



FACULDADE DE MEDICINA DE RIBEIRÃO PRETO  
Departamento de Clínica Médica

REUNIÃO CIENTÍFICA

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**Título:** Electrical Storm in Chagas Heart Disease Patients With Implantable Cardioverter Defibrillator - Clinical Predictors, Outcome and Arrhythmic Characteristics: A Prospective Registry From a University Hospital

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**Abstract:**

Background: Electrical storm (ES) is a common problem in Chagas heart disease (CHD) patients harboring an implantable cardioverter defibrillator (ICD), but data on clinical predictors and outcomes is limited. In this study of CHD patients with an ICD for secondary prevention of sudden cardiac death we sought to compare the characteristics of those with or without ES during long term follow-up. Methods: We prospectively evaluated 110 CHD patients with a mean follow up of  $1949 \pm 1271$  days. Demographic, clinical, arrhythmia characteristics, ICD treatment and death data were collected. Descriptive statistics included mean  $\pm$  standard deviation and Fisher exact tests used for comparisons. A  $p$ -value  $< 0.05$  was considered significant. Results: The ES group (57 patients; 43 men;  $62 \pm 10$  years) and the non-ES group (53 patients; 43 men;  $57 \pm 14$  years) had similar baseline demographic and clinical parameters (New York Heart Association class, use of beta-blockers and amiodarone), but left ventricular (LV) ejection fraction was higher in the ES group ( $44 \pm 14\%$  vs  $37 \pm 14\%$ ,  $p=0.02$ ) and QRS duration was shorter ( $109 \pm 35$ ms vs  $134 \pm 36$ ms;  $p=0.0027$ ). Mortality rates were comparable in the two groups (OR: 1.2; 95%CI: 0.79 to 1.85;  $p=0.44$ ). The ES group presented 116 ES ( $2.03 \pm 1.47$ , 1 to 6), 4713 ( $85.7 \pm 221.4$ ) ventricular tachycardia (VT) and 96 ( $4.17 \pm 6.84$ ) ventricular fibrillation episodes. A total of 2953 (61%) arrhythmic events required ICD therapy: anti-tachycardia pacing (ATP) in 64.5%; ATP and shock in 20.5% and shock in 15%. A total of 1837 VT episodes in monitoring zone presented with spontaneous reversal, and 19 sustained events with a low ventricular rate required external treatment. The mean time between ICD implantation and first ES was  $1078 \pm 1106$  (5-4164) days. No deaths occurred directly due to ES, but clinical triggers as systemic infections and non-adherence to medications were reported in 20 patients with ES. Deaths in this group were related to clinical complications and 8 of these patients died during an ES hospitalization. Conclusions: ES is frequent in CHD but in itself did not carry a worse prognosis in this study population with ICD for secondary prevention. The fact that ES was not associated with more depressed global LV systolic function and with a shorter QRS suggests that other mechanisms may be responsible for triggering the arrhythmic event.