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### Retrospective review of ticagrelor and clopidogrel use in adult patients receiving dual antiplatelet therapy after percutaneous coronary intervention in a community hospital

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# Retrospective review of ticagrelor and clopidogrel in adult patients in the setting of dual antiplatelet therapy after percutaneous coronary intervention in a community hospital



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## BACKGROUND

- Dual antiplatelet therapy (DAPT) with aspirin and a P2Y<sub>12</sub> inhibitor is standard of care after percutaneous coronary intervention (PCI)<sup>1,2,4</sup>.
- Ticagrelor is a newer/more potent P2Y<sub>12</sub> inhibitor that is preferred over clopidogrel due to its enhanced pharmacokinetic properties and superior clinical outcomes<sup>3,5</sup>. This agent is limited, however, by its high cost, increased risk of bleeding and BID dosing.
- Between 2008-2016, patient non-adherence nearly tripled when ticagrelor and prasugrel gained FDA approval and their use began to increase<sup>6</sup>.
- De-escalation of P2Y<sub>12</sub> inhibitor therapy (transitioning from a more potent agent to a less potent one, i.e. ticagrelor → clopidogrel) is a strategy that provides patients with the more effective therapy when risk of restenosis is at its highest, while mitigating the risk of non-adherence secondary to cost and BID dosing in the long term.
- De-escalation can be classified according to when it occurs relative to initiation of P2Y<sub>12</sub> inhibitor therapy:



- An expert consensus published in 2017 outlines how this switch should occur, including the recommendation to administer the first dose of clopidogrel 24 hours after ticagrelor is discontinued, regardless of when de-escalation occurs. Based on bleed risk, a clopidogrel dose of 75 mg or a 300-600 mg loading dose is recommended<sup>7</sup>.

## PURPOSE

The purpose of this project is to retrospectively review the use of ticagrelor and clopidogrel in adult patients following stent placement and to observe the incidence of de-escalation over a 6 month period at Baptist Hospital of Miami.

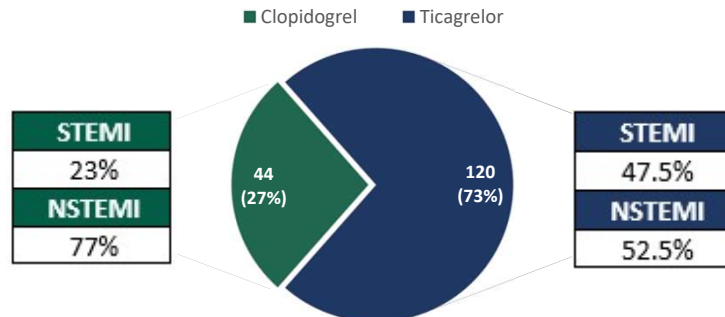
## METHODS

- Single-center, retrospective chart review of patients receiving DAPT after PCI at Baptist Hospital between January 1<sup>st</sup> 2019 and June 30<sup>th</sup> 2019
- Inclusion Criteria:**
  - Patients ≥ 18 years of age
  - Received aspirin plus ticagrelor or clopidogrel
- Exclusion Criteria:**
  - P2Y<sub>12</sub> inhibitor prior to admission
  - Contraindications to the use of a P2Y<sub>12</sub> inhibitor
  - Aspirin allergy
  - Pregnancy
- Primary Outcomes:**
  - # of patients receiving ticagrelor or clopidogrel
  - # of patients who were de-escalated from ticagrelor to clopidogrel

## RESULTS

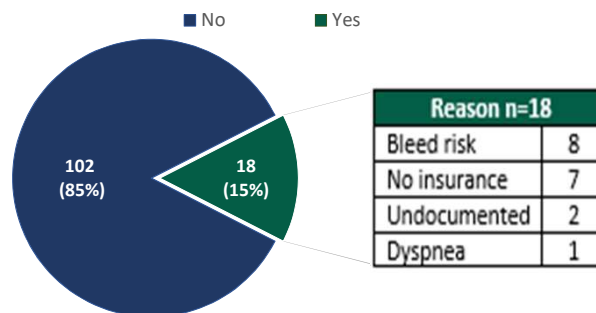
Baseline Demographics (N=164)	
Mean age, years (range)	64 (35 – 91)
Gender – male, n (%)	108 (65.9)
STEMI, n (%)	67 (40.6)
NSTEMI, n (%)	97 (59.4)
Concomitant aspirin use	164 (100)

### Number of Patients Receiving Ticagrelor vs Clopidogrel



De-escalation of P2Y <sub>12</sub> Inhibitor Therapy	
# of patients de-escalated	18/120
Clopidogrel dose given at time of de-escalation:	
• 75 mg	7/18
• 300 mg	9/18
• 600 mg	2/18
Avg time (hours) between last dose of ticagrelor and first dose of clopidogrel (range)	11:01 (01:59 – 19:11)

### De-escalation of P2Y<sub>12</sub> Inhibitor Therapy



## DISCUSSION

- 73% of patients were started on ticagrelor for DAPT after PCI
  - Of the 44 patients who received clopidogrel, 77% were treated for NSTEMI
- Of the 120 patients who received ticagrelor, 18 patients were de-escalated to clopidogrel
- Most common reasons for de-escalation were bleed risk and lack of insurance
- 15% of patients started on ticagrelor were de-escalated to clopidogrel
  - 50% were de-escalated with a 300 mg loading dose
  - 39% were de-escalated with a 75 mg dose
  - 11% were de-escalated with a 600 mg loading dose
- The average time from the last dose of ticagrelor to the first dose of clopidogrel in patients who were de-escalated was ~11 hrs

## LIMITATIONS

- Small sample size
- Unable to justify the reason for selected clopidogrel dose for de-escalation
- Only patients de-escalated during the acute/early phase were captured in the analysis, as data regarding de-escalation on discharge is unknown

## CONCLUSION

This was an observational project that was designed to evaluate prescribers' preference in P2Y<sub>12</sub> inhibitor therapy for the initiation of DAPT after PCI. The results indicate that ticagrelor was the preferred P2Y<sub>12</sub> inhibitor in the majority of cases, with only a small fraction being de-escalated to clopidogrel.

## DISCLOSURES

All authors of this presentation have nothing to disclose concerning possible financial or personal relationships with commercial entities that may have direct or indirect interest in the subject matter of this presentation.

## REFERENCES

- Amsterdam EA, Wenger NK, Brindis RG, et al. 2014 AHA/ACC Guideline for the Management of Patients With Non–ST-Elevation Acute Coronary Syndromes: A Report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines. J Am Coll Cardiol. 2014 Dec 23;64(24):e13999-e228.
- O'Gara PT, Kushner FG, Ascheim DD, et al. 2013 ACCF/AHA guideline for the management of ST-elevation myocardial infarction: a report of the American College of Cardiology Foundation/American Heart Association Task Force on Practice Guidelines. Circulation. 2013 Jan 29;127(4):e362-425.
- Wallentin L, Becker RC, Budaj A, et al. Ticagrelor versus Clopidogrel in Patients with Acute Coronary Syndromes. N Eng J Med. 2009. 10:361(11);1045-57.
- Levine GN, Bates ER, Bittl JA, et al. 2016 ACC/AHA Guideline Focused Update on Duration of Dual Antiplatelet Therapy in Patients With Coronary Artery Disease. Circulation. 2016. 6:134(10)
- Wiviott SD, Braunwald E, McCabe CH, et al; TRITON-TIMI 38 Investigators. Prasugrel versus clopidogrel in patients with acute coronary syndromes. N Engl J Med. 2007;357(20):2001-2015
- Dayoub EJ, Seigerman M, Tuteja S, et al. Trends in Platelet Adenosine Diphosphate P2Y12 Receptor Inhibitor Use and Adherence Among Antiplatelet-Naïve Patients After Percutaneous Coronary Intervention, 2008-2016. JAMA Intern Med. 2018;178(7):943-950.
- Angiolillo DJ, Rollini F, Storey RF, et al. International Expert Consensus on Switching Platelet P2Y12 Receptor-Inhibiting Therapies. Circulation. 2017;136:1955-1975.