

## Impact of fragmented QRS complexes on clinical diagnosis of cardiac involvements and prognosis in patients with sarcoidosis

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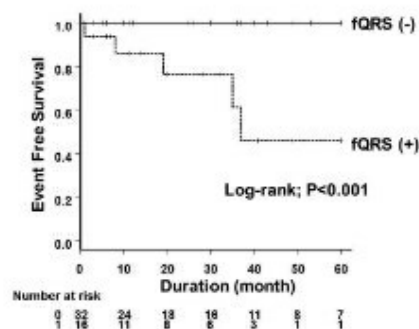
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**Background:** Fragmented QRS (fQRS), defined as the presence of unexpected deviations in the QRS morphology on the 12-lead ECG, has been shown to predict cardiac events in several populations. However, few data exists regarding diagnostic and prognostic utilities of fQRS in patients with sarcoidosis.

**Purpose:** We investigated whether fQRS can be used to diagnose cardiac involvements and also to predict the occurrence of cardiac events in patients with sarcoidosis.

**Methods and results:** Consecutive 48 patients diagnosed with cardiac (n=19) or extra-cardiac sarcoidosis (n=29) were enrolled in this study. Cardiac events included cardiovascular death, hospitalization due to heart failure, symptomatic atrioventricular block, and ventricular tachyarrhythmia. fQRS was observed in 10 (52.6%) of 19 patients with cardiac sarcoidosis while only 6 (23.1%) of 29 patients with extra-cardiac sarcoidosis exhibited fQRS (p=0.031). Logistic regression analysis revealed that fQRS was an independent and only electrocardiographic predictor for the presence of cardiac involvements (odds ratio, 4.71; 95% confidential interval, 1.18-18.8; p=0.0287). Kaplan-Meier survival curves for cardiac events in all 48 patients demonstrated a significantly higher incidence of cardiac events in patients with fQRS (n=15) compared to those without fQRS (n=33) (log-rank; p<0.001)

**Conclusion:** These findings suggest that fQRS may be useful in diagnosis of cardiac sarcoidosis. Further, fQRS may predict the occurrence of cardiac events in patients with sarcoidosis. Even in the availability of specialized cardiac imaging techniques such as cardiac magnetic resonance or positron emission tomography, fQRS on 12-lead ECG can be a simple and cost-effective tool in diagnosis and risk stratification of patients with sarcoidosis.



Kaplan-Meier survival curve.