

## Acute Coronary Syndromes

### T WAVE ALTERNANS IN EXPERIMENTAL MYOCARDIAL INFARCTION: TIME COURSE AND PREDICTIVE VALUE FOR THE ASSESSING OF MYOCARDIAL DAMAGE

Poster Contributions

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**Background:** Infarct size (IS) is strongly associated with prognosis in ST-elevation myocardial infarction (STEMI), but non-invasive ECG-based methods have low specificity for IS assessment. We analyzed the course of repolarization changes, particularly T wave alternans (TWA) during occlusion period and its relation to myocardial damage in experimental myocardial infarction (MI).

**Methods:** In 18 pigs, MI was induced by 40-min long inflation of PCI balloon placed in LAD. 12-lead ECG monitoring at sampling frequency 1024 Hz was initiated before occlusion and lasted throughout the occlusion period. TWA analysis was performed using a sliding 32-beat signal window and periodic component analysis for multilead ECG processing combined with the Laplacian Likelihood Ratio method to detect and quantify TWA. Area at risk (AAR) and IS were evaluated by ex-vivo single photon emission computed tomography (SPECT) and magnetic resonance imaging (MRI) respectively.

**Results:** TWA appeared at  $7,2 \pm 4,5$  min after occlusion onset and lasted during  $14,5 \pm 8,4$  min. TWA was maximal in leads with maximal ST elevation. The degree of ST elevation did not correlate with the extent of myocardial damage either in lead with maximal elevation or in sum of leads. Maximal TWA correlated with both AAR ( $r=0,55$ ,  $p=0,017$ ) and IS ( $r=0,76$ ,  $p<0,001$ ).

**Conclusion:** In experiment, intensity of TWA is strongly associated with both AAR and IS. The findings warrant further studies for assessment of the prognostic value of TWA in clinical settings.

