

Point-of-Care Monitoring V's Light Transmission Aggregometry Using Arachidonic Acid for Aspirin Resistance

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Introduction:

- Aspirin (ASA), is routinely prescribed as an anti-platelet therapy in doses of between 81-325mg/day for patients risk stratified for thrombotic events
- Recently it has been realized that specific ASA treatment is suboptimal at the supposed therapeutic doses due to inter-patient variability with regard to response
- Moreover, traditional platelet tests including light transmission aggregometry (LTA) are inconvenient for acute diagnostic testing hence, the introduction of "near- patient" test systems
- Here we describe the utility of a point of-care (POC) test platform (PlateletWorks®) for monitoring aspirin resistance using arachidonic acid (AA) as the agonist

Methods & Procedure:

29 patients with coronary artery disease (CAD) were evaluated for ASA response using AA as the platelet antagonist. Patients (administered with 325mg ASA) were evaluated using PlateletWorks (Helena Laboratories, Beaumont, Tx) and LTA (at 0.125mg and 5µM AA respectively. The Plateletworks test uses the principle of differential platelet counting in either the absence or presence of a platelet agonist (ADP, collagen, AA etc.) as a direct indication of platelet function. Results may be expressed as either % aggregation or % inhibition (Figure 1a & b).

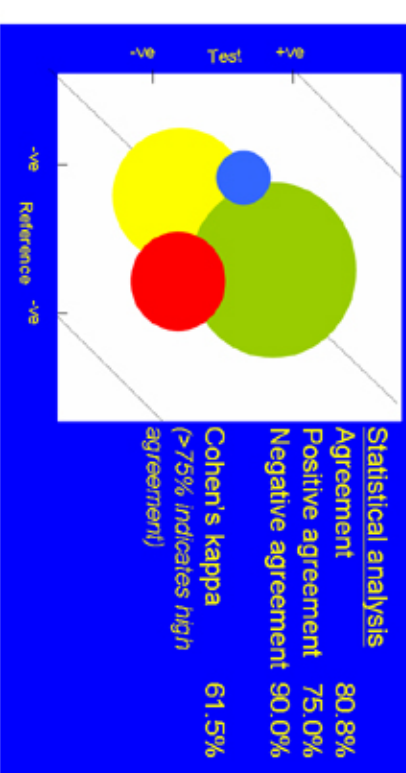
Figure 1 a & b: Schematic for Plateletworks in absence (a) and presence (b) of agonist. Actual print-out (c) of Plateletworks (showing the nine parameter count).



Results:

The comparative data between the two systems are shown in Figure 2. As LTA is a qualitative measurement whereas Plateletworks provides quantitative assessment of platelet function data were analyzed using McNemar test of symmetry with Cohen's kappa values.

Figure 2: Statistical analysis of laboratory methods



Conclusions:

- This novel POC test for ASA response may be a suitable peri-procedural screening assay to determine the effective dose of ASA on an individual patient basis
- It may also provide clinical decision as to alternative anti-platelet therapies
- Large scale studies both in vascular disease and other disease processes are ongoing