Multiplate® analyzer

Best predictivity – for tailored anti-platelet therapy

Clopidogrel low-response identified by Multiplate® is a risk factor for stent thrombosis

• Approximately 20% of patients undergoing PCI do not adequately respond to standard clopidogrel therapy.1
• Ticagrelor and prasugrel are more potent drugs, but both increase bleeding risk2,3 and cost of therapy.4
• Clopidogrel low-responders identified by Multiplate® have a 5-12 fold increased risk for stent thrombosis.1, 5-7
• Clopidogrel enhanced-responders identified by Multiplate® have a 2.6 fold increased risk for major bleeding.8

In a recent consensus opinion on the definition of high on-treatment platelet reactivity (HPR) to ADP, studies are summarized that link HPR to ischemic events based on ROC curve derived cutoffs.8 The best prediction of ischemic risk was associated with the Multiplate® analyzer, with an odds ratio of 12.0, while studies using other methods demonstrated odds ratios of only 1.2 - 5.8. The consensus cut-off for ADPtest on the Multiplate® analyzer is defined as an aggregation > 46 U (468 AU*min).

Personalized anti-platelet therapy algorithm in PCI

According to Christ et al.2-10 Multiplate® can be used as follows for the management of anti-platelet therapy in patients undergoing PCI:
• STEMI patients are treated first line with Prasugrel.
• NSTEMI and stable CAD patients receive clopidogrel first line and are subsequently monitored using Multiplate® ADPtest >12 hours after clopidogrel loading.
• An intensified anti-platelet regimen is initiated in patients with clopidogrel low response**.

The investigators concluded that routine tailoring of antiplatelet therapy is capable to prevent early definite stent thrombosis in PCI9.

* In case of contraindications to prasugrel (history of stroke, intracranial hemorrhage, low body weight (< 60 kg), old age (> 75 y) first line therapy with clopidogrel (600mg loading, 75mg maintenance dose) is considered. ** Clopidogrel low-responders receive an intensified drug regimen: Either prasugrel loading (60mg) and 10 or 5 mg in the maintenance phase (depending on age and body weight) or, if contraindications for prasugrel are present, repeated loading with clopidogrel (600mg) is considered.

Adapted from Sibbing et al. (2009)1

Adapted from Bonello et al. (2010) consensus paper5

Adapted from Christ et al. (2011)9

Consensus paper supporting best in class predictivity of Multiplate®

Personalized drug regimen

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<th>Identify clopidogrel low responders with Multiplate®</th>
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Evidence of improved outcome after tailored anti-platelet therapy

Growing evidence is available that routine tailoring of anti-platelet therapy using Multiplate® ADPtest has the potential to significantly reduce the incidence of major adverse ischemic complications post PCI.

A study in 542 PCI patients investigated if Multiplate® tailored anti-platelet therapy with prasugrel in patients displaying high platelet reactivity while on clopidogrel treatment reduces the incidence of stent thrombosis after PCI. The authors concluded that “Routine platelet function testing [Multiplate®] is useful for guidance of tailored antiplatelet treatment and switching to prasugrel markedly reduces ST risk in HPR patients on clopidogrel.”

In a prospective study of 798 patients with coronary artery disease undergoing PCI, “Personalized antiplatelet treatment according to the platelet function testing with MEA [Multiplate®] resulted in an improved efficacy with an equal safety compared to the standard treatment with clopidogrel.”

The Multiplate® analyzer – supporting clinicians with consistent results

1. Measurement position
   - Patented twin sensor test cell
   - Testing in low volumes (300 µl) of whole blood
   - 5 measurement positions for simultaneous measurement of different samples/agonists
   - Internal QC using duplicate detection of every measurement
   - 10 minute time to result
   - Sensitive signal detection with a large dynamic range

2. Reagent and sample compartment
   - 4 reagent vial positions
   - 1 sample position
   - 9 positions for reagent
   - Removable for cold storage

3. Electronic pipette
   - Predefined pipette programs for routine tests
   - Customizable settings for individual adaptation
   - Audiovisual user guidance
   - One button operation for easy and safe pipetting

4. Software
   - Windows® XP-based user interface
   - Pre-programmed test settings
   - Automatic analysis and documentation of measurements
   - Parameterization of dynamic signal

References