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Title: *Retrospective Analysis of Appropriate Usage of Cangrelor in a Community Hospital Cardiac Catherization Laboratory*

Abstract

Title: Retrospective analysis of appropriate usage of cangrelor in a community hospital cardiac catherization laboratory

Purpose: The purpose of this research is to evaluate if patients met the healthcare system's approved criteria for use to receive cangrelor during a percutaneous coronary intervention at two local community hospitals. Due to the high cost of cangrelor, the hospitals have restricted its usage to patients undergoing percutaneous coronary intervention that were unable to be pre-loaded with an oral P2Y12 inhibitor within two hours of intervention.

Methods: The study design was a retrospective medication use evaluation of cangrelor from 12/1/18 to 6/1/19. The research was Institutional Review Board approved. Patients had to be at least 18 years old and had to have received cangrelor for use during a percutaneous coronary intervention. Forty-seven patients were analyzed, however, only 42 patients were included in the study. Information that was collected during the study included: dosing of cangrelor; average duration of cangrelor infusion per provider; indication for use of cangrelor; usage of oral P2Y12 inhibitors and aspirin; anticoagulant used during percutaneous coronary intervention; type, location and quantity of stents placed; and if the patient was discharged with dual antiplatelet therapy. Outcomes that were collected included: bleeding during percutaneous coronary intervention; bleeding within 72 hours of percutaneous coronary intervention; myocardial infarction, acute coronary syndrome, cerebrovascular event, or stent thrombosis occurrence during hospital stay; death due to myocardial infarction, acute coronary syndrome, cerebrovascular event, or bleeding during hospital stay; or readmission within 30 days of discharge due to myocardial infarction, acute coronary syndrome, or bleeding.

Results: Forty-one patients (97.6%) met approved criteria for use of cangrelor. Thirty-eight percutaneous coronary interventions performed had appropriate dosing of cangrelor (90.5%). Of all patients indicated to receive an oral P2Y12 inhibitor post-percutaneous coronary intervention, 100% received this therapy during hospitalization. Two patients did not receive dual antiplatelet therapy at discharge when there was an indication for this treatment (5.7%). For patient safety outcomes, out of the 42 percutaneous coronary interventions performed, one patient experienced a bleed during the procedure (2.4%). Two patients bled within 72 hours of the percutaneous coronary intervention (5%). There were two deaths during the hospital stay due to myocardial infarction (4.8%). There was one readmission due to chest pain and the patient was found to have elevated troponin levels within 30 days of discharge (2.5%).

Conclusion: Cangrelor is a favorable P2Y12 inhibitor due to its quick onset and offset of action. However, due to the cost of this intravenous medication versus oral medications within the same class, the healthcare system has set up certain criteria for cangrelor use. This retrospective drug review analyzed the appropriate usage of cangrelor at two local community hospitals and revealed that only one patient received cangrelor without meeting approved criteria for use guidelines. Other opportunities for improvement were identified and discussed.