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Electrical storm in ICD recipients with arrhythmogenic right ventricular cardiomyopathy

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Background: Implantable Cardioverter Defibrillator (ICD) is the most important management for prevention of Sudden Cardiac Death (SCD) in patients with arrhythmogenic right ventricular cardiomyopathy (ARVC). However, some patients may receive multiple ICD therapies in a short period, a condition referred as electrical storm (ES).

Objectives: This study aimed to determine the prevalence, therapeutic options, and prognostic implications of ES in ARVC patients with an ICD. **Methods:** We retrospectively analyzed the baseline and follow-up data of 39 ARVC patients with an ICD. ES was defined as three or more separated episodes of Ventricular Tachycardia or Ventricular Fibrillation (VT/VF) within a 24 hour period.

Results: During a median follow-up of 49 months (range 6-225), 12 of 39 (31%) patients suffered at least one episode of ES. The interval between the first ES and the initial ICD implantation ranged from 1 month to 109 months, and ES was the first ICD discharge in three patients. The median number of VT/VF events per ES was four (range 3–39). Five patients experienced 20 episodes of ES that were treated by antitachycardia pacing only, while the other seven patients suffered shock therapies during ES. In three patients, ES required emergency hospitalization and the repeatedly occurred VT/VF was finally subsided by intravenous amiodarone. There was no significant difference in actual survival between patients with and without such an event.

Conclusions: ES is not rare in ARVC patients with an ICD for prevention of SCD, but it does not independently confer increased mortality. Intravenous amiodarone is effective in management of ES when VT/VF repeatedly occurred.

Recent Publications:

1. Yin K, Ding L, Hua W, Zhang S (2017) Electrical Storm in ICD Recipients with Arrhythmogenic Right Ventricular Cardiomyopathy. *Pacing Clin Electrophysiol*; 40(6): 683-692.

Biography

Yin Kang has been trained in clinical cardiac pacing and electrophysiology under the direction of Professor Hua Wei for many years. During her Doctoral study in Chinese Academy of Medical Sciences and Peking Union Medical College, she systemically reviewed the patients who had been implanted an ICD at Fuwai Hospital.

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Notes:

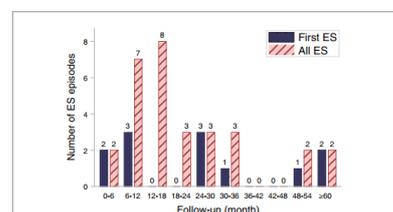


Figure-1: Temporal distribution of electrical storms (ES)

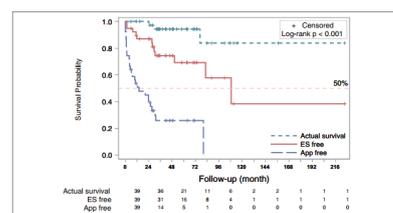


Figure-2: Kaplan-Meier plot comparing cumulative electrical storm (ES) free rate and cumulative appropriate therapy (App) free rate with actual survival probability in 39 patients with ARVC implanted an ICD for prevention of SCD.