a neural reflex that reduces heart rate and lowers blood pressure by inducing vasodilation in the abdomen and legs. Until now, there has been no evidence-based treatment. Pharmacotherapy has problematic side effects, including blood pressure elevation.

Dr. van Dijk and her colleagues had previously shown in the physiology laboratory that physical counterpressure exercises were effective in preventing vasovagal syncope. They wanted to learn if this approach would be successful in real-world situations in which patients didn’t have a physician by their side. The investigators randomized 223 patients with a mean of six prior episodes of vasovagal syncope and identifiable pro-

dromal symptoms to conventional therapy alone or in combination with training in counterpressure maneuvers.

Conventional therapy consisted of an explanation of the disorder, an adjustment of lifestyle measures such as avoiding the triggers and increasing salt and water intake, and an emphasis on the importance of lying down when symptoms arise.

Training in physical counterpressure maneuvers involved a repertoire of three muscle-tensing exercises, learned in about half an hour with the aid of a blood pressure biofeedback device. The maneuvers were designed to prevent hypotension.

The three exercises were:

- ▶ Hand clasping with interlocking fingertips while pulling the elbows in opposite directions.

- ▶ Single-arm clenching while squeezing a ball or other object in the hand.

- ▶ The standing leg crossover, in which the thighs are firmly pushed against each other while the abdominal muscles are tightened.

Patients who initially had difficulty identifying their prodrome were helped by using tilt table testing to induce vasovagal episodes.

During 14 months of follow-up in the trial—which was sponsored by the Netherlands Heart Foundation—32% of patients in the physical counterpressure group had recurrent syncope, compared with 51% of patients in the control group. Time to first recurrence was significantly longer in the



Clasping one’s hands with interlocking fingertips while pulling the elbows in opposite directions, and clenching an arm while squeezing a ball prevents blood from pooling remotely from the brain.



physical counterpressure group as well.

At the meeting, the Dutch study was singled out for inclusion in a high-profile, late-breaking clinical trials session by the meeting organizers, who were eager to showcase a therapeutic advance that, refreshingly, is neither high tech nor costly.

“It’s an exciting study because the maneuvers don’t mean giving a drug, they don’t cost anything once you’re trained, and they work. It’s a nice thing for patients,” Dr. Steven E. Nissen, president of the American College of Cardiology, said in an interview.

“Docs should really think about this. I take care of some of these patients in my

clinic and they are very difficult to manage,” added Dr. Nissen, who is also medical director of the Cleveland Clinic Cardiovascular Coordinating Center.

Moreover, Dr. Nissen, a National Aeronautics and Space Administration consultant, is thinking about teaching the physical counterpressure maneuvers to the astronauts. “Once you’ve been in space for 24 hours, all your blood redistributes to the central space and you urinate like crazy, so you become very volume depleted. Then when you come back to earth, you have syncope. You can’t stand upright. It has some similarities to vasovagal syncope,” he said. ■

Beware of Contact Dermatitis Triggered by ICD Implants

BY SHERRY BOSCHERT
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SAN FRANCISCO — Allergy to the materials in an implanted cardioverter defibrillator can cause a contact dermatitis over the implantation site that may be mistaken for infection, Dr. Margaret Lee-Bellantoni said.

Although allergic reactions to implantable cardioverter defibrillators (ICDs) are rare, the rapidly increasing number of patients being given ICDs probably will mean more cases of defibrillator dermatitis. “We do expect to see more,” she said at the annual meeting of the American Contact Dermatitis Society.

During 1996-2001, the number of patients with ICDs increased by 24% annually, noted Dr. Lee-Bellantoni of Tufts–New England Medical Center, Boston.

She described the case of a 57-year-old man with a history of coronary artery disease and myocardial infarction who received an ICD to manage ventricular tachycardia. His first ICD, implanted in 1991, was replaced in 1994 and again in 1997 and 2004. One week after the 2004 ICD was placed in the extraperitoneal space of the man’s abdomen, he

developed a wound dehiscence near the center of the incision site. He had no fever, chills, or leukocytosis, but developed erythema over the ICD area. The dehiscence healed but the erythema persisted, so he was treated with oral antibiotics for presumed infection. The erythema expanded over the ICD implantation, still with no pain, pruritus, or fever. The patient was hospitalized twice with a diagnosis of infection of the left lower abdomen and was given IV antibiotics, including vancomycin.

During the second hospitalization, the patient came to the attention of dermatologists, who took a tissue biopsy. The results were nondiagnostic but consistent with possible hypersensitivity. Culture was negative for bacteria and fungi.

“Although the cardiologists knew there was something weird going on, they were still essentially worried about infection. But the dermatologists were worried about hypersensitivity reaction,” Dr. Lee-Bellantoni said.

The dermatologists obtained an ICD materials test kit from the ICD manufacturer containing materials from the 11 components that come into contact with pa-



A 57-year-old man developed erythema at the site of his ICD-associated incision.



The erythema is shown to have resolved by 7 months, after replacing and moving the ICD.

tient tissue. They patch-tested the patient to the plastics, silicones, epoxies, and other materials in the kit, as well as to a standard group of preservatives, fragrances, and other potential allergens.

The results showed evidence of contact hypersensitivity to polyurethane 75D and peroxide-cured silicone rubber, which were present in the patient’s ICD. This information helped cardiologists choose a different ICD for him. After replacement of the offending ICD with the new one in a different location, the erythema gradually resolved.

The cost of the patient’s two hospitalizations and antibiotic

treatment totalled \$9,544. The patch test, which cost \$1,286, was “really cost effective,” Dr. Lee-Bellantoni said. Plus, “you really can’t overestimate the emotional cost to the patient in terms of stress over the possibility of resistant infection, nosocomial infection, and work time lost.”

Suspect contact allergy in the absence of proven infection in a patient with erythema at the ICD site, she suggested.

Amine catalysts used in polyurethanes and epoxy systems as hardeners and curing agents are very strong sensitizers. Polyurethanes and epoxies may be used for surface coatings of

various manufactured items.

The patient had a history of exposure to these and other potential sensitizers in his work as a motorcycle shop manager and in previous woodworking environments. Regardless, multiple ICD placements could, by themselves, be enough to sensitize someone to these agents, she said.

There are 30 cases in the literature of hypersensitivity to ICDs or to pacemakers. If a reaction is suspected, a negative patch test does not necessarily rule out sensitization because it is difficult to get a response to the tiny piece of material used in the tests, she cautioned. ■