

=====
=====
=====
=====
**Clinical
Communications: Adults**



REFRACTORY VENTRICULAR FIBRILLATION SUCCESSFULLY CARADIOVERTED WITH DUAL SEQUENTIAL DEFIBRILLATION

Rodney C. Sena,* Samuel Eldrich, MD,† Richard M. Pescatore, MD,† Anthony Mazzarelli, MD,† and Richard G. Byrne, MD†

*Rowan University School of Osteopathic Medicine, Stratford, New Jersey and †Department of Emergency Medicine, Cooper University Hospital, Camden, New Jersey

Corresponding Address: Samuel Eldrich, MD, Department of Emergency Medicine, Cooper University Hospital, 1 Cooper Plaza, Camden, NJ 08103

Abstract—Background: Current guidelines for the treatment of adult patients in cardiac arrest are supplied by the American Heart Association through basic life support and advanced cardiovascular life support (ACLS) provider courses. When treatments defined by the ACLS guidelines are unsuccessful in terminating a lethal dysrhythmia, the use of alternative strategies may prove useful. In this case, two defibrillators were used to deliver a greater than normal energy waveform over an extended time interval to return a patient to a normal sinus rhythm. **Case Report:** A 56-year-old woman presented to the emergency department with complaints of chest pain, nausea, and vomiting. The patient's initial work-up, including an electrocardiogram and cardiac troponin, did not show evidence of acute ischemia, and she was admitted to the observation unit for further evaluation. While in the emergency department, the patient developed ventricular fibrillation, and ACLS was initiated. After four unsuccessful defibrillation attempts, a second defibrillator was placed on the patient, and the two were activated almost simultaneously. The patient had immediate return of spontaneous circulation, underwent cardiac catheterization, and was discharged home 1 week later. **Why Should an Emergency Physician Be Aware of This?:** This case shows that dual sequential defibrillation may be a successful method for terminating refractory ventricular fibrillation. Further investigation on cardiac resuscitation should be conducted to standardize

the dual sequential defibrillation delivery procedure. Until such guidelines are established, physicians should take this treatment into consideration when standard ACLS measures have failed to successfully terminate refractory ventricular fibrillation. © 2016 Elsevier Inc. All rights reserved.

Keywords—cardioversion; defibrillation; dual sequential; refractory; ventricular fibrillation

INTRODUCTION

Heart disease remains the leading cause of death in the United States. Frequently, patients with coronary artery disease (CAD) present to U.S. emergency centers in cardiac arrest or with decompensated cardiac failure. Current guidelines for the treatment of adult patients in cardiac arrest are supplied by the American Heart Association through the basic life support (BLS) and advanced cardiovascular life support (ACLS) provider courses (1,2). When treatments defined by the ACLS guidelines are unsuccessful in terminating a lethal dysrhythmia, the use of alternative strategies may prove useful. In this specific case, two defibrillators were used to deliver a greater than normal energy waveform over an extended time interval to return a patient to a normal sinus rhythm.

Reprints are not available from the authors.

CASE REPORT

A 56-year-old woman presented to the emergency department (ED) experiencing chest pain with radiation to the left arm after an episode of vomiting earlier that morning. The patient stated that she had been experiencing nausea and vomiting for the past 11 days and sought ED care on two separate occasions. The patient's significant medical history included obesity (body mass index [BMI] 44.81 kg/m²), hypertension, and CAD with seven coronary stent placements. The initial vital signs revealed blood pressure of 101/77 mm Hg, a heart rate of 53 beats/min, respirations of 16 breaths per minute, and pulse oximetry of 99% on room air. The physical examination was unremarkable. An electrocardiogram was performed, revealing sinus bradycardia with a rate of 54 beats/min and no ST segment or T wave changes (Figure 1). The patient received 324 mg of nonenteric coated aspirin and 0.4 mg of sublingual nitroglycerin with symptomatic relief. Her initial testing, including troponin, a complete blood cell count, serum chemistry, and a chest radiograph, was unremarkable.

The patient's cardiac history was a concern, and she was admitted to the hospital for observation for serial cardiac troponin analysis to rule out acute coronary syndrome, with a plan for evaluation by the cardiology team early the next morning. While being examined by the observation team, however, the patient began complaining of dizziness and became unresponsive, with the cardiac monitor revealing ventricular fibrillation

(VF). Chest compressions were initiated immediately. Four rounds of ACLS were completed, including a total administration of 4 mg of epinephrine, 40 units of vasopressin, 150 mg of amiodarone, and 100 mg of lidocaine as well as four rounds of defibrillation delivered at 200 J with a biphasic defibrillator without success. The patient's cardiac arrest was deemed likely secondary to acute coronary artery thrombosis, so intravenous fibrinolytics were ordered, but a delay was necessary for their preparation. The cardiac catheterization laboratory was activated but was not immediately available to receive the patient. Therefore, the decision was made to perform a dual sequential defibrillation at 600 J (using two defibrillators at 300 J each). A second set of defibrillator pads were placed in an anteroposterior position directly adjacent to the first set of pads, which were placed in the standard apical position. The defibrillators were activated simultaneously, delivering near-simultaneous biphasic charges. The patient had instantaneous reversion to normal sinus rhythm and return of spontaneous circulation (ROSC). The patient regained consciousness and was immediately awake and alert.

After ROSC, the electrocardiogram revealed a normal sinus rhythm with ST segment elevations in the anterior leads. A member of the interventional cardiology team suggested an intravenous heparin infusion and a loading dose of clopidogrel, which were administered. The patient was immediately taken to the cardiac catheterization laboratory. The left anterior descending artery was found to have an acute 100% occlusion in the middle segment

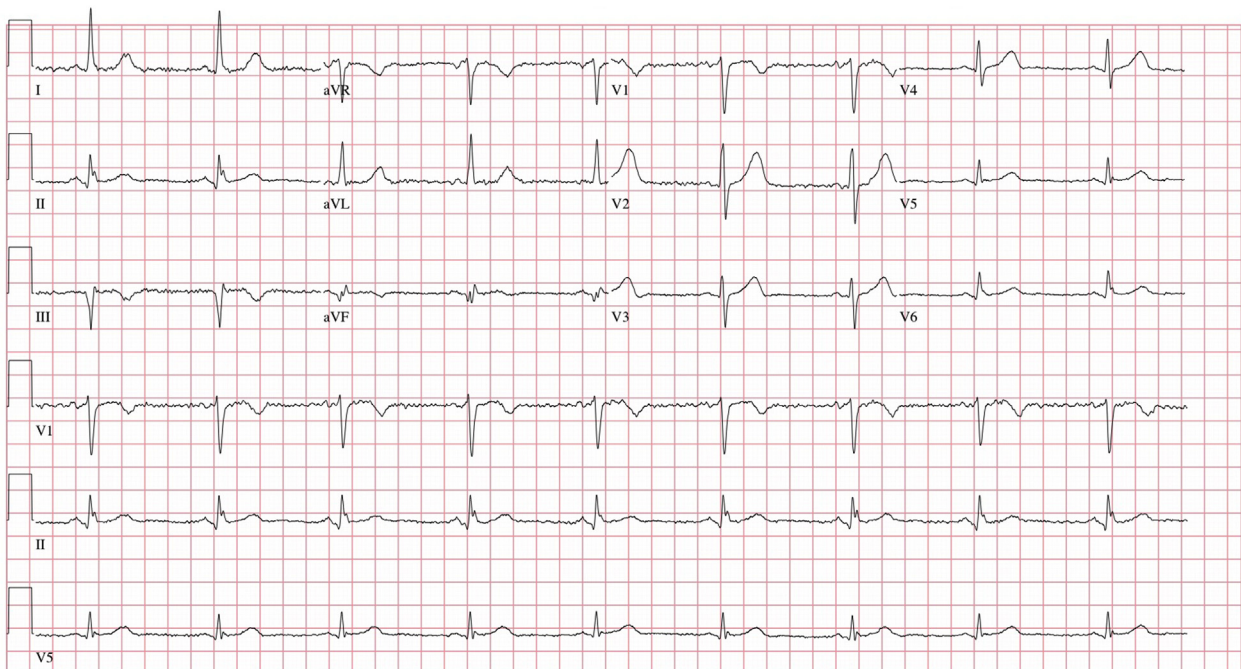


Figure 1. Results of the electrocardiogram at the time of presentation.

Download English Version:

<https://daneshyari.com/en/article/3245639>

Download Persian Version:

<https://daneshyari.com/article/3245639>

[Daneshyari.com](https://daneshyari.com)