Abstract: P484

ECG T-wave predictors of Ajmaline Positivity and Arrhythmic Risk In Ajmaline Positive Patients.

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Introduction:
The role of ajmaline testing in asymptomatic individuals in order to diagnose Brugada Syndrome (BrS)/Brugada Pattern ECG is much debated. Administration of ajmaline is performed to confirm a diagnosis, stratify risk and provide advice with regard to medication to avoid. However, ajmaline testing has a low pickup rate and within patients who have a positive ajmaline test, only a small number go on to develop ventricular arrhythmia (VA), thus providing challenges in managing the long-term risk of these patients.

We aimed to investigate ECG T-wave markers that predict a positive ajmaline test, and also identify markers on the ajmaline positive ECG that predict patients at high risk of future ventricular arrhythmias or events, in order to improve the selection of patients for the test and improve the risk management of ajmaline positive patients.

Methods:
A retrospective analysis of 199 patients who underwent ajmaline testing to further investigate an abnormal ECG, a family history of sudden cardiac death, unexplained syncope or ventricular arrhythmia was performed. Ajmaline was administered at 1mg/kg to a maximum of 100mg, with ECG recording in the high and standard right precordial leads. ECG data were then extracted and T-wave markers were analysed using custom designed Matlab software.

Results:
Median age was 38yrs, 103 patients were female. Ajmaline testing was positive in 41 patients and 22 patients went on to develop syncopal symptoms (n=12) or ventricular arrhythmia (n=10) over an 8 year period.

Multivariate predictors of a positive Ajmaline test on the baseline ECG were the difference between the earliest T-wave start to the latest T-wave end (p=0.03, OR 1.04, CI1.01-1.09), and the difference between the the end of the T-wave upslope in V2 to the end of the T-wave upslope in V6 (p=0.04, OR 1.02, CI1.05-1.06) (Figure 1A).

Multivariate predictors of VA or syncope were Tpeak-Tend V2 (Figure 1B)(p=0.02, OR 0.96, CI 0.93-0.99) on the baseline ECG and the difference between the end of the T-wave upslope in V2 to the end of the T-wave upslope in V6 (P=0.03, or 1.12, CI 1.08-1.14) at peak Ajmaline dose(Figure 1C).

Conclusion:
Differences between the earliest start of the T-wave to the latest end across the 12-lead ECG and differences between the end of the upslope in V2 and V6 at baseline were associated with a subsequent positive ajmaline test. Tpeak-Tend in V2 at baseline was associated with future VA or syncpe. The difference between the end of the T-wave upslope in V2 to the end of the T-wave upslope in V6 (P=0.04, OR 1.04, CI 1.01-1.06) at peak Ajmaline correlated with future events. These findings have an important clinical impact for our future management of these patients, enabling us to better stratify those who need Ajmaline testing, and closely monitor risk in patients with a positive test.

**Figure 1.** (A) Differences between the upslope end in V2 and V6 predicted a positive ajmaline test, and (C) future events in those with a positive ajmaline test. (B) T-peak-Tend was associated with future events on the baseline ECG.