

# 3<sup>RD</sup> WORLD HEART CONGRESS

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## Negative T waves characteristics in acute coronary syndrome and pulmonary embolism

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**Background:** Electrocardiogram (ECG) is the first available modality used in patients with chest pain and dyspnea in emergency rooms. We aimed to study differences between acute coronary syndrome (ACS) and acute pulmonary embolism (APE) in patients presented primarily with abnormal negative T waves in their own admission electrocardiogram.

**Methods:** This research was a retrospective study in which 297 patients (97 patients with APE and 200 with ACS) were included. The patients were admitted to the emergency ward of a tertiary heart center between 2015 and 2017. In addition to the evaluation of distribution of negative T waves, peak of negative T was measured which was related to the precordial leads.

**Results:** The mean age of patients was  $62.0 \pm 11.4$  in ACS group and  $60.7 \pm 17.6$  in APE group (P value=563). Total negative T in V3 and V4 in ACS and APE groups was 9.1mm and 4.2mm respectively (P value <0.001). Total magnitude of negative T in anterior leads divided by total magnitude of negative T in inferior leads for ACS and APE groups were  $15.1 \pm 12.0$  and  $5.4 \pm 3.6$  respectively (P value=0.001). ROC curves showed that total magnitude of negative T in V3+V4 divided by negative T in V1+V2 leads can be valuable. A cutoff point of 1.75 with sensitivity of 73.5% and specificity of 84.9% (95% CI 0.79-0.91 p<0.001) could differentiate APE patients from ACS patients.

**Conclusion:** This study suggests that total magnitude of negative T in left precordial leads divided by right precordial leads can be valuable in differentiating APE from ACS.

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