

Acute Coronary Syndromes

TERMINAL QRS DISTORTION IN BOTH THE PRE-HOSPITAL PHASE AND AT ADMISSION PREDICTS MYOCARDIAL AREA AT RISK AND FINAL INFARCT SIZE IN PATIENTS WITH STEMI

Poster Contributions

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Background: In ST elevation myocardial infarction (STEMI), QRS distortion; grade 3 ischemia (G3) on admission ECG, is associated with larger infarct size (IS) and higher mortality. Scarce data exist on pre-hospital G3 evaluation, and none regarding temporal dynamics of ischemia grades before percutaneous coronary intervention. We aimed to test if these earlier findings are associated with max Troponin T (TnT), myocardial area at risk (MaR) and IS.

Methods: In 453 STEMI patients, pre-hospital and admission ECGs were classified as G3 (loss of S waves in V1-V3, or ST-elevation ≥ 0.5 of the R amplitude in ≥ 2 adjacent leads) or G2 (no QRS distortion) and pre-hospital dynamics (ST-resolution, Stable in G2, G3 changing to G2, G2 changing to G3 and Stable in G3) were determined. Max TnT (n=453) was registered, as well as MaR (n=285) and 30 day IS (n=401) by single-photon emission computerized tomography.

Results: G3 criteria were met by 108, and G2 by 345 patients. Median time between pre- and inhospital ECG was 91(IQR, 49-193) min. The subgroups differed in TnT, MaR and IS (Table); $p=0.0001$. With group A as reference group B, D, E were associated with an increased MaR (B= 4.1; $p=0.03$, B= 8.2; $p=0.005$, B=9.9 ; $p=0.001$) and IS (B= 3.5; $p=0.009$, B= 4.4; $p=0.03$, B=9.5; $p=0.0001$).

Conclusion: QRS distortion is a dynamic ECG characteristic during STEMI that might allow risk stratification not only at admission, but also at pre-hospital stage.

Table. TnT, MaR and IS in relation to the prehospital dynamics. Data presented as median[IQR].

	Group A; n=101 G3 or G2 to ST-resolution	Group B; n=179 Stable G2	Group C; n=31 G3 to G2	Group D; n=49 G2 to G3	Group E; n=57 Stable G3	p
Max Troponin T ($\mu\text{g/L}$)	1.5 [0.5-4.7]	4.9 [2.3-9.0]	6.1 [2.8-8.6]	8.2[5.1-10.6]	9.6 [5.9-12.5]	0.0001
MaR (% of left ventricle)	14.0 [4.0-30.0]	28.0 [18.0-42.0]	27.0 [15.5-31.5]	35.5 [28.3-45.0]	40.5 [32.2-46.2]	0.0001
IS (% of left ventricle)	2.0 [0-6.0]	10.0 [2.0-20.5]	7.5 [2.2-17.5]	11.0 [5.0-21.5]	19.5 [7.0-30.5]	0.0001