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Volume 65, Issue 10S Acute Coronary Syndromes**PROLONGED TPEAK-END AND TPEAK-END/QT RATIO AS A PREDICTOR OF MALIGNANT VENTRICULAR ARRHYTHMIAS IN THE ACUTE PHASE OF ST ELEVATION MYOCARDIAL INFARCTION: A PROSPECTIVE CASE CONTROL STUDY**

Poster Contributions

Poster Hall B1

Saturday, March 14, 2015, 10:00 a.m.-10:45 a.m.

Session Title: Fundamental Observations from Clinical Practice in ACS

Abstract Category: 1. Acute Coronary Syndromes: Basic

Presentation Number: 1105-083

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Background: Prolonged Tpeak-end and the ratio of Tpeak-end / QT have been shown to be markers of arrhythmogenesis in various cardiac disorders. Literature regarding the utility of these two indices in acute STEMI is limited. The aim of this study was to evaluate the utility of Tpeak-end and the ratio of Tpeak-end / QT measurement on admission in patients presenting with acute ST elevation MI (STEMI) as predictor of malignant ventricular arrhythmias.

Methods: This prospective study included fifty patients with ST elevation myocardial infarction (STEMI) as cases, and fifty healthy individuals as controls. Tpeak-end and Tpeak-end /QT ratio was measured in lead V6. Patients in the study group underwent continuous ECG monitoring in the intensive care unit for 48 hrs and step down unit for 72 hrs for malignant ventricular arrhythmias.

Results: Tpeak-end was 0.08 ± 0.006 s in control group and 0.11 ± 0.04 s in study group ($p < 0.001$). Tpeak-end / QT ratio was 0.21 ± 0.02 and 0.30 ± 0.06 in two groups respectively ($p < 0.001$). Three of 50 STEMI patients sustained ventricular fibrillation (VF) within the first 24 hours of admission, requiring cardioversion. Compared to patients without VF, patients with VF had longer QTc (0.39 ± 0.04 s vs. 0.46 ± 0.13 s; $P = 0.019$), T peak-end (0.10 ± 0.02 s vs. 0.20 ± 0.11 s; $P < 0.001$) and Tpeak-end /QT (0.26 ± 0.05 vs. 0.41 ± 0.09 ; $P = 0.1$ s and Tpeak-end /QT ratio > 0.3 predicted malignant ventricular arrhythmia such as VF with a sensitivity of 100%, but the specificity (Tpeak-end /QT ratio 82.9% vs. Tpeak-end 44.7%) and accuracy (Tpeak-end /QT 84% vs. Tpeak-end 48%) was greater with Tpeak-end /QT ratio.

Conclusion: Tpeak-end and Tpeak-end /QT ratio are prolonged in patients with STEMI as compared to healthy individuals. Among patients with STEMI, Tpeak-end > 0.1 s or Tpeak-end /QT ratio > 0.3 serves as a risk factor for malignant ventricular arrhythmias within the first 24 hours of admission.