Real World Outcomes of Prasugrel and Ticagrelor versus Clopidogrel in Acute Coronary Syndrome Patients undergoing Percutaneous Coronary Intervention

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BACKGROUND

- Prasugrel and ticagrelor are novel adenosine diphosphate (ADP) P2Y12 inhibitors that have been shown in clinical trials to reduce the risk of major adverse cardiac events (MACE), albeit at the cost of an increase in bleeding.
- There is limited data on the outcomes with ADP P2Y12 inhibitor administration in "real world", unselected patients.

METHODS

- Retrospective cohort study.
- The medical records of all patients who underwent percutaneous coronary intervention (PCI) at VA North Texas Healthcare System between January 2011 and November 2013 were reviewed.
- Patients who received a novel P2Y12 inhibitor (prasugrel or ticagrelor) were grouped together and compared with a random sample of those who received clopidogrel post PCI.
- Outcomes:
  - death (all-cause mortality and cardiac)
  - myocardial infarction (MI)
  - repeat coronary revascularization and
  - bleeding using the Thrombolysis in Myocardial Infarction (TIMI) classification
  - MACE, defined as a composite end point of MI, repeat coronary revascularization, and death
- Continuous variables were compared using the student t-test. Discrete variables were presented as frequencies and compared using chi-square tests.
- The incidence of the clinical outcomes were calculated using the Kaplan-Meier method. Differences between the two study groups were determined with the log-rank test.
- A 2-sided p-value of < 0.05 was considered significant. JMP version 11 (SAS Institute, Cary, North Carolina) was used to perform all statistical analysis.

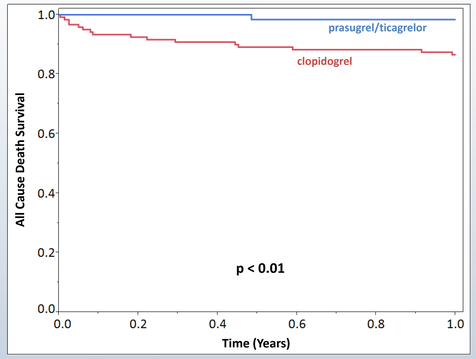


Figure 1. All cause death.

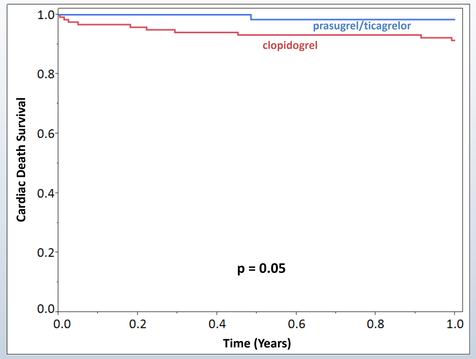


Figure 2. Cardiac death.

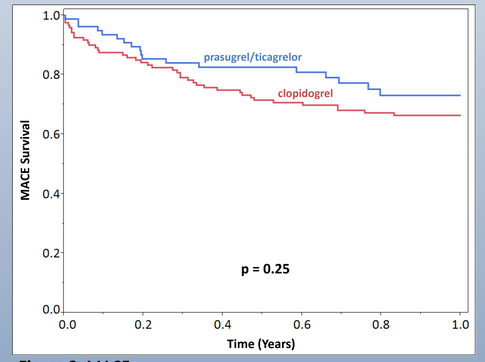


Figure 3. MACE.

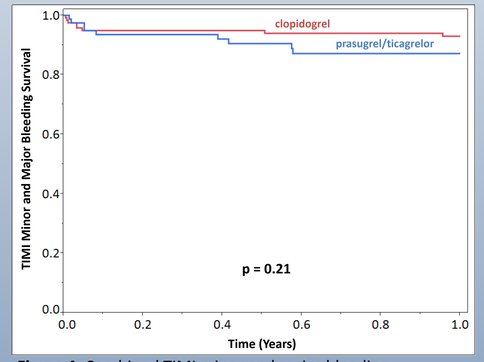


Figure 4. Combined TIMI minor and major bleeding.

Table 1. Demographics of the study patients, classified according to the type of ADP P2Y12 inhibitor they received.

Characteristic	Clopidogrel (n = 121)	Prasugrel/Ticagrelor (n = 80)	p-value
Age	66.0 ± 9.3	60.3 ± 8.1	< 0.01
BMI	30.5 ± 6.8	29.3 ± 5.1	0.18
Family History of Coronary Artery Disease	26%	39%	0.05
Diabetes	51%	40%	0.13
Hyperlipidemia	93%	86%	0.10
Hypertension	97%	84%	< 0.01
Peripheral Vascular Disease	17%	9%	0.11
Tobacco (Current/Past)	31% / 66%	48% / 76%	0.02 / 0.13

Table 2. One year outcomes of the study patients, classified according to the type of ADP P2Y12 inhibitor they received.

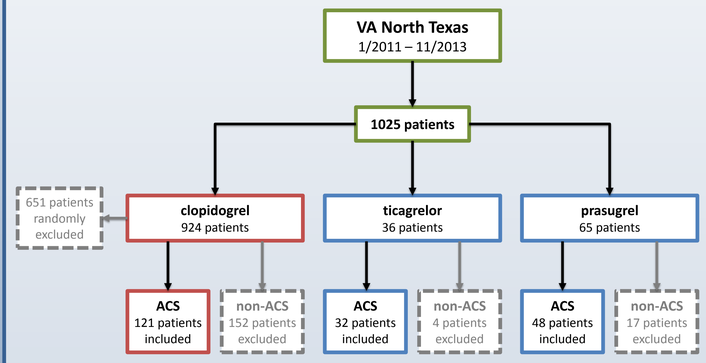
Event	Clopidogrel (n = 121)	Prasugrel/Ticagrelor (n = 80)	p-value
Death (All Cause)	13% (16)	1% (1)	< 0.01
Cardiac Death	8% (10)	1% (1)	0.05
Myocardial Infarction	8% (10)	9% (7)	0.77
Repeat PCI	18% (22)	16% (13)	0.89
Cardiac Surgery	2% (3)	1% (1)	0.57
MACE	33% (40)	23% (18)	0.25
Bleeding (TIMI minor and major)	7% (8)	11% (9)	0.21

RESULTS

201 acute coronary syndrome (ACS) patients who underwent PCI were included: 80 received either prasugrel or ticagrelor and were compared with 121 patients who received clopidogrel.

Mean age was 63.7 ± 9.3 years and 99% of the patients were men.

Figure 5. Flowchart for study patient selection.



The clinical outcomes for the patients in this study were followed for 12 months. During this period, at least one MACE was experienced by 58 of the 201 study patients.

Patients receiving prasugrel or ticagrelor had lower incidence of all cause (p < 0.01) and cardiac (p = 0.05) death. The incidence of MI and need for revascularization was comparable between patients receiving clopidogrel and a novel P2Y12 inhibitor.

Overall, bleeding events (TIMI minor and major) occurred in 17 (8%) of the study patients. Within the clopidogrel subgroup there were 2 major bleeding events and 6 minor bleeding events. Within the novel P2Y12 subgroup there were 2 major bleeding events and 7 minor bleeding events.

CONCLUSIONS

In a non-selected ACS population who underwent PCI, use of a novel P2Y12 inhibitor was associated with lower mortality and similar incidence of bleeding as compared with clopidogrel.

DISCLOSURES: Subhash Banerjee: consulting/speaker honoraria from Medtronic and Merck; research support from Boston Scientific and InfraRedx; intellectual property at HygeiaTel and MDCare Global. **Emmanouil Brilakis:** consulting/speaker honoraria from Abbott Vascular, Asahi, Boston Scientific, Elsevier, Somahlution, St Jude Medical, and Terumo; research support from Guerbet and InfraRedx; spouse is employee of Medtronic.