Baptist Health
HEART INSTITUTE

Post PCI duration of Dual Anti-Platelet Therapy

Scott A. Davis, MD FACC

Disclosures: None

Coronary Heart Disease

Estimated 15.5 million Americans ≥ 20 years old have CHD

- Every 42 seconds an American has an MI
  - 550,000 new attacks
  - 200,000 recurrent attacks
- Average age for first MI is 65.1 years in men and 72.0 years in women

CHD= coronary heart disease MI= Myocardial infarction

Circulation. 2015;133:e38-e360

Dual Antiplatelet Therapy (DAPT)

Treatment with aspirin 81mg daily + a $P2Y_{12}$ inhibitor such as:

- Clopidogrel 75mg daily
- Ticagrelor 90mg BID
- Prasugrel 10mg daily

- DAPT is indicated:
  - Following elective PCI for SIHD
  - Acute coronary syndrome

DAPT= dual antiplatelet therapy; PCI= percutaneous coronary intervention; SIHD= stable ischemic heart disease

2016 ACC/AHA Guideline Focused Update on Duration of Dual Antiplatelet Therapy in Patients With Coronary Artery Disease

J Am Coll Cardiol 2016;68:1082–115

DAPT

- Dual Antiplatelet Therapy in CHD, CVD and PAD
  - Risk/benefits of long term therapy
  - Which patients?
  - Which agents?
  - How long?

2016 DAPT Focused Update Three Key Questions

1. Is 3-6 months of DAPT as effective as 12 months in patients with SIHD treated with "newer" DES?

2. Is > 12 months of DAPT more effective in patients treated with "newer" DES?

3. In patients with ACS does continuing DAPT > 12 months improve outcomes?

Patient Factors Associated with Increased Ischemic Risk

Increased Ischemic Risk
- Advanced Age
- Acute coronary syndrome
- Multiple prior MIs
- Extensive CAD
- Diabetes mellitus
- Chronic kidney disease

Increased Risk of Stent Thrombosis
- Acute coronary syndrome
- Diabetes mellitus
- LVEF < 40%
- First generation DES
- Stent underdeployment
- Small stent diameter
- Longer stent length
- In-stent restenosis
- Bifurcation stents

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Patient Factors Associated with Increased Bleeding Risk

- History of Bleeding
- Oral anticoagulant therapy
- Chronic steroid or NSAID therapy
- Female sex
- Low body weight
- Anemia
- Diabetes mellitus
- Advanced age
- CKD

DAPT: Who and why?

- **STEMI**: There is strong evidence to support the early initiation of dual antiplatelet therapy (DAPT) with ASA and a $P2Y_{12}$ receptor blocker, irrespective of treatment strategy (fibrinolysis, primary percutaneous coronary intervention [PCI], or medical therapy), in patients with acute ST-elevation myocardial infarction
- **NSTEMI**: All patients with non-ST elevation acute coronary syndrome should receive (DAPT) with ASA and a $P2Y_{12}$ receptor blocker, as opposed to single antiplatelet therapy
- **FOLLOWING PCI**: The risks of stent thrombosis & myocardial infarction or death are diminished by the use of DAPT compared to ASA monotherapy and may prevent ischemic events remote from the stented area.
- **HOW LONG?** 1 month vs. 6 months vs. 12 months vs. longer

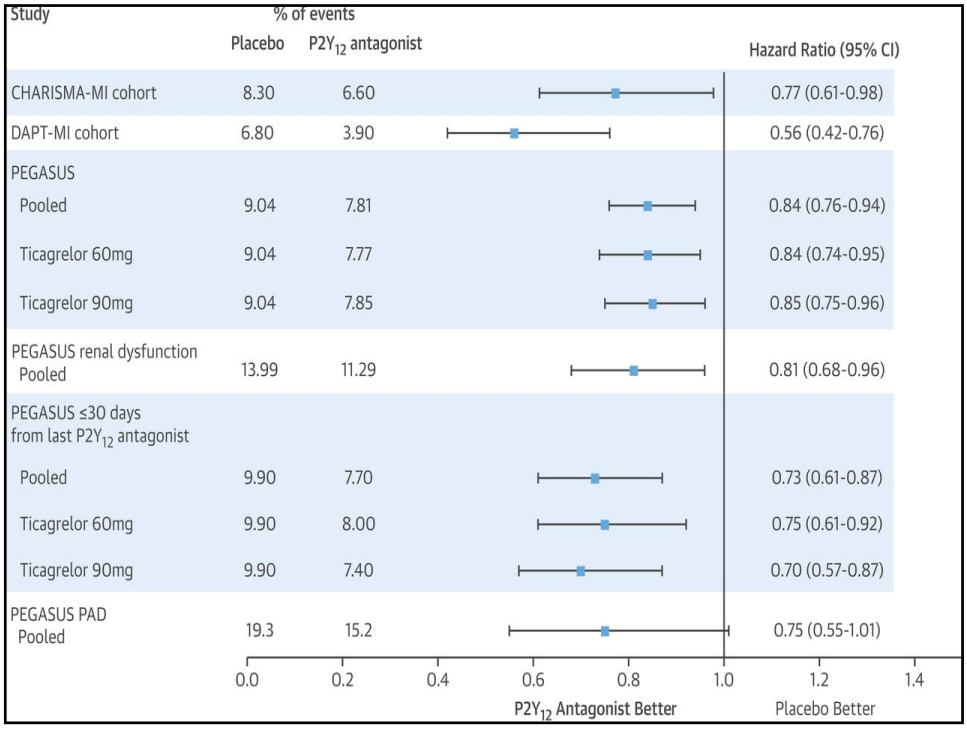
DAPT Duration Literature

Studies of Shorter duration DAPT
(3-6 months vs. 12 months)
– 5 RCTs following “elective” DES

- Studies of Longer duration DAPT
(total 18 to 48 months)
– 6 RCTs predominately “elective” DES
- Studies DAPT > 1 year after MI
(median duration 18-33 months)
– CHARISMA, PEGASUS TIMI 54, and DAPT study

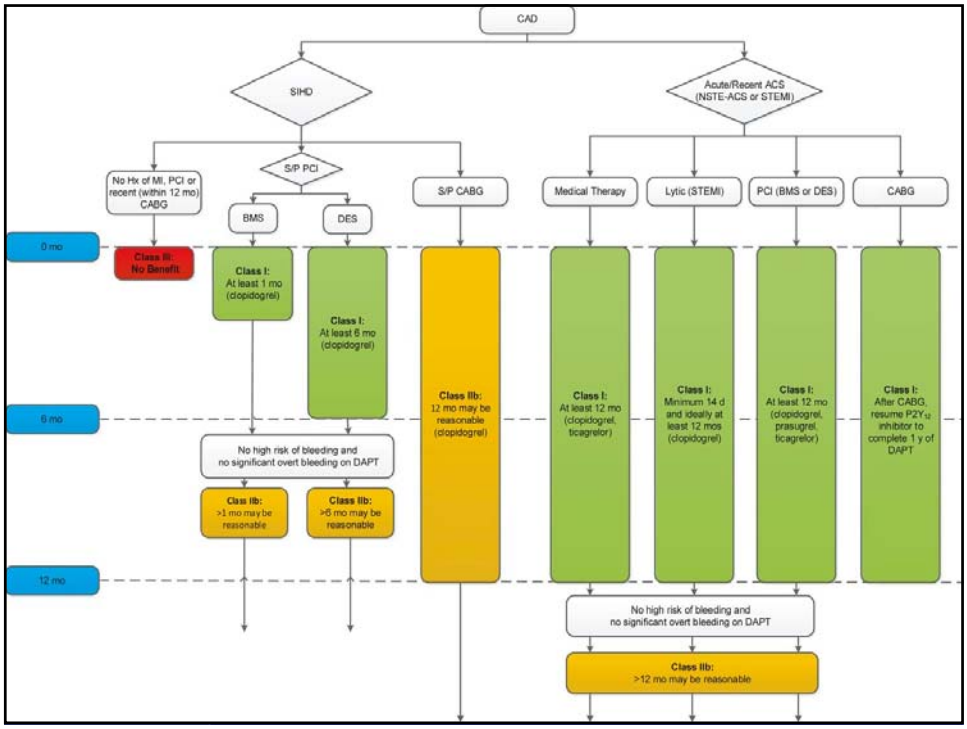
Studies of Prolonged DAPT

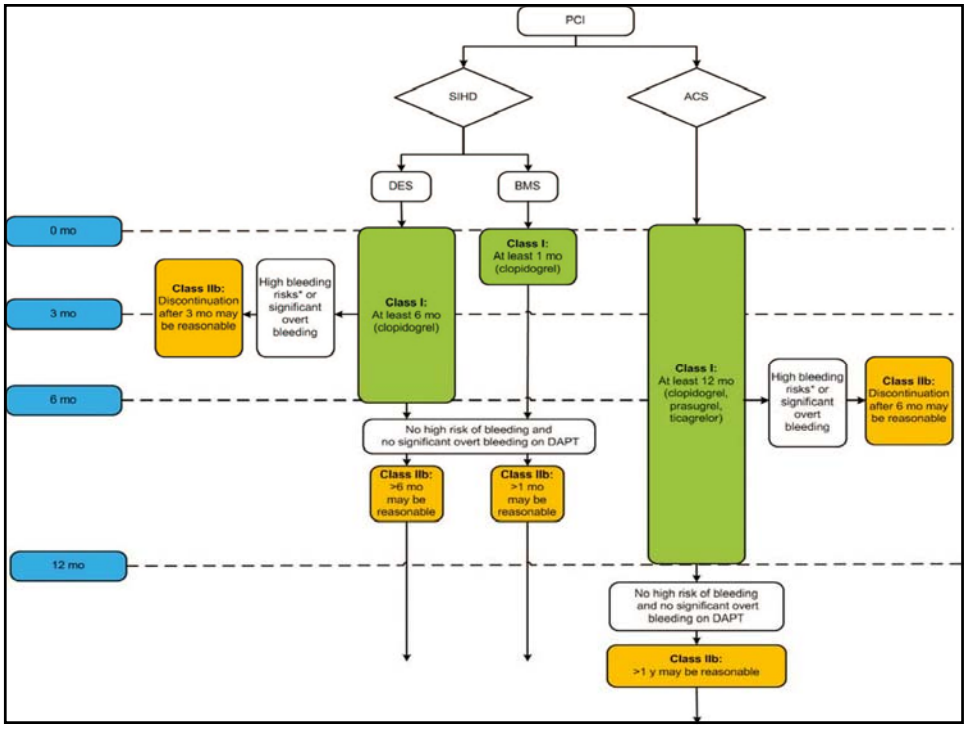
- **CHARISMA**
  - Stable patients with either atherothrombotic disease or with multiple risk factors for atherothrombotic dz
  - ASA plus clopidogrel or placebo
- **DAPT**
  - Post PCI with DES
  - ASA plus clopidogrel vs. pasugrel vs. placebo (18 mos)
- **PEGASUS-TIMI 54**
  - Stable patients w/ MI 1 to 3 years prior to enrollment
  - ASA + ticagrelor 90 or 60 mg BID, or placebo

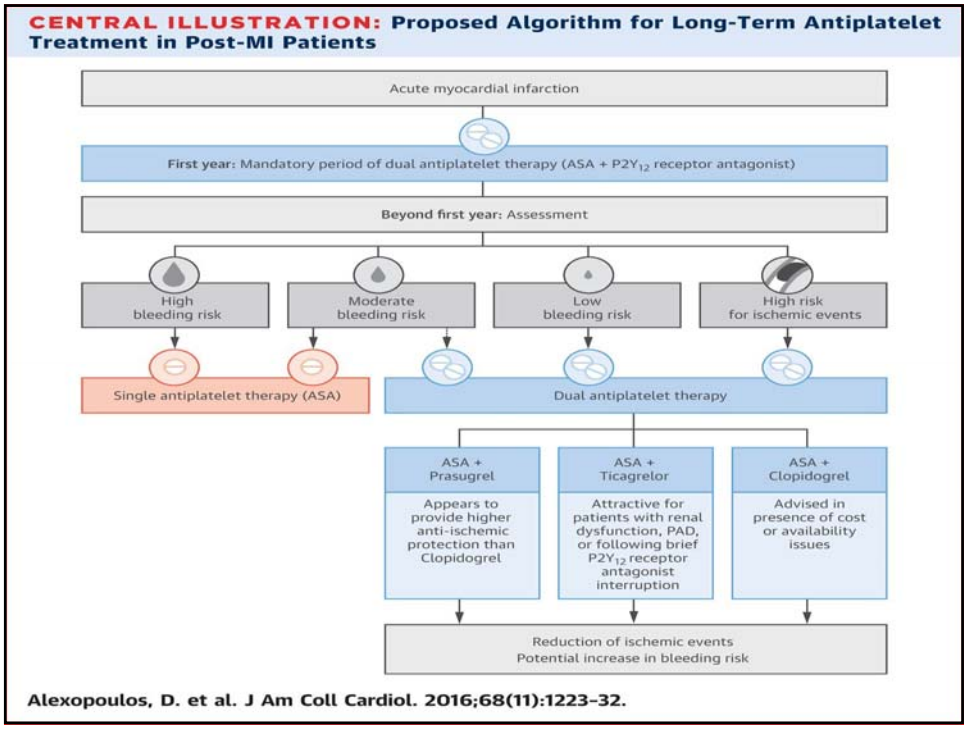


Studies of Prolonged DAPT

- **CHARISMA:**
  - Primary efficacy endpoint: CV death, MI, or stroke: Clopidogrel, 6.6%, Placebo, 8.3% (HR: 0.774 (95% CI: 0.613–0.978); p = 0.031)
- **DAPT:**
  - Stent thrombosis: Thienopyridine,0.5%,Placebo, 1.9% (HR: 0.27 (95% CI: 0.13–0.57), p < 0.001)
  - MACCE: Thienopyridine: 3.9% Placebo, 6.8% (HR 0.56 (95% CI: 0.42–0.76), p < 0.001)
- **PEGASUS–TIMI 54** (CV death, MI, or stroke)
  - Ticagrelor, 90 mg: 7.85%;Ticagrelor, 60 mg: 7.77%;Placebo, 9.04%
  - Ticagrelor 90 mg vs. placebo: HR: 0.85 (95% CI: 0.75–0.96), p = 0.008
  - Ticagrelor, 60 mg vs. placebo: HR: 0.84 (95% CI: 0.74–0.95), p = 0.004


CAD
SIHD
Acute/Recent ACS (NSTE-ACS or STEMI)
No Hx of MI, PCI or recent (within 12 mo) CABG
S/P PCI
S/P CABG
Medical Therapy
Lytic (STEMI)
PCI (BMS or DES)
CABG
BMS
DES
0 mo
6 mo
12 mo
Class III: No Benefit
Class I: At least 1 mo (clopidogrel)
Class I: At least 6 mo (clopidogrel)
Class IIb: 12 mo may be reasonable (clopidogrel)
Class I: At least 12 mo (clopidogrel, ticagrelor)
Class I: Minimum 14 d and ideally at least 12 mos (clopidogrel)
Class I: At least 12 mo (clopidogrel, prasugrel, ticagrelor)
Class I: After CABG, resume P2Y12 inhibitor to complete 1 y of DAPT
No high risk of bleeding and no significant overt bleeding on DAPT
Class IIb: >1 mo may be reasonable
Class IIb: >6 mo may be reasonable
No high risk of bleeding and no significant overt bleeding on DAPT
Class IIb: >12 mo may be reasonable


PCI
SIHD
ACS
DES
BMS
0 mo
3 mo
6 mo
12 mo
Class I: At least 1 mo (clopidogrel)
Class I: At least 6 mo (clopidogrel)
Class IIb: Discontinuation after 3 mo may be reasonable
High bleeding risks* or significant overt bleeding
Class I: At least 12 mo (clopidogrel, prasugrel, ticagrelor)
High bleeding risks* or significant overt bleeding
Class IIb: Discontinuation after 6 mo may be reasonable
No high risk of bleeding and no significant overt bleeding on DAPT
Class IIb: >6 mo may be reasonable
Class IIb: >1 mo may be reasonable
No high risk of bleeding and no significant overt bleeding on DAPT
Class IIb: >1 y may be reasonable



Overriding Concepts of DAPT Duration

Patient with:
↑ **Bleeding risk**
and
↓ **Ischemic risk**

→ Shorter duration of DAPT

Patient with:
↑ **Ischemic risk**
and
↓ **Bleeding risk**

→ Longer duration of DAPT

Balancing Risk vs. Benefit
DAPT Score

Age >/= 75 y	-2
Age 65 to <75 y	-1
Age <65 y	0
Current cigarette smoker	1
Diabetes mellitus	1
MI at presentation	1
Prior PCI or prior MI	1
Stent diameter <3 mm `	1
Paclitaxel-eluting stent	1
CHF or LVEF <30%	2
Saphenous vein graft PCI	2

DAPT ≥ 2
risk/benefit favors extended duration

DAPT < 2
unfavorable risk/benefit ratio

- A score of >2 is associated with a favorable benefit/risk ratio for prolonged DAPT
- A score of <2 is associated with an unfavorable benefit/risk ratio.

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DAPT - Recommendations

- Class of Recommendation (COR) and Level of Evidence (LOE)
- I A
  - In patients with SIHD treated with DAPT after BMS implantation, P2Y12 inhibitor therapy should be given for a minimum of 1 month.
- I B
  - In patients with SIHD treated with DAPT after DES implantation, P2Y12 inhibitor therapy should be given for at least 6 months.
- II A
  - In patients with ACS (NSTE-ACS or STEMI) treated with DAPT with or without PCI it is reasonable to use ticagrelor in preference to clopidogrel for maintenance P2Y12 inhibitor therapy.
  - In patients with ACS (NSTE-ACS or STEMI) treated with DAPT after coronary stent implantation who are not at high risk for bleeding complications and who do not have a history of stroke or TIA, it is reasonable to choose prasugrel
- IIb
  - In patients with SIHD treated with DAPT after BMS or DES implantation who have tolerated DAPT without a bleeding complication and who are not at high bleeding risk (e.g., prior bleeding on DAPT, coagulopathy, oral anticoagulant use), continuation of DAPT for longer than 1 month in patients treated with BMS or longer than 6 months in patients treated with DES may be reasonable.
- IIb
  - In patients with SIHD treated with DAPT after DES implantation who develop a high risk of bleeding (e.g., treatment with oral anticoagulant therapy), are at high risk of severe bleeding complication (e.g., major intracranial surgery), or develop significant overt bleeding, discontinuation of P2Y12 inhibitor therapy after 3 months may be reasonable

PPI and DAPT

Recommendation	COR	LOE
PPIs should be used in patients with a history of prior gastrointestinal bleeding who require DAPT	I	C
Use of PPIs is reasonable in patients with an increased risk of GI bleeding (e.g., advanced age, concomitant use of warfarin, steroids, nonsteroidal anti-inflammatory drugs, *Helicobacter pylori* infection) who require DAPT	IIa	C
Routine use of a PPI is not recommended for patients at low risk of GI bleeding, who have much less potential to benefit from prophylactic therapy	III	C

Patient case discussion

Case

SS is a 67 year old female admitted for NSTEMI who went emergently to the cath lab and received a DES to her LAD artery. She received ticagrelor 180mg X1 dose and is now on 90mg PO BID. She is doing well.

Question #1

Which of the following put SS at an increased ischemic risk?

a) Acute coronary syndrome presentation
b) Age
c) Dual antiplatelet therapy
d) Female gender
e) a and b

Question #2

What is the minimum duration of dual antiplatelet therapy for this patient?
a) One month
b) 6 months
c) 12 months
d) 30 months

Bonus question- What therapy should this patient be on to reduce her risk of GI bleeding?

Question #3

SS has completed her minimum duration of DAPT without adverse events. The patient asks your opinion regarding continuing her therapy for longer; and you calculate her DAPT score as 3. What is your recommendation?

a) Continue DAPT (benefit outweighs risk)
b) Discontinue DAPT (risk outweighs benefit)

Conlcusion

- DAPT is critical following PCI and in patients with ACS
- DAPT duration can range from 1-36 months depending in patient parameters
  - Shorter duration: ↓ bleeding but ↑ ischemic risk
  - Longer duration: ↓ ischemic risk but ↑ bleeding
- The DAPT score is a useful tool to evaluate risks vs. benefit

Thank You