ACC.13
62nd Annual Scientific Session & Expo
TCT@ACC-i2

E91
JACC March 12, 2013
Volume 61, Issue 10

Acute Coronary Syndromes

SPONTANEOUS ST-SEGMENT RESOLUTION IN STEMI PATIENTS CORRELATES WITH ENHANCED ENDOGENOUS THROMBOLYSIS USING A POINT-OF-CARE ASSAY

Poster Contributions
Poster Sessions, Expo North
Saturday, March 09, 2013, 3:45 p.m.-4:30 p.m.

Session Title: STEMI Topics
Abstract Category: 1. Acute Coronary Syndromes: Clinical
Presentation Number: 1171-207

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Background: Endogenous thrombolysis (ET) is an important defence mechanism against lasting thrombotic arterial occlusion. Until recently, there has been no test available to measure ET. The Global Thrombosis Test (GTT) is an automated, point-of-care test that can assess ET from native blood. The aim of our study was to measure ET in patients presenting with ST-segment elevation myocardial infarction (STEMI) and relate this to spontaneous ST-segment resolution and clinical outcome.

Methods: We assessed ET in 80 patients with STEMI, immediately upon presentation to the catheterisation laboratory. The GTT is an automated test utilising 3 ml venous blood to assess the time taken to form an occlusive thrombus under high shear stress (occlusion time, OT), and then evaluates the time required to restore flow by endogenous thrombolysis (lysis time, LT). LT ≥3000 s has been associated with increased cardiovascular risk. We compared patients at the extremes of LT.

Results: Five patients with chest pain and ST-elevation in the ambulance had complete or partial resolution of their ST-elevation and chest pain upon arrival. All five patients had short LT (<1000s), TIMI 3 coronary flow at presentation, and uneventful 30-day outcomes. Twelve patients had LT>3000s and all had ongoing ST-elevation with severe symptoms upon presentation, with 8 of these patients having LT ≥6000s (normal range 1240-1514s). 9 out of 12 had TIMI 0 flow at presentation. 5 out of the 12 had a major adverse cardiac event within 30 days (4 deaths, 1 recurrent ACS). LT was significantly shorter in those with spontaneous ST-segment resolution than in those with persistent ST-elevation upon presentation (median 851 vs. 6000s, p=0.0003). There was no difference in occlusion time between the 2 groups (OT 351±80 vs. 377±189s, p=NS).

Conclusions: Despite the small sample size, our data provide an early report of an association between a point-of-care assay of ET and spontaneous ST segment resolution and clinical outcome, in patients with STEMI. This is provocative and an exciting prospect. The potential use of this technique to assess and guide management of STEMI patients needs further exploration, as does the potential for therapies to favourably modulate ET.