

# Cangrelor vs. Glycoprotein IIb/IIIa Inhibitors During Percutaneous Coronary Intervention

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## Background

-Platelets play a key role in ischemic complications during and after percutaneous coronary intervention (PCI).

-Cangrelor is a non-thienopyridine intravenous adenosine triphosphate analogue that blocks adenosine diphosphate P2Y12 receptors and has a rapid onset/ offset action.

-CHAMPION trials showed that cangrelor significantly decreased ischemic events when compared to clopidogrel alone with no significant difference in major bleeding rates (1).

-Prior studies have shown that Glycoprotein IIb/IIIa inhibitors (GPI) reduce ischemic events at the cost of increased bleeding rates (2,3).

-To date, there are no real-world studies comparing cangrelor to GPI as an adjunctive antiplatelet therapy in patients undergoing PCI.

-Thus, we performed this study to evaluate the safety and effectiveness of cangrelor when compared to GPI during PCI.

## Methods

-This is a retrospective, single-center study from the Medstar Cardiovascular Research Network PCI registry.

-We identified patients who underwent PCI at our institution, who received either cangrelor vs. GPI during PCI.

-Patients already on GPI or cangrelor prior to PCI, and those who received both cangrelor and GPI, were excluded.

-Baseline demographics were extracted. Clinical outcomes during in-hospital stay were compared.

-Major bleeding is defined as a composite of major hematoma>4cm, hematocrit drop >15 and gastrointestinal bleeding.

## Results

-A total of 2072 patients received adjunctive antiplatelet therapy during PCI [Cangrelor (n=478) and GPI (n=1594)].

-Mean age of the study group was 61 ± 12 years.

-Majority (66%) presented with acute coronary syndrome.

-Compared to GPI, patients who received cangrelor were older, had higher percentage of acute coronary syndrome and lower baseline hematocrit.

-Procedural success was achieved in 94% of patients with no difference between both the groups

- In-hospital ischemic events did not differ between both the groups. (Figure 1). Major bleeding events (1.7% vs. 5.1%, p=0.001), any vascular complication rates and in-hospital length of stay were significantly lower in cangrelor group. ( Figure 2)

- Regression analysis: Patients on cangrelor noted to have significantly lower major bleeding events (OR 0.23 (95% CI-0.09-0.59).

Model 1*	OR (95% confidence interval)	p value
Age	1.006 (0.987-1.026)	0.52
<b>Cangrelor vs. GPI</b>	<b>0.23 (0.09-0.59)</b>	0.002
<b>Baseline hematocrit</b>	<b>1.01 (1.009-1.02)</b>	<0.001
<b>Acute coronary syndrome</b>	<b>3.7 (1.29-10.5)</b>	0.01
Unstable angina	1.88 (0.53-6.58)	0.32
Congestive heart failure	1.75 (0.9-3.1)	0.06
Insulin dependent Diabetes Mellitus	1.24 (0.620-2.495)	0.53
<b>Cardiogenic shock</b>	<b>8.9 (5.3-14.8)</b>	<0.001
Hypercholesterolemia	0.97 (0.54-1.718)	0.92
<b>Model 2**</b>		
<b>Cangrelor vs. GPI</b>	<b>0.25 (0.1-0.63)</b>	0.003
<b>Baseline Hematocrit</b>	<b>1.01 (1.009-1.02)</b>	<0.001
<b>Acute coronary syndrome</b>	<b>2.71 (1.4-5.13)</b>	0.002
<b>Cardiogenic shock</b>	<b>2.71 (1.4-5.13)</b>	<0.001

\*Major bleeding defined as composite of major hematoma>4cm, hematocrit drop >15 and

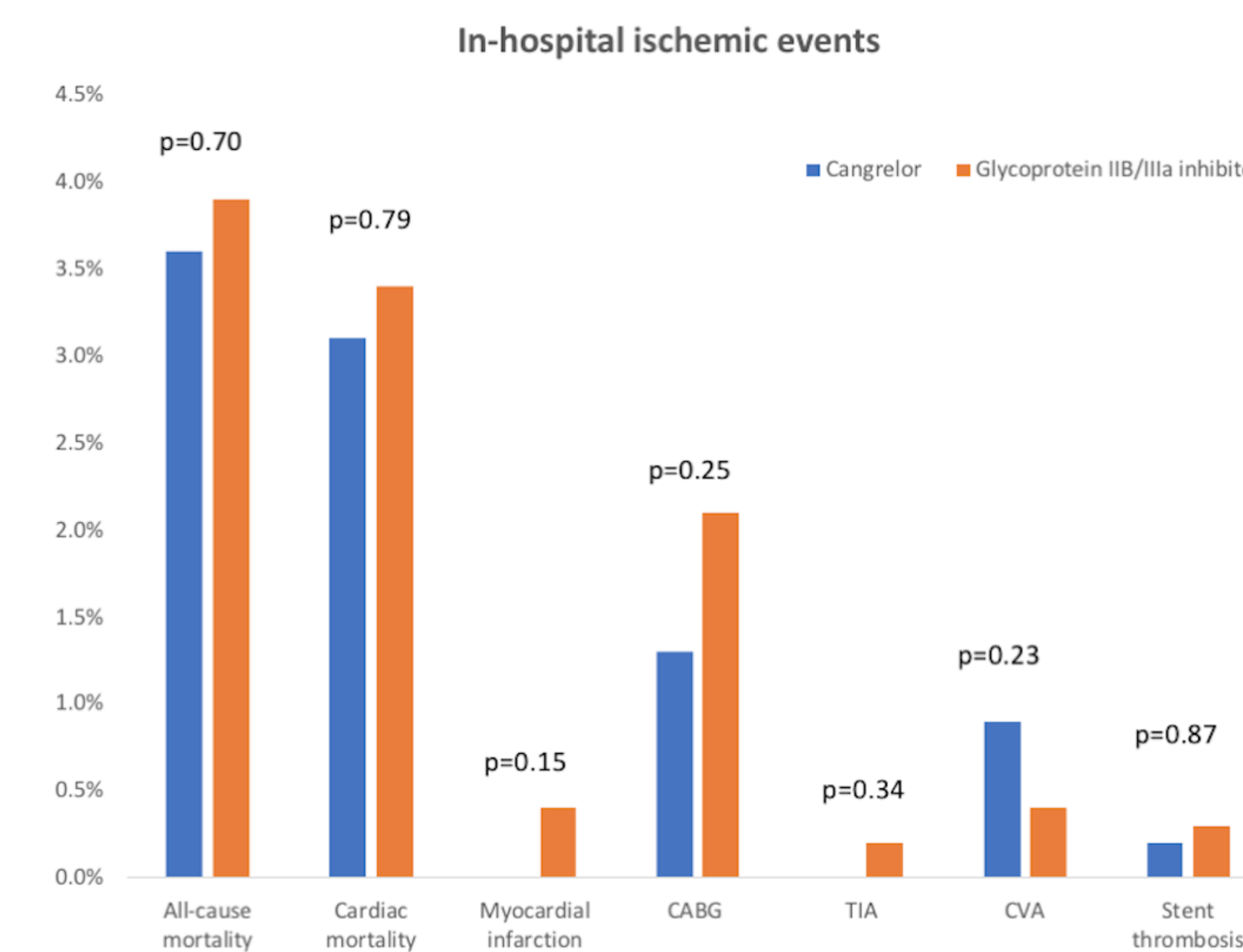
gastrointestinal bleeding.

GPI- Glycoprotein IIb/IIIa inhibitors

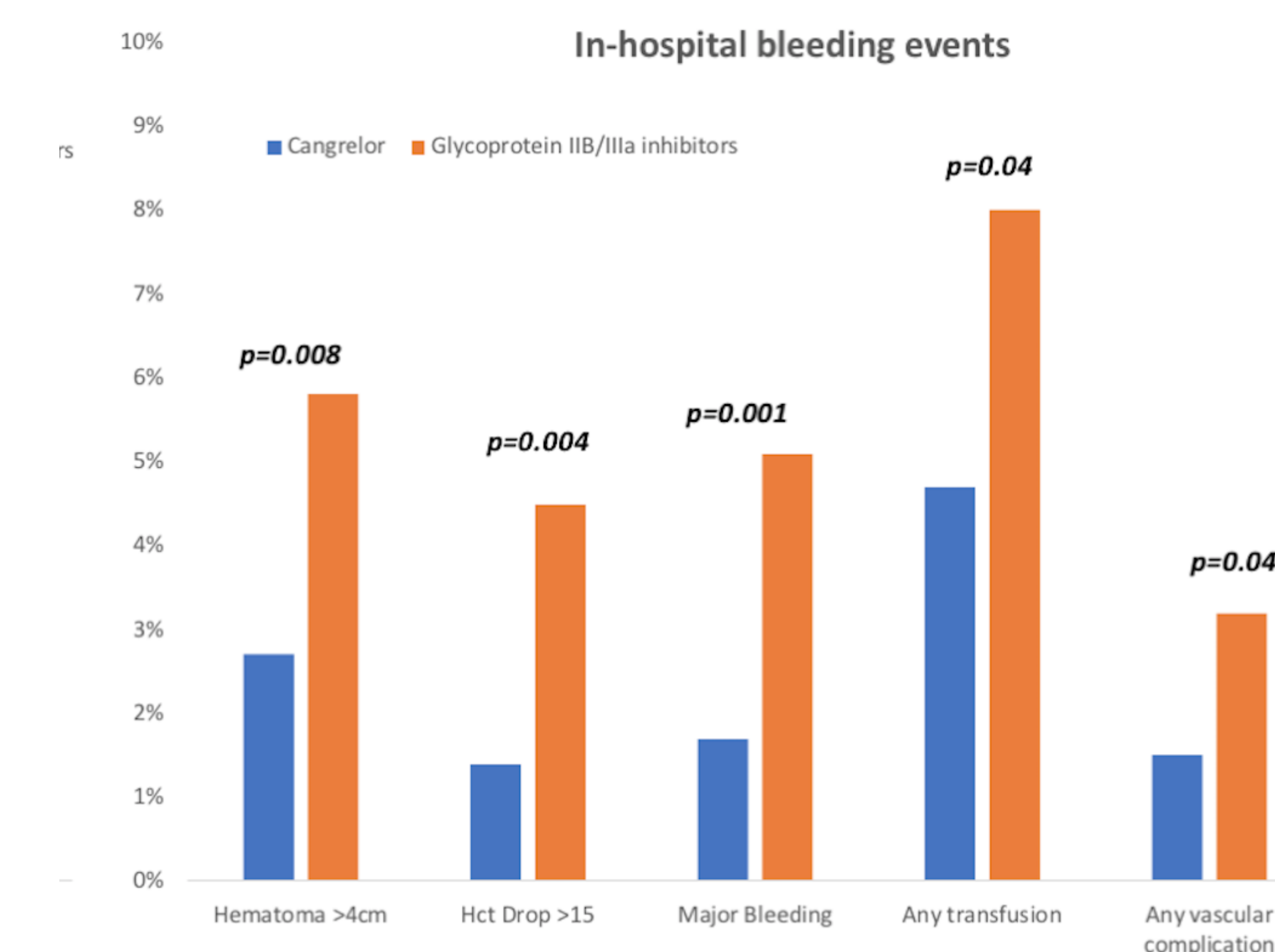
\* c statistic of 0.80

\*\* c statistic of 0.78

## Figure 1-In hospital ischemic events (Cangrelor vs. GPI)



## Figure 2-In hospital bleeding events (Cangrelor vs. GPI)



## Limitations

- Retrospective design/Selection bias.
- Multiple unmeasured confounders limits propensity analysis.
- Results cannot be generalized to stable angina as majority presented with acute coronary syndrome.
- Timing of oral P2Y12 receptor blockers loading dose is not captured in our database.

## Conclusion

**-Balancing ischemic and bleeding risks with adjunctive antiplatelet drugs is of prime importance during PCI.**

**- Our real-world analysis shows that cangrelor is safe and effective when compared to GPI during PCI.**

## References

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