Evaluation of post-PCI dual antiplatelet therapy initiative outcomes

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BACKGROUND

The primary objective of this medication use evaluation was to assess the outcomes of the post-PCI dual antiplatelet therapy care variation reduction initiative, which was implemented throughout St. Luke's Health System in May 2019. This initiative sought to standardize dual antiplatelet therapy utilization in appropriate patients and promote the use of a regimen with demonstrated superiority. The proposed benefits of this initiative were standardization of care, increased medication adherence, improved patient outcomes with reduced risk of stroke or MI secondary to early stent thrombosis, and cost reduction.

Adherence to dual antiplatelet therapy (DAPT) following PCI is critical for positive patient outcomes, and while ticagrelor has demonstrated superiority in terms of antiplatelet activity compared to clopidogrel[2], there is a higher risk of non-adherence following PCI. This is often attributed to the difference in cost between the two agents. Cash prices for a 30-day supply of clopidogrel are approximately $10 compared to approximately $380 for the same supply of ticagrelor.

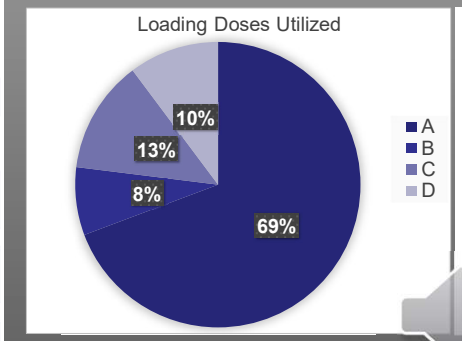
DAPT regimens are standard for all ST elevation myocardial infarction (STEMI) and high-risk acute coronary syndrome patients who undergo PCI and consist of a P2Y12 inhibitor (ticagrelor or clopidogrel) and aspirin for 6-12 months. The recommended dosing strategy implemented with this initiative included the following doses of P2Y12 inhibitors:

P2Y12 inhibitor dosing strategy:			
Location	Ticagrelor Loading Dose	Clopidogrel Loading Dose	Clopidogrel Maintenance Dose
Treasure Valley	180 mg PO once	600 mg PO once 12 hours following ticagrelor	75 mg daily
Magic Valley	180 mg PO once	300 mg PO once 6 hours following ticagrelor	75 mg daily
Dosing strategy if fibrinolytic therapy is used:			
	Ticagrelor Loading Dose	Timing of fibrinolytic therapy	Clopidogrel Loading Dose – before or at start of PCI
	None	Less than 24 hours	300 mg
		More than 24 hours	600 mg

Methods

- Retrospective analysis including chart review to determine drug therapies and cardiac procedures during initial admission
- Review of adverse effects and related readmissions for six months following initiation of DAPT regimen
- Inclusion criteria: Adult patients with primary diagnosis of STEMI who underwent PCI with stent placement in the St. Luke's Health System and are started on DAPT
- Exclusion criteria: Mortality during initial STEMI event, transfer from an outside organization that did not provide standard STEMI drug therapies, and no stent placement
- Time frame: January through March 2020 for initial admission

	Total patients included: 39
Primary Diagnosis	
Anterior STEMI	17 (43.6%)
Inferior STEMI	17 (43.6%)
Posterior STEMI	1 (2.6%)
Other STEMI	4 (10.3%)
Use of Fibrinolytics	
No	38
Yes	1
Patient Outcomes – 6 months following initiation of DAPT post-PCI	
Bleeds	3 (7.7%)
Stroke	1 (2.6%)
MI secondary to stent thrombosis	1 (2.6%)
Other Cardiac Readmission	1 (2.6%)
Death – unknown cause	1 (2.6%)
DAPT Maintenance Regimen	
Clopidogrel and Aspirin	36
Clopidogrel and Anticoagulant	2
Ticagrelor and Aspirin*	1



A. Ticagrelor 180mg followed by clopidogrel 600mg after 12 hours
B. Ticagrelor 180mg followed by clopidogrel 300mg after 6 hours
C. Clopidogrel 300 – 600mg once
D. Ticagrelor 180mg once

Note: One patient received fibrinolytic treatment prior to PCI so was not able to take the ticagrelor loading dose

Results

- Between January and March 2020, 57 patients were admitted to St. Luke's Health System with STEMI as a primary diagnosis
- Of these, 39 patients met the inclusion criteria defined for this evaluation
- Approximately 80% of STEMI patients received the appropriate therapies per initiative protocol
- All of the DAPT maintenance regimens adhered to the recommendations

Conclusions

- The post-PCI DAPT strategy was successfully implemented throughout the St. Luke's Health System
- Utilizing tools like STEMI kits, drug therapy checklists, and specialized order sets assists in adopting a standardized practice which leads to consistent patient care
- The observed rate of stroke and MI were lower in this group than in some literature sources (5% vs. > 13%[1]), however the rate of bleeds was higher (7.7% vs. < 2%[1])
- Cardiology and cardiac rehabilitation follow-up was thorough for most patients included which provided reliable outcome reporting.

References

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