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# NHAM Abstracts 2018

## 1.
## Clinical and Economic Impact of a Novel Strategy Using Point-Of-Care Instruments to Guide Antiplatelet Therapy in Patients with Myocardial Infarction Implanted with A Drug Eluting Stent

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**Background:** Based on current guidelines, ticagrelor/prasugrel are preferred over clopidogrel in myocardial infarction (MI) treated with percutaneous coronary intervention (PCI) and drug eluting stent (DES). In Malaysia, clopidogrel is still the most commonly used ADP antagonist. The role of routine platelet function testing (PFT) with point of care instruments (POC) has not been established.

**Objective:** To examine the clinical and economic impact of a novel POC-guided antiplatelet strategy in patients with MI and DES.

**Methods:** At a tertiary referral centre, patients admitted between Sep-Dec 2017 with MI, treated with DES, underwent PFTs with Multiplate (Roche, Switzerland) and CYP2C19 genotyping with Spartan Rx (Spartan Bioscience, Canada). Patients showing high on-treatment platelet reactivity (HPR) were switched from clopidogrel to ticagrelor. One-month follow-up and cost-analysis were performed.

**Results:** We recruited 41 patients (STEMI: 46.3%; NSTEMI: 53.7%), mean age 56.63±11.75 years and 92.7% males. Approximately one-third had wild type (WT) CYP2C19 *1/*1 genotype, while the remaining had ≥ 1 loss-of-function alleles (LOF) [(WT: 29.3%; 1LOF: 61.0%; 2LOF: 9.8%); (Percentage of clopidogrel HPR: 0%, 8%, 25% respectively)]. None had *17 gain-of-function alleles. Clopidogrel reactivity (MEA ADP) was significantly higher in patients with more LOF compared to WT [median (IQR): WT vs. 1LOF vs. 2LOF: 246(268), 316(189.50) and 493.5(423.25) respectively, p=0.029]. Aspirin HPR (MEA ASPI ≥ 300 AU*min) made up 9.8% of the population. Three patients (7.3%) had clopidogrel HPR (MEA ADP ≥ 1 600 AU*min). All three plus another patient with borderline response to clopidogrel, but had two LOF, were escalated to ticagrelor. All patients had normal platelet reactivity upon discharge and were alive at 30 days but one patient developed recurrent NSTEMI. At 1 month, the cost of POC-guided antiplatelet strategy for 41 patients was higher compared to standard therapy (RM22,339.30 vs. RM16,528.90). At 1 year, the cost of ticagrelor-for-all therapy, POC-guided therapy and standard therapy, excluding major adverse cardiovascular events, were RM118,326, RM30,171.60 and RM6,346.80 respectively.

**Conclusion:** POC-guided antiplatelet therapy is superior to standard therapy in patients with MI post PCI with DES, with only 1 MACE at 1-month post discharge. Additionally, there is substantial cost saving if extrapolated to 1 year, compared to a ticagrelor-for-all therapy.

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## 2.
## Malaysian Propolis Restores Endothelium-Dependent Aortic Relaxation in Diabetic Rats: Pharmacodynamics of Vasoactive Bee Product

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**Background:** Aortic endothelium-dependent relaxation is impaired in diabetes mellitus. Malaysian propolis (MP) from stingless bees (Heterotrigona itama) is polyphenol-rich resinous substance that exhibits anti-hyperglycemic, antioxidative and cardioprotective properties. However, vasomodulatory activity of MP has not been investigated.

**Objectives:** This study aimed to determine the effect of MP supplementation on aortic vascular reactivity in diabetic rats and its mechanism of action.

**Materials & methods:** Male Sprague Dawley rats were divided into four groups (n=6/group): normoglycemic control (NG), untreated diabetes (DM), DM treated with metformin (DM+Met, 300mg/kg/day) and DM treated with MP (DM+MP, 300mg/kg/day). Induction of type 1 DM was performed with intraperitoneal streptozotocin injection (60mg/kg). Treatment by oral gavage was initiated immediately after successful DM induction (fasting blood glucose > 11.1mM). After four weeks, rats were euthanized, and thoracic aorta segments were harvested for ex vivo tissue bath assay. Percentages relaxation of phenylephrine-precontracted aortas to cumulative acetylcholine (10-8-10-4 M) were recorded. For in vitro pharmacodynamics evaluation of MP, thoracic aorta segments of normal rats (n=6/experiment) were incubated with L-NAME (10-4M), methylene blue (10-5M), indomethacin (10-5M) and elevated glucose (25mM), respectively, for 30 minutes. Subsequently, relaxation responses to graded concentration of MP (0.01-1.00%) achieved by aortas precontracted with phenylephrine were examined.

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