Clinical impact and predictors of complete ST-segment resolution after primary percutaneous coronary intervention: a subanalysis of the ATLANTIC Trial

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**Background**
Achievement of myocardial reperfusion is the main goal in ST-elevation myocardial infarction (STEMI) for improving prognosis. In the ATLANTIC trial (NCT01347580), the frequent early use of aspirin and anticoagulation and the early use of ticagrelor coupled with very short medical contact-to-balloon times represent excellent indicators of optimal treatment of STEMI patients and an ideal setting to explore which factors may influence coronary reperfusion beyond this excellent practice.

**Purpose**
The study sought to evaluate predictors of complete ST-segment resolution (STR) after percutaneous coronary intervention (PCI) in STEMI patients enrolled in the ATLANTIC trial.

**Methods**
ST-segment analysis was performed on electrocardiograms (ECGs) recorded at the time of inclusion [pre-hospital (pre-H) ECG], and 1 hour after PCI (post-PCI ECG) by an independent core laboratory. Complete STR was defined as ≥70% STR.

**Results**
Complete STR occurred post-PCI in 54.9% (n=800/1456) of patients and predicted lower 30-day composite major adverse cardiovascular and cerebrovascular events (MACCE) (OR 0.35, 95% CI 0.19-0.65; p<0.01) (fig 1), definite stent thrombosis (OR 0.18, 95% CI 0.02-0.88; p=0.03), and total mortality (OR 0.43, 95% CI 0.19-0.97; p=0.04) (fig 2).

In multivariate analysis (table), independent predictors of complete STR were the time from index event to pre-H ECG (OR 0.91, 95% CI 0.85-0.98; p=0.01) and diabetes mellitus (OR 0.6, 95% CI 0.44-0.83; p<0.01); pre-H ticagrelor treatment showed a favourable trend (OR 1.22, 95% CI 0.99-1.51; p=0.06).

**Conclusions**
Post-PCI complete STR occurred in 57.5% of patients in the pre-H ticagrelor group and in 52.5% of patients in the control group (p=0.055). The degree of STR was significantly greater in the pre-H group (median, 75.0% vs. 71.4%; p=0.049).

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