# Adverse events in acute myocardial infarction patients: the DAPT Score for risk stratification in an Asian population

S. Nakada[1], A. Lee[2], W. Huang[2], K.K. Yeo[2]

[1]*Duke-NUS Graduate Medical School Singapore, Singapore, Singapore;* [2]*National Heart Centre Singapore, Department of Cardiology, Singapore, Singapore*

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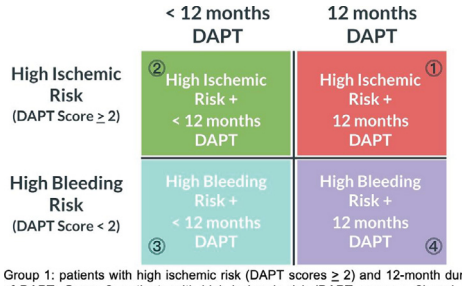
**Background:** Dual antiplatelet therapy (DAPT) is essential in mitigating adverse ischemic events after myocardial infarction (MI), and current guidelines have recommended the therapy to be administered for at least 1 year. Though prolonged DAPT helps to reduce ischemic events in high-risk patients, it can also increase the risk of significant bleeding. Risk stratification tools, such as the DAPT Score, can help to identify patients who are most or least likely to benefit from prolonged DAPT.

**Purpose:** To evaluate the performance of the DAPT Score as a predictor of major adverse cardiovascular events (MACE) in an Asian cohort who underwent percutaneous coronary intervention (PCI) for MI.

**Methods:** The analysis cohort consisted of 2086 MI patients (86% of primary PCI patients) who were admitted to Singaporean hospitals between 2012 and 2014. Demographic, clinical and therapeutic data regarding the index hospitalisation and 12-month follow-up period were collected. Patients were grouped according to their DAPT Score (high ischemic vs high bleeding risk) and DAPT duration (12 vs <12 months; Figure 1). The primary endpoint was MACE (all-cause mortality, recurrent MI and stroke). MACE as an outcome was evaluated using multivariable Cox regression adjusted for age, gender, ethnicity, smoking status, prior MI, PCI or coronary artery bypass graft, hypertension, dyslipidaemia, cerebrovascular disease, diabetes mellitus, family history of coronary artery disease, vein graft stent and type of MI at presentation.

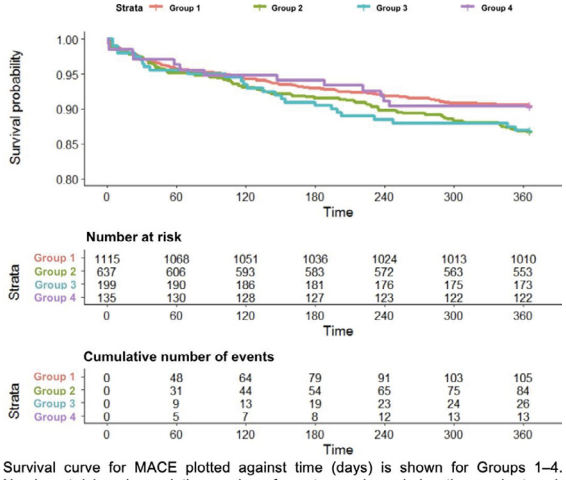
**Results:** The overall incidence rate of MACE in this cohort was 12.3%. There was a significantly higher MACE rate in Group 2 patients compared to Group 1 patients (high ischemic risk and <12-month DAPT vs high ischemic risk and 12-month DAPT; hazard ratio: 1.37, 95% confidence interval: 1.02–1.83, P=0.038). No other significant differences in MACE rates were observed among the rest of the groups (Group 3: 1.44 [0.89–2.34]; Group 4: 1.15 [0.61–2.16], P>0.050). Furthermore, MACE was independently associated with diabetes, hypertension, prior MI and cerebrovascular disease (1.49 [1.10–2.02], 1.43 [1.00–2.05], 1.41 [1.01–1.98], 3.06 [2.15–4.37], respectively, P<0.050). Patients <65 years and males were found to be protected against MACE (0.71 [0.51–0.99], 0.72 [0.52–0.99], respectively, P<0.050). The overall bleeding rate was 2.2% (Group 1: 2.0%; Group 2: 1.7%; Group 3: 6.0%; Group 4: 0.7%).

**Conclusions:** The DAPT Score predicted MACE up to 12 months after PCI in MI patients with high ischemic risk and <12 months of DAPT. This highlights the importance of adequate duration of DAPT in high ischemic risk MI patients. Moreover, the elderly, female, diabetic, hypertensive and those with prior cerebrovascular disease or MI were at increased risk for MACE.




Group 1: patients with high ischemic risk (DAPT scores ≥ 2) and 12-month duration of DAPT; Group 2: patients with high ischemic risk (DAPT scores ≥ 2) and < 12-month duration of DAPT; Group 3: patients with high bleeding risk (DAPT scores < 2) and < 12-month duration of DAPT; Group 4: patients with high bleeding risk (DAPT scores < 2) and 12-month duration of DAPT. DAPT prescribed for 292 days or more of 365 (≥ 80% of 365 days) was considered as 12-month duration of DAPT.
DAPT: Dual Antiplatelet Therapy

Cohorts




Survival curve for MACE plotted against time (days) is shown for Groups 1–4. Number at risk and cumulative number of events are shown below the graph at each time point. Day 0 is taken as day of PCI for MI during the index hospitalisation.
MACE: Major Adverse Cardiovascular Events; MI: Myocardial Infarction; PCI: Percutaneous Coronary Intervention

Cox regression for MACE