Monitoring Platelet Function in Patients with Myocardial Infarction Treated with Prasugrel and Referred for Urgent Coronary Bypass Surgery

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Disclosure

- None

Background

- Prasugrel is a 3rd generation potent theinopyridine indicated for treatment of ST-elevation and non-ST elevation myocardial infarction (MI) according to current guidelines.
- Some of the patients may require urgent or emergent coronary artery bypass grafting surgery (CABG) following pre-treatment with prasugrel and coronary angiography.
- Surgical bleeding is significantly increased during and after thienopyridine therapy.

Circulation 2013, 127(4):e362-425
Eur Heart J. 2012;33(20):2569-619

Background

- According to the TRITON-TIMI-38 trial (CABG cohort), more bleeding occurred with prasugrel compared with clopidogrel up to 1 week after drug discontinuation.

- The overall CABG related bleeding risk was 4 times higher with prasugrel.

Smith PK *et al*, ***JACC*** 2012; 60(5):388-96.

Background

- Guidelines recommend discontinuing prasugrel at least 7 days before surgery.
- The pharmacodynamic basis for these recommendations is limited.

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Background

- The RECOVERY trial, assessed the offset of antiplatelet effect of prasugrel compared to clopidogrel in stable coronary disease patients.

- A 7 day waiting period after prasugrel cessation provided platelet recovery closest to the 5-day waiting period for clopidogrel.

Price MJ *et al*, ***JACC*** 2012; 59(25):2338-43.

Background

- Platelet function testing could help guide surgical timing in thienopyridine-treated patients to minimize bleeding complications.
- The evidence supporting such an approach is limited by the lack of firm cutoffs to predict bleeding events.

Aim

- To monitor platelet reactivity in patients with acute MI pre-treated with prasugrel and referred for urgent CABG.

Methods

- Included all patients with MI treated with prasugrel (60 mg loading and/or 10 mg maintenance dose) and referred for urgent CABG.
- Using the **Verify*Now* P_2Y_{12}** *assay* platelet function was measured at several intervals (1-2 days) from prasugrel last dose until surgery.
- Timing of surgery was determined according to platelet function test (<50% platelet inhibition) and clinical considerations
- Perioperative bleeding parameters included:
  - Chest tube blood drainage
  - Hg drop
  - Blood product transfusion
  - Re-exploration due to bleeding

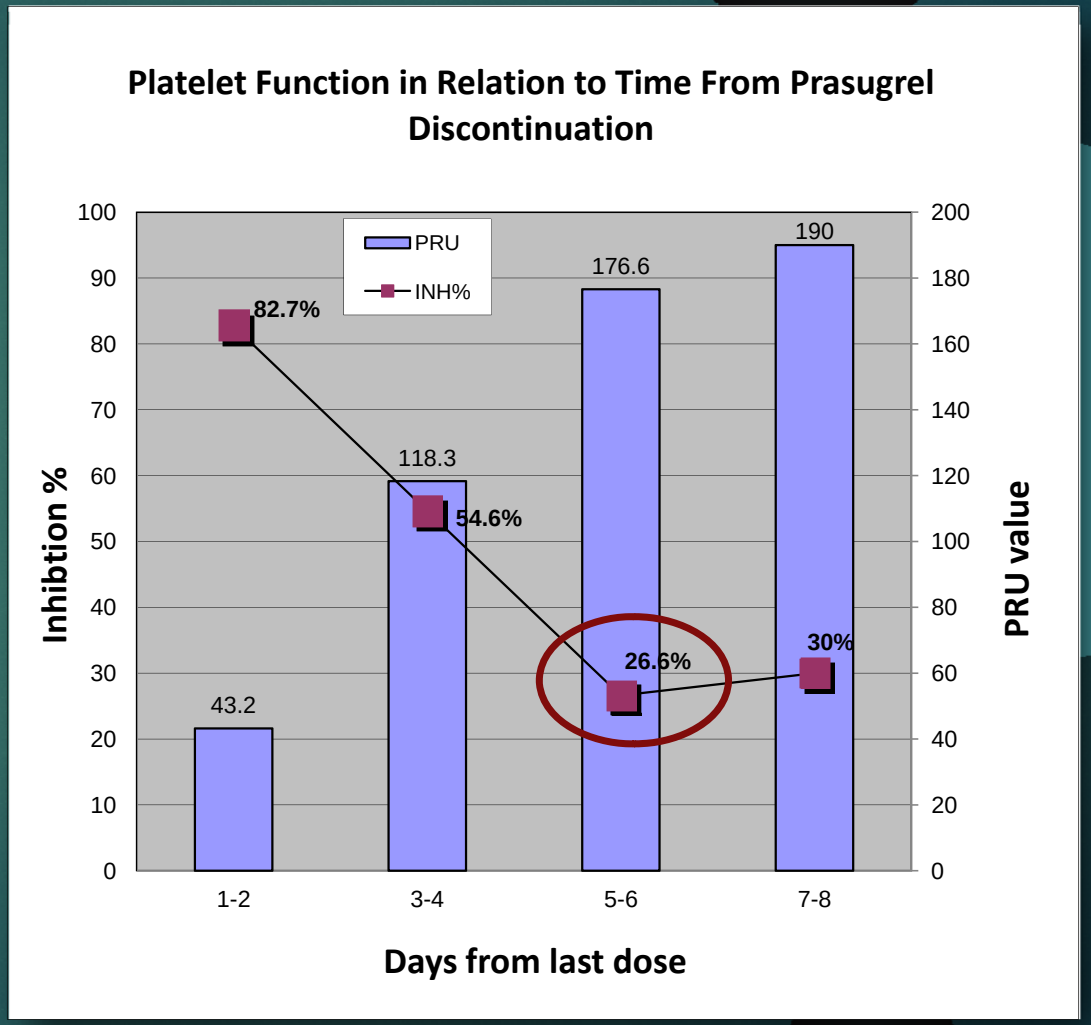
Results

- Baseline characteristics

Baseline Characteristics	n=10
Age	61.1±10.1
Gender –male	9 (90%)
Medical history	
Diabetes	3 (30%)
Hypertension	6 (60%)
Dyslipidemia	6 (6%)
Prior PCI	6 (60%)
Prior CABG	1 (10%)
Prior medications	
Aspirin	6 (60%)
Clopidogrel	2 (20%)
Clinical presentation	
ST elevation MI	9 (90%)
Ejection fraction	41.5±8.5

Results

- Platelet function



Results

TRITON-TIMI 38- CABG cohort

Bleeding Parameters	Prasugrel (n=173)	Clopidogrel (n=173)
Packed Cell transfusion (Units)	2.1	1.7
Platelet transfusion (Units)	0.78	0.39
Chest tube drain (ml)- 12h	655±580	503±378
Re-exploration	11(6.3%)	7 (4%)

Smith PK, et al. J Am Coll Cardiol. 2012 Jul

Summary and Conclusions

- This study is limited by it's small sample size and presents preliminary results.
- Nevertheless, it seems that platelet monitoring after prasugrel discontinuation in patients with acute MI may aid in timing for urgent CABG and may reduce risk for bleeding.
- It appears that after 5-6 days from discontinuation of prasugrel platelet function returns close to baseline values.

Thank You
for Your Attention