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

Jessica Hernandez  
*Baptist Hospital of Miami, jessicahernan@baptisthealth.net*

Laura Neubauer  
*Baptist Hospital of Miami, LauraNeu@baptisthealth.net*

Radhan Gopalani  
*Baptist Hospital of Miami, radhang@baptisthealth.net*

Heidi Clarke  
*Baptist Hospital of Miami, heidic@baptisthealth.net*

Marcus St. John  
*Baptist Health Medical Group, MarcusSt@baptisthealth.net*

Follow this and additional works at: [https://scholarlycommons.baptisthealth.net/se-all-publications](https://scholarlycommons.baptisthealth.net/se-all-publications)

Part of the [Cardiology Commons](https://scholarlycommons.baptisthealth.net/se-all-publications), and the [Pharmacy and Pharmaceutical Sciences Commons](https://scholarlycommons.baptisthealth.net/se-all-publications)

**Citation**

Hernandez, Jessica; Neubauer, Laura; Gopalani, Radhan; Clarke, Heidi; and St. John, Marcus, "Retrospective review of ticagrelor and clopidogrel use in adult patients receiving dual antiplatelet therapy after percutaneous coronary intervention in a community hospital" (2019). *All Publications*. 3487.  
[https://scholarlycommons.baptisthealth.net/se-all-publications/3487](https://scholarlycommons.baptisthealth.net/se-all-publications/3487)

This Conference Poster – Open Access is brought to you for free and open access by Scholarly Commons @ Baptist Health South Florida. It has been accepted for inclusion in All Publications by an authorized administrator of Scholarly Commons @ Baptist Health South Florida. For more information, please contact Carrief@baptisthealth.net.
Background

- Dual antiplatelet therapy (DAPT) with aspirin and a P2Y12 inhibitor is standard of care after percutaneous coronary intervention (PCI)1,2,4.
- Ticagrelor is a newer/more potent P2Y12 inhibitor that is preferred over clopidogrel due to its enhanced pharmacokinetic properties and superior clinical outcomes3,5. 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 increase6.
- De-escalation of P2Y12 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 P2Y12 inhibitor therapy:
  - De-escalation during the acute phase: within 30 days of PCI
  - De-escalation during the early phase: from 30 days to 1 year
  - De-escalation during the late phase: from 1 year to 3 years

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

Jessica Hernandez, Pharm.D., Laura Neubauer, Pharm.D., Heidi Clarke, Pharm.D., BCCCP, Radhan B. Gopalani, Pharm.D., BCPS, Marcus E. St. John, M.D., FACC, FSCAI

Baptist Hospital of Miami, Department of Pharmacy; Miami, FL

Primary Outcomes:

- # of patients who were de-escalated from ticagrelor to clopidogrel
- # of patients receiving ticagrelor or clopidogrel

Exclusion Criteria:

- Aspirin allergy
- Contraindications to the use of a P2Y12 inhibitor prior to admission
- Patients ≥ 18 years of age
- Received aspirin plus ticagrelor or clopidogrel
- Concomitant aspirin use 164 (100)

Inclusion Criteria:

- Patients ≥ 18 years of age
- Received aspirin plus ticagrelor or clopidogrel
- Concomitant aspirin use

Methods

- Single-center, retrospective chart review of patients receiving DAPT after PCI at Baptist Hospital between January 1st 2019 and June 30th 2019
- Inclusion Criteria:
  - Patients ≥ 18 years of age
  - Received aspirin plus ticagrelor or clopidogrel
- Exclusion Criteria:
  - P2Y12 inhibitor prior to admission
  - Contraindications to the use of a P2Y12 inhibitor
  - Pregnancy

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.

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)

De-escalation of P2Y12-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: 11:01 (01:59 – 19:11)

Number of Patients Receiving Ticagrelor vs Clopidogrel

- STEMI: 50.0% (NSTEMI: 50.0%
- Ticagrelor: 23% (N = 44)
- Clopidogrel: 77% (N = 120)

Number of Patients Receiving Ticagrelor vs Clopidogrel

- STEMI: 47.5% (NSTEMI: 52.5%
- Ticagrelor: 23% (N = 120)
- Clopidogrel: 77% (N = 120)

De-Escalation of P2Y12-Inhibitor Therapy

- No
- Yes

- Bleed risk: 8
- No insurance: 7
- Undocumented: 2
- Dyspnea: 1

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
  - 15% 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 P2Y12 inhibitor therapy for the initiation of DAPT after PCI. The results indicate that ticagrelor was the preferred P2Y12 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