Acta Scientific Pharmaceutical Sciences (ISSN: 2581-5423)

Volume 3 Issue 11 November 2019

Short Communication

New Evidence Evaluates Patient Safety and Duration of Dual Antiplatelet Therapy

Sabari Surendran*

Pharm. D Candidate, Notre Dame of Maryland School of Pharmacy, Baltimore, USA

***Corresponding Author:** Sabari Surendran, Pharm. D Candidate, Notre Dame of Maryland School of Pharmacy, Baltimore, USA.

Received: October 15, 2019; **Published:** October 16, 2019

DOI: 10.31080/ASPS.2019.03.0422

Anti-platelet drugs, clinically called P2Y12 inhibitors, are a class of agents that inhibit platelets from coagulating together to form blood clots. They prevent blood clot formation which is one of the major pathological conditions that lead to cardiovascular events. People seeking secondary prevention from cardiovascualr diseases are treated with two antiplatelet agents simultaneously to prevent blood clotting. This methodology of treatment is called dual-antiplatelet therapy (DAPT). Anti-platelet drugs used as part of DAPT are clopidogrel (Plavix), prasugrel (Efient), ticagrelor (Brilinta) and cagrelor (Kengreal).

As per the 2016 AHA Focused Update on Duration of Dual Antiplatelet Therapy (DAPT), patients undergoing Percutaneous Coronary Intervention (PCI) secondary to acute coronary syndrome (NSTE-ACS or STEMI) and Drug Eluting Stent (DES) implantation should receive DAPT for at least 12 months [1]. However, two new trials that have recently been published provide compelling evidence that short-term dual antiplatelet therapy, followed by P2Y12-monotherapy, may be more beneficial than 12 months of DAPT among certain PCI patients receiving current generation DES therapy [2].

STOPDAPT-2 was a multicenter, randomized, open-label controlled study which enrolled 3,045 patients who received PCI with a cobalt-chromium everolimus-eluting stent at 90 Japanese centers within a study period of two years (December 2015-December 2017) [3]. All patients were placed on a DAPT regimen for one month with either clopidogrel or prasugrel given concomitantly with low-dose aspirin. After the one month point, the patients were randomized to either continue on with the DAPT regimen for one year or be initiated on clopidogrel monotherapy for one year. The primary outcome measure evaluated was the composite event occurrence of cardiovascular death/myocardial infarction/definite stent thrombosis/stroke/bleeding in both the treatment and comparator arms. The secondary outcome measure was the occurrence of major/minor bleeding between the two study arms.

Clopidogrel monotherapy was proven to be superior to 12 months of DAPT with regard to the primary endpoint of net adverse cardiovascular events (Composite event occurrence: 2.4% (treatment arm) vs. 3.7% (comparator arm); p for superiority =0.04). Furthermore, in regard to the secondary outcome of major/minor bleeding incidence, the treatment arm was again found to be superior compared to active comparator (0.04% vs. 1.5%; p for superiority = 0.004) [4]. The adverse event occurrence rates at one year were similar between the two study arms, with very low overall rates of definite and probable stent thrombosis occurrence.

Another study recently published was the SMART-CHOICE study, which was an open-label, non-inferiority, randomized study conducted across 33 centers in Korea with a population size of 2,993 patients who underwent PCI with drug-eluting stents. The enrollment period for the study began in March 18, 2014 and the last follow-up was completed on July 19, 2018. Patients were randomly assigned to one of two study arms: one arm which received aspirin concomitantly with clopidogrel for 3 months followed by 9 months of clopidogrel monotherapy, or the other arm which had the patients receive both aspirin and clopidogrel for a full 12 months. The primary endpoint measured was major adverse cardiac and cerebrovascular events (composite of all-cause death, myocardial infarction, or stroke) at the 12-month mark [5].

Secondary endpoints included bleeding event incidence between the two study arms. At the end of 12 months, major adverse cardiac and cerebrovascular event occurrence rates between the two groups were not significantly different (2.9% vs. 2.5%, p=0.4), and no statistically significant differences in bleeding event occurrence was noted.

Even though both of these studies show promising evidence in regard to the efficacy and safety of P2Y12 monotherapy, experts have commented that studies in more diverse populations need to be conducted to understand the full picture5. It should also be noted that certain patient populations express loss-of-function alleles (CYP2C19*2) which impair the proper formation of P2Y12 active metabolites in their body, thereby rendering this class of drugs useless and placing the patients at increased risk of adverse cardiovascular events. Therefore, further studies that evaluate this therapy in more diverse patient populations are needed to elicit a clear picture.

Bibliography

1. Hahn J., *et al*. "Effect of P2Y12 Inhibitor Monotherapy vs Dual Antiplatelet Therapy on Cardiovascular Events in Patients Undergoing Percutaneous Coronary Intervention: The SMART-CHOICE Randomized Clinical Trial". *JAMA* 321.24 (2019): 2428-2437.

2. Levine GN., *et al*. "2016 ACC/AHA Guideline Focused Update on Duration of Dual Antiplatelet Therapy in Patients With Coronary Artery Disease: A Report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines". *Circulation* 134.10 (2016).

3. Maxwell YL. "Dropping Aspirin: Two Trials Explore P2Y12 Monotherapy After Short-term DAPT Post-PCI". TCTMD.com.

4. Nebert DW and Zhang G. "Chapter 16: Pharmacogenomics . In: Emery and Rimoin's Principles and Practice of Medical Genetics and Genomics (Seventh Edition)". 7th ed. Philadelphia, PA: Academic Press (2019): 445-486.

5. Watanabe H., *et al*. "Effect of 1-Month Dual Antiplatelet Therapy Followed by Clopidogrel vs 12-Month Dual Antiplatelet Therapy on Cardiovascular and Bleeding Events in Patients Receiving PCI: The STOPDAPT-2 Randomized Clinical Trial". *JAMA* 321.24 (2019): 2414-2427.

Volume 3 Issue 11 November 2019