

The Use of Dual Antiplatelet Therapy Post Coronary Artery Bypass Graft Evidence-Based Medicine (DAPT EBM)



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Background

- Coronary artery bypass grafting (CABG) surgery is used for revascularization in patients with complex multivessel coronary artery disease (CAD)
- ESC 2017 recommends dual antiplatelet therapy (DAPT) in all post-CABG patients
- CCS 2012 and AHA 2016 recommend DAPT post-CABG for patients with recent acute coronary syndromes (ACS)
- CURE subgroup: DAPT with clopidogrel did not lead to a difference in cardiovascular outcome or bleeding events
- CASCADE and PAPA CABG: DAPT with clopidogrel did not lead to a difference in graft patency or bleeding events
- PLATO subgroup: DAPT with ticagrelor reduced mortality with no significant difference in bleeding events

Objectives

- Primary: Determine the frequency and agents of DAPT prescribed after isolated CABG at Royal Columbian Hospital
- Secondary: Investigate patient characteristics that may influence DAPT prescription and the rate of bleeding or cardiovascular event in patients that received DAPT after isolated CABG surgery

Methods

- Design: retrospective chart review
- Patient identified using ICD-10 codes
- Inclusion: adult (≥ 18 years of age) with an isolated on-pump CABG surgery between April 2018 - April 2019
- Exclusion: patients with an indication for DAPT unrelated to CABG, expiring prior to discharge, history of atrial fibrillation or indications for anticoagulation, concurrent anticoagulation therapy
- 420 patients received isolated on-pump CABG in study period.
- Patients were randomly selected for screening to achieve a sample of 100 patients
- 15 patients were excluded

Results

Table 1: Baseline characteristics

	No DAPT (N = 78)	DAPT (N = 22)	All Patients (N = 100)
Age (years) \pm SD	67.9 \pm 8.2	58.8 \pm 10.3	65.9 \pm 9.5
Male	62 (79.5%)	17 (77.3%)	79 (79%)
BMI (kg/m ²) \pm SD	26.9 \pm 3.8	28.7 \pm 5.1	27.4 \pm 4.2
Medical history			
Hypertension	55 (70.5%)	16 (72.7%)	71 (71%)
Dyslipidemia	48 (61.5%)	14 (63.6%)	62 (62%)
Diabetes	39 (50%)	9 (40.9%)	48 (48%)
Angina	24 (30.8%)	7 (31.8%)	31 (31%)
Heart failure	1 (1.3%)	0	1 (1%)
Myocardial infarction	3 (3.8%)	3 (13.6%)	6 (6%)
PCI	11 (14.1%)	5 (22.7%)	16 (16%)
Stroke	6 (7.7%)	2 (9.1%)	8 (8%)
PVD	6 (7.7%)	0	6 (6%)
CKD	12 (15.4%)	0	12 (12%)
History of smoking	41 (52.6%)	10 (45.5%)	51 (51%)
Bleeding history (%)			
None	73 (93.6%)	22 (100%)	95 (95%)
Intracranial/subdural	1 (1.3%)	0	1 (1%)
Gastrointestinal	4 (5.1%)	0	4 (4%)
Event prior to CABG			
Hospital admission w/CATH	31 (39.7%)	20 (90.9%)	51 (51%)
Elective CATH w/admission	6 (7.7%)	0	6 (6%)
Elective CATH w/outpatient	41 (52.6%)	2 (9.1%)	43 (43%)

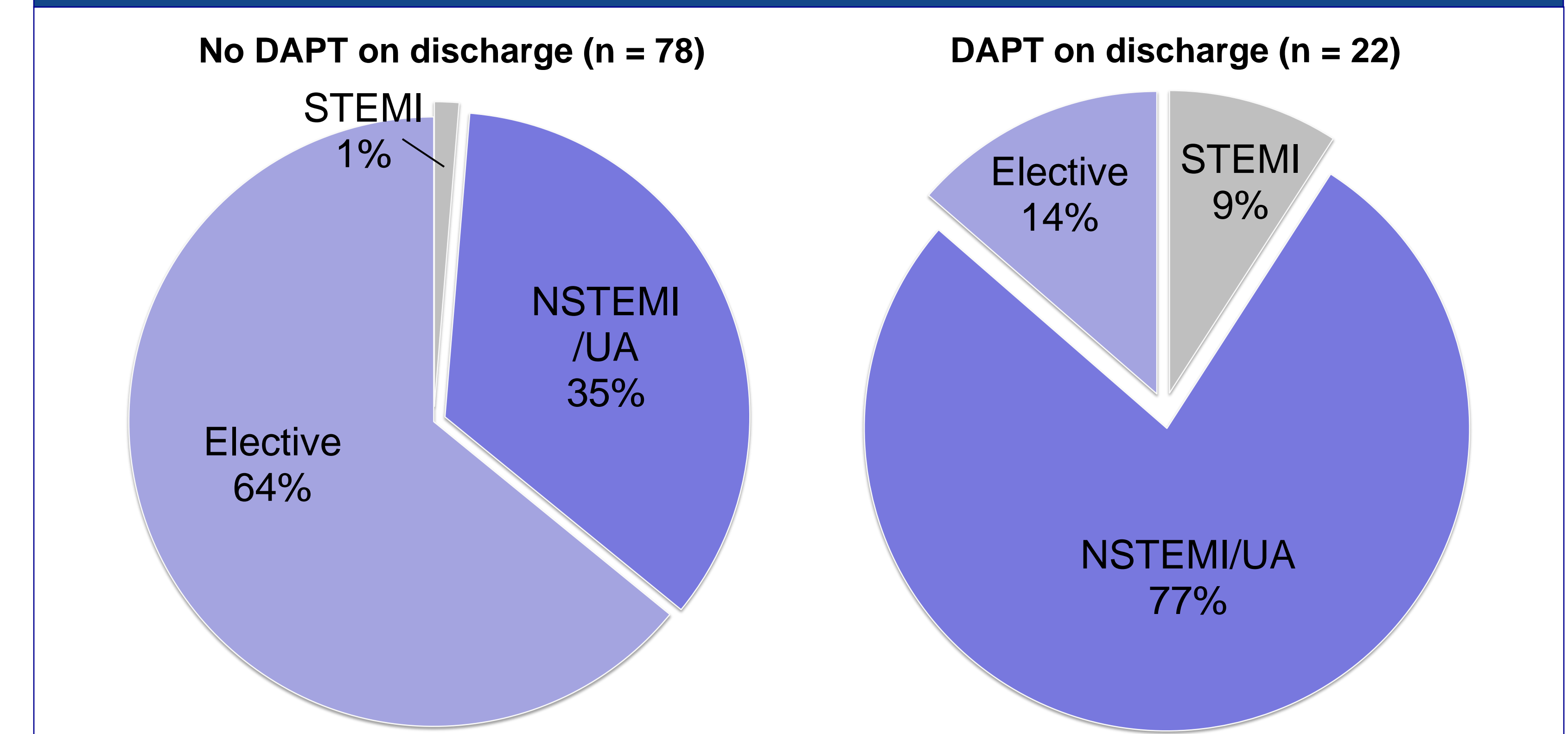
Table 2: Index event prior to CABG and agents used for DAPT

	No DAPT (N = 78)	DAPT (N = 22)
Reason for surgery		
STEMI	1 (1.3%)	2 (9.1%)
NSTEMI/UA	27 (34.6%)	17 (77.3%)
Elective	50 (64.1%)	3 (13.6%)
Post-op		
Length of stay \pm SD	6.55 \pm 4.5	5.59 \pm 2.5
DAPT prior to discharge	0	14 (63.6%)
DAPT prescription		
Clopidogrel	0	3 (13.6%)
Ticagrelor	0	19 (86.4%)

Table 3: Cardiovascular or bleeding event during 90 days after discharge

	No DAPT (N = 78)	DAPT (N = 22)
Hospital visits due to bleeding	1 (1.3%)	4 (18.2%)
Readmission due to cardiovascular causes		
STEMI	0	0
NSTEMI/UA	2 (2.6%)	0
Stroke	0	0
Heart failure	2 (2.6%)	0

Figure 1: Comparison of index event prior to CABG between patients that did not receive DAPT and patients that received DAPT



Discussion

- 22 of 100 patients received DAPT prescription on discharge
- Patients that received DAPT were younger (58.8 years), with higher incidence of previous MI (13.6%), higher rate of hospital admission (90.9%) and no history of bleeding events.
- 86% of patients that received DAPT had recent ACS, while 36% of patients that did not receive DAPT had recent ACS
- 43% of patient with recent ACS received DAPT on discharge
- 86% of patients received DAPT with ticagrelor
- 5 bleeding events occurred during 90 days follow-up period, 4 occurred for patients that received DAPT
- 4 re-admission due to cardiovascular events occurred during 90 days follow-up period, all occurred for patients that did not receive DAPT

Limitations

- Retrospective design
- Not powered to make conclusion on clinical outcomes

Conclusions

- Low proportion of patients admitted to hospital for CABG received DAPT prescription on discharge. Majority of DAPT provided was with ticagrelor, which aligns with best available evidence
- Patients were more likely to receive DAPT prescription if they are younger with a recent ACS event or a history of multiple MI and low risk of bleeding
- Patients that received DAPT had more hospital visits for bleeding events and fewer re-admission due to cardiovascular events