Trazodone-Related Exercise-Induced Nonsustained Ventricular Tachycardia*

Raymond N. Vitullo, M.D.; J. Marcus Wharton, M.D.; Nancy B. Allen, M.D.; and Eduard L. C. Pritchett, M.D.

A 79-year-old woman in the course of a syncope evaluation is shown to have a trazodone-related cardiac arrhythmia confirmed by drug rechallenge. This noncyclic antidepressant should be considered as potentially arrhythmogenic despite its generally favorable cardiovascular profile.

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Trazodone, a triazolopyridine derivative, is an effective antidepressant that differs both chemically and pharmacologically from the conventional tricyclic antidepressants. Unlike the tricyclics, trazodone appears to lack significant anti-cholinergic and quinidine-like properties, and it is devoid of catecholamine potentiating action. For these reasons, trazodone is believed to offer a safety advantage over the tricyclics in terms of cardiovascular toxicity. In this report we describe a patient with trazodone-related, exercise-induced nonsustained ventricular tachycardia.

CASE REPORT

A 79-year-old woman with a history of depression, mild hypertension, left lacunar infarct, and successfully treated temporal arteritis was admitted to the hospital for evaluation of syncope she had suffered six days previously. There was no history of any symptoms suggestive of cardiac disease. After climbing a flight of stairs, she remembered feeling a sense of profound weakness and lightheadedness prompting her to lie down. About 30 minutes later, while walking to the bathroom, she experienced faintness and sudden loss of consciousness. She was examined at her local hospital and was discharged after a baseline electrocardiogram (ECG), several hours of ECG monitoring, and normal results of all screening laboratory studies.

On admission to this hospital, she was well and denied any further syncope or near-syncopal symptoms. Her medications included lorazepam, 1 mg three times a day; trazodone, 50 mg twice a day (prescribed for depression); and prednisone, 2 mg every day.

*From the Division of Cardiology, Department of Medicine, Duke University Medical Center, Durham, NC.
Reprint requests: Dr. Vitullo, Box 3336, Duke University Medical Center, Durham 27710

Physical examination revealed a blood pressure of 140/80 mm Hg and heart rate of 80 beats per minute (BPM). There were no orthostatic changes in pulse or blood pressure. Cardiac examination was remarkable only for a mid systolic click, but no murmur. Findings from the neurologic examination were completely within normal limits. The ECG showed sinus rhythm, clockwise rotation, and a corrected QT interval of 413 ms. An echocardiogram showed a normal left ventricle and no significant valvular abnormality.

During 48-hour ambulatory ECG monitoring there were isolated multiformald premature ventricular beats (PVBs) at the rate of 4.3 and 9.5 PVBs/h on the first and second day, respectively. There was no complex ventricular ectopy, although the patient was involved in only minimal activity during this time.

Treadmill test 1 was performed with the patient receiving trazodone, 50 mg every 12 h. Approximately 5.5 h after her morning dose, the patient exercised on the Bruce protocol for a total of 4 minutes, 23 s (stage 2) to a maximum heart rate of 122 BPM. At peak exercise there was 0.10-mV ST segment depression in lead 3. At one minute into the recovery phase there were three runs of nonsustained ventricular tachycardia (longest, six beats) (Fig 1); the patient experienced dizziness and a 36 mm Hg decline in systolic blood pressure.

Treadmill test 2 was completed 48 h after trazodone therapy had been discontinued. The patient exercised for 6 minutes, 11 s (stage 3) to a maximum heart rate of 130 BPM. There were four isolated multifocal premature ventricular contractions (PVCs) and no complex ventricular ectopy. There were no ischemic ST segment changes.

Treadmill test 3 was repeated after the readministration of trazodone (50 mg every 12 h), 30 minutes after her fifth dose. She exercised for four minutes, 1 s (stage 2) to a maximum heart rate of 133 BPM. There were two runs (four beats each) of asymptomatic nonsustained ventricular tachycardia two minutes into the recovery period.

Cardiac catheterization, performed to further evaluate exercise-induced ventricular arrhythmias, revealed a normal left ventricle, and no significant coronary artery disease.

An electrophysiologic study was then performed with the patient receiving the same dose of trazodone. No ventricular tachycardia was induced despite an aggressive protocol or infusion of isoproterenol at 1.5 µg/min.

DISCUSSION

Although studies have demonstrated a lower incidence of adverse cardiovascular effects with trazodone, the drug-labeling information indicates that trazodone may be arrhythmogenic in some patients. To our knowledge, this is the first reported case of trazodone-associated, exercise-related ventricular tachycardia. Other investigators have reported exacerbations of baseline ventricular ectopy associated with trazodone administration. In our patient,

PVB = premature ventricular beat; PVC = premature ventricular contraction

![Figure 1. Electrocardiographic tracings of leads V1 and V4 showing nonsustained ventricular tachycardia recorded at 14 minutes, 31 s (recovery phase) into exercise treadmill test 1.](http://journal.publications.chestnet.org/pdaccess.ashx?url=/data/journals/chest/21615/ on 06/15/2017)
however, clinically significant ventricular arrhythmias were uncovered only with exercise stress in the presence of trazodone; the recurrence of exercise-related arrhythmias on repeated testing after rechallenge with the drug diminishes the likelihood that spontaneous variation was responsible for this observation. Moreover, there was no concurrent exposure to other medications with complicating cardiovascular effects, and extensive diagnostic evaluation failed to reveal any underlying structural cardiac disease.

Noninducibility with programmed electrical stimulation implies the absence of a reentrant mechanism for our patient's ventricular tachycardia. Although the mechanism of exercise-induced ventricular tachycardia is unknown, its etiology is often considered multifactorial and possibly due to triggered activity.

Although we cannot prove that the patient's presenting syncopal event was the result of exertion-provoked arrhythmia, there has been no recurrence of these symptoms during an 11-month follow-up period.

In conclusion, this report is important because it implicates trazodone in the pathogenesis of exercise-induced nonsustained ventricular tachycardia in a patient without underlying cardiac disease, and thus it corroborates earlier reports of this nontricyclic antidepressant's potential arrhythmogenicity.

REFERENCES


Traumatic Diaphragmatic Hernia Presenting as a Chest Wall Mass*

LTC James C. Jones, M.D., F.C.C.P.‡
CPT Mark R. Nyreen, M.D.;‡ and
CPT Virginia Stowell, M.D.‡

A patient with traumatic diaphragmatic hernia had his lesion present remotely after thoracoabdominal trauma as an asymptomatic chest wall mass. This is a rare and, perhaps, unique presentation of this entity.

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*From the Madigan Army Medical Center, Tacoma, Washington.
‡Chief, Thoracic Surgery Service.
§Resident, General Surgery.

Diaphragmatic rents resulting from abdominal and thoracic trauma are not rare, and there is extensive literature on diagnosis and management of traumatic diaphragmatic hernias. Occasionally, this entity presents in a rare or unusual fashion. We wish to report a case of traumatic diaphragmatic hernia presenting in a rare and, perhaps, unique fashion; an extensive review of the English literature failed to disclose any cases presenting in a similar manner.

CASE REPORT

The patient is a 50-year old man who was involved in a motor vehicle accident 34 years prior to hospital admission. At that time he sustained left sixth and seventh rib fractures. He was hospitalized for three days and released. He developed symptoms suggestive of bowel obstruction 22 days after discharge from the hospital and rehospitalization resulted in laparotomy and lysis of bowel adhesions; no diaphragmatic injury or other intraabdominal injury was noted at that laparotomy. His postoperative course was uneventful. A basilar left chest wall abnormality was noted in a routine chest roentgenogram four years prior to hospital admission. At that time his attending physicians believed that the roentgenographic abnormality probably represented a benign chest wall process resulting.

Figure 1. Chest roentgenogram of patient one month prior to thoracic surgery. See text for details.

Figure 2. Chest computed tomogram of patient one month prior to thoracic surgery. See text for details.