

Dynamic Response to Aspirin in Patients with ACS, Clinical and Prognostic Implications

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Background: Increased platelet reactivity and reduced response to anti-platelet drugs may result in recurrent ischemic events after acute coronary syndrome (ACS).

Aim: To evaluate the laboratory response to aspirin in patients with ACS before and after percutaneous coronary intervention (PCI) and assess its effect on major adverse clinical events.

Methods and Results: Sixty three consecutive patients with ACS were tested for the response to aspirin by light transmittance aggregometry (LTA) and the IMPACT-R test (both with arachidonic acid- AA) before and 2-4 days after PCI and clopidogrel loading. Patients were followed for clinical events up to 15 month from PCI. Response to aspirin improved significantly after PCI and clopidogrel treatment: mean AA-induced LTA decreased from 34.9±3.35% before PCI to 15.2±2.2%, and surface coverage increased from 2.2±0.27% to 6.2± 0.6% (p<0.0001 for both methods). The improved response to aspirin after PCI correlated with the response to clopidogrel (LTA and IMPACT-R, p<0.01). Patients with good laboratory response to aspirin before but not after PCI had significantly lower major cardiovascular event rate during 15 months follow up, in multivariate analysis.

Conclusion: The laboratory response to aspirin is highly dynamic in patients with ACS. The improved response to aspirin following PCI may result from stabilization of coronary artery disease and/or clopidogrel treatment. The laboratory response to aspirin before PCI and clopidogrel loading is a sensitive marker for platelet reactivity that correlates with clinical outcome in patients with ACS.