Objective: Investigate the prevalence and the prognosis of the J wave in CHF patients with SCD.

Methods: 2333 CHF patients were recruited in the follow-up study. All patients and age & sex matched 384 controls of ECG were collected to analyze the frequency of J wave with amplitude of at least 0.1mV for 20 ms.

Results: Follow-up 36 months to visit 2038 patients, 438 patients died from heart failure, of whom 157 had SCD. Case and control groups total incidence of J wave were 16% and 7.4% (p<0.001). The incidence J wave of SCD, pump failure death and CHF were 25.48%, 17.85% and 12.91%, between SCD and CHF were statistically difference. The incidence J wave inferior leads of the three groups was 16.56%, 10.71% and 7.47%, only between CHF and SCD difference was significantly. Adjusted multivariate Cox regression revealed that patients with J wave inferior leads cardiac death (HR =1.927, 95% CI [1.001-3.876]) and SCD (HR=3.298, 95% CI [1.194-9.107]) increased risk.

Conclusions: J wave with CHF are common phenomenon and J wave inferior leads with CHF increased risk of SCD, it can be used as a risk ECG predictor of sudden death of CHF.

Keywords: J wave, ECG predictors, sudden cardiac death