IMPACT OF PLATELET REACTIVITY ON CLINICAL OUTCOMES: A PATIENT LEVEL META-ANALYSIS

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Background: Post-clopidogrel platelet reactivity is not well defined due to differences in both testing modalities and cutoff values and its clinical sequelae for patients undergoing PCI remains poorly defined.

Methods: We performed a patient level meta-analysis using 4 studies where the inhibitory effects of clopidogrel on platelet reactivity were quantified using the same automated, cartridge-based point of care assay (VerifyNow). In each study post-clopidogrel platelet reactivity was reported as P2Y12 reaction units (PRU) and measured at least 12 hrs post-PCI.

Results: There were 1283 patients among the 4 studies who underwent testing for clopidogrel hyporesponsiveness post-PCI. After the cohort was divided into quartiles based upon PRU values, survival analysis was performed. Kaplan-Meier curves for each quartile are shown. The incidence of death or MI was significantly greater in quartiles 3 and 4 compared to quartiles 1 and 2 (P=0.01). The mean PRU value for quartile 3 was 230; above this value the risk of death or MI appears to be increased (11.4% vs. 7.7% for PRU under 230, P=0.028).

Conclusions: Clopidogrel hyporesponsiveness is associated with increased death or MI after PCI. The PRU value of 230 with the testing assay utilized appears to be a clinically meaningful cutoff point. Clinical trials of increasing the clopidogrel dose or changing to an alternate antiplatelet in hyporesponsive patients are warranted.