

Meeting abstract

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## Monitoring platelet activation with two different shear-dependent function tests: application of PFA-100 and the Impact-R ARA

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To analyze the aspirin effect we compared two methods, the PFA-100 and the Impact-R to determine their sensitivity and specificity. In this prospective double-blind single centre trial 37 healthy male volunteers (median age 27, range  $\pm$  7) were randomized to take aspirin 160 mg per day for 7–10 days or placebo. The platelet function was determined under close to physiological and high shear. At study entry and after 2 weeks we determined the closure time (CT) of collagen/epinephrine cartridges obtained by the PFA-100 (CEP-CT), and the surface coverage (SC), as a measure of platelet adhesion, with and without pre-incubation with arachidonic acid (ARA). By the PFA-100 CEP-CT was median  $210 \pm 62$  before aspirin, and  $>300$  sec in all individuals taking aspirin for 2 weeks ( $p < 0.0001$ ). The SC pre-incubated with ARA was median  $4.6 \pm 2.5$  before study entry and median  $6.8 \pm 2.7$  after two weeks of aspirin ( $p < 0.0001$ ). Changes were not significant in controls. In order to normalize for the broad variation of the SC from one individual to the next, we determined the relative change of the SC due to the addition of ARA. Again, aspirin significantly inhibited ARA induced reduction of adhesion ( $p = 0.014$ ). Sensitivity and specificity to detect aspirin was 100% and 50% with the PFA-100, 100% and 42% with the Impact-R.

### Conclusion

The PFA-100 (collagen/epinephrine) and the Impact-R are useful to estimate the individual response to aspirin. While a variety of factors may contribute to prolonged CEP-CT by the PFA-100, the Impact-R ARA test is specific for aspirin.