

CASE REPORT

Antiplatelet Therapy After Complex PCI in the Anticoagulated Patient

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The optimal strategy for antiplatelet therapy in patients treated with coronary drug-eluting stents (DESs) who require anticoagulation has been an issue fraught with uncertainty and controversy. This conundrum is not uncommon, as approximately 6% to 8% of patients undergoing PCI require concomitant anticoagulation. Compared to DAPT alone, the addition of anticoagulation to DAPT is associated with a two-to-threefold increase in bleeding complications.¹⁻³ In the case described in this article, we performed multivessel percutaneous coronary intervention (PCI) of chronic total occlusions (CTOs) using DESs in a patient with severe ischemic cardiomyopathy who was on anticoagulation for prior mechanical mitral and aortic valve replacement. Discussion of the case at our institution's heart team conference yielded divergent recommendations with respect to dual antiplatelet therapy (DAPT) duration before ultimately deciding on the patient's course.

CASE REPORT

A 69-year-old man was hospitalized for progressively worsening exertional dyspnea and automatic internal cardiac defibrillator shocks. He had prior cardiac surgery with St. Jude mitral and aortic valve replacements, for which he was on chronic warfarin therapy. He had a history of an ischemic cardiomyopathy (ejection fraction 10% to 15%) due to prior asymptomatic myocardial infarctions. Cardiac risk factors included type 2 diabetes, hypertension, hyperlipidemia, and prior smoking.

PRESENTATION AND TREATMENT OPTIONS

One year prior to this admission, the patient had undergone PCI at an outside hospital with placement of

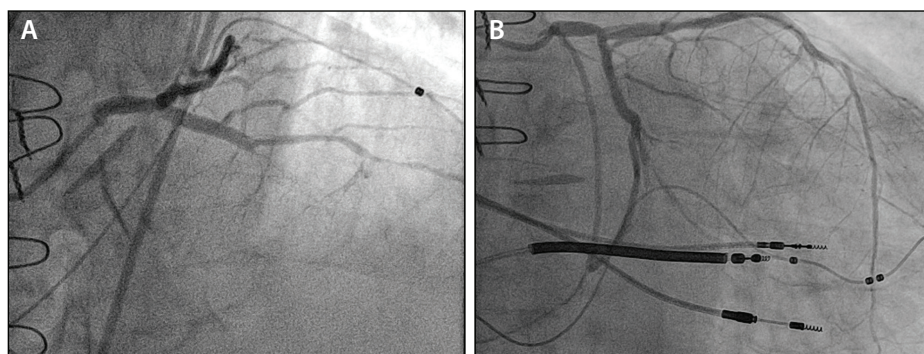


Figure 1. Coronary angiograms showing in-stent restenosis with CTOs in both the LAD (A) and LCx-OM (B).

bare-metal stents in the left anterior descending (LAD) and left circumflex obtuse marginal (LCx-OM) coronary arteries. Repeat cardiac catheterizations demonstrated restenosis with CTO of both stented vessels (Figure 1). A cardiac MRI demonstrated viability in the anterior wall. Cardiac surgery consultation deemed the patient too high

STRATEGIES TO REDUCE BLEEDING RISK IN PATIENTS ON TRIPLE THERAPY^{2,3}

- Use of low dose aspirin (≤ 100 mg daily)
- Clopidogrel is the preferred P2Y₁₂ inhibitor
- Non-vitamin K oral anticoagulants favored over warfarin for nonvalvular atrial fibrillation
- If warfarin is used, target international normalized ratio of 2 to 2.5
- Keep triple therapy as short as possible; consider dual therapy with clopidogrel and anticoagulation in patients at lower thrombotic risk
- Prophylactic use of proton pump inhibitor with triple therapy

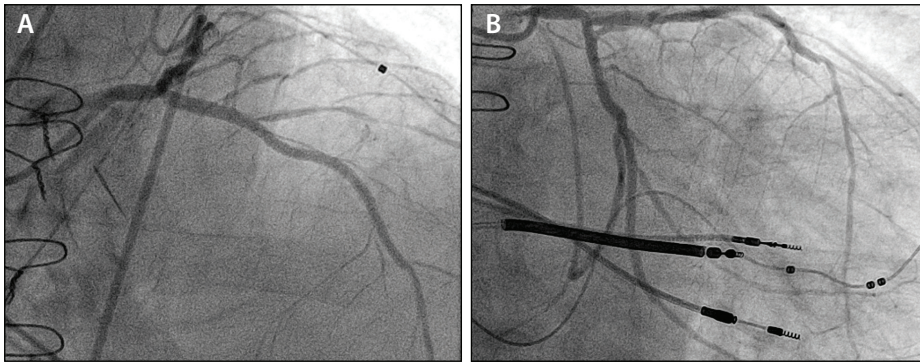


Figure 2. Coronary angiograms after successful PCI of in-stent CTOs of the LAD (A) and LCx-OM (B). Three everolimus-eluting stents were placed (28-mm and 23-mm stents in the LAD and a 33-mm stent in the LCx-OM; cumulative stent length, 84 mm).

risk for bypass surgery, and the patient was referred to our institution for complex PCI.

PROCEDURE

Repeat PCI was performed successfully with placement of two everolimus DESs (28 mm and 23 mm) in the LAD and a long 33-mm everolimus DES in the LCx-OM; total stent length was 84 mm (Figure 2).

POST-PROCEDURAL ANTIPLATELET THERAPY

The risk and benefit trade-offs for DAPT duration in this complex case were debated within our institution. The patient had several high-risk features for stent thrombosis and recurrent ischemic events including multivessel stenting, treatment of CTO, use of at least three stents, stent length > 60 mm, chronic renal disease, diabetes, and severe cardiomyopathy.³ Because our patient was at high thrombotic risk and tolerated chronic warfarin plus aspirin therapy without bleeding, a 3-month course of DAPT was recommended.

DISCUSSION

Duration of DAPT after PCI in patients on anticoagulation remains a perplexing challenge. The uncertainty regarding DAPT duration is also reflected in disparities among current cardiovascular society guidelines. Current algorithms and consensus documents fail to do justice to the variable interplay of thrombotic and bleeding risks in individual patients. As a consequence, opinions and practices on DAPT duration vary widely (see sidebar, *Use of Social Media for Contemporaneous Insights*). A variety of strategies can be utilized to lower the bleeding risk of patients treated with triple antithrombotic therapy (see sidebar, *Strategies to Reduce Bleeding Risk in Patients on Triple Therapy*). Ongoing trials focused on the safety of shortening DAPT duration with newer-generation DESs

should hopefully enlighten and bring consensus to the clinical management of these complex patients. ■

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USE OF SOCIAL MEDIA FOR CONTEMPORANEOUS INSIGHTS

Inspired by the internal debate at our institution surrounding optimal DAPT duration, we decided to seek opinions from a wider international medical community using Twitter as a polling vehicle. Today, an increasing number of interventional cardiologists are on Twitter, regularly engaging with the #CardioTwitter hashtag to discuss topics like DAPT. The poll feature on Twitter allows a user to post a question to their account for up to a week, and any registered user can vote for one of up to four different answers. Twitter tallies all votes in real time and displays a final result once the poll time has concluded. It should be noted that there are limitations to using social media as a polling mechanism and should not be mistaken for a peer-reviewed publication or guideline. From an analytics standpoint, voters' identities are anonymous, so it is not possible to verify the demographic makeup of those who participated (eg, whether the voters are physicians, industry, or unrelated; the geographic region of each voter; etc). Polls on social media are simply a vehicle to gauge opinions, and as such, the results should not be considered as a guidance toward treatment strategy.

Being mindful of these limitations, we wanted to use this emerging platform to gain some additional opinions on DAPT duration using the case study described in this article. A poll was posted to Dr. Savage's Twitter account on June 2, 2017 and ran for 5 days. Four options for DAPT duration were given: (1) DAPT for 1 month, then clopidogrel only; (2) DAPT for 3 to 6 months; (3) DAPT for at least 1 year; (4) clopidogrel only, no aspirin. The pre- and post-PCI coronary angiograms (shown in Case Report) were tagged to the poll tweet. The poll received 10,346 impressions (views), 859 engagements (any time someone clicked on the Tweet, including replies, follows, likes, retweets, etc), and 306 votes (Figure 1). Although Twitter poll voters are kept anonymous, respondents who interacted with the tweet by other means (eg, replying, retweeting, or liking) are identified. Assessing those respondents, 75% were men, 25% were women, and 38% were from outside the United States. More than 93% of the identified respondents were described on their Twitter page as health care professionals, and nearly all worked in cardiovascular disease.

The results highlight the lack of consensus on the management of DAPT in patients on anticoagulation: three different DAPT options were chosen by approximately 30% of the respondents (1 month, 3 to 6 months, and at least 12 months). Less than 10% voted for the option of clopidogrel without aspirin.

Since the initial poll, randomized trials have accrued to suggest that bleeding in patients on anticoagulation who undergo PCI can be significantly reduced by eliminating postprocedure aspirin while continuing a P2Y12 inhibitor with anticoagulation.¹⁻³ Conjecturing that clinical practice patterns may have changed in response to these trials, the poll was reposted to Dr. Savage's Twitter on January 19, 2019 (more than a year and a half after the initial poll was conducted). Similar to the original post, the poll ran for 5 days.

The follow-up poll had more than twice as many impressions (21,963) as the original with 511 votes (Figure 2). Similar to the first poll, there remained no consensus of opinion on DAPT duration. In the current poll, slightly more than half favored shortening DAPT to 1 month or less, while slightly less than half favored longer DAPT durations.

The results of the two polls are compared in Figure 3. As anticipated, there has been a shift towards shorter DAPT duration. While omitting aspirin after discharge remained the least frequent choice, this option nearly doubled from 9% in 2017 to 17% in 2019. Prescribing DAPT for 1 month (after which only clopidogrel is continued) was the most commonly selected option in both polls. There was a significant increase in the recommendation for shortening postprocedural DAPT to 0 to 1 month from 43% in 2017 to 56% in 2019 ($P < .001$).

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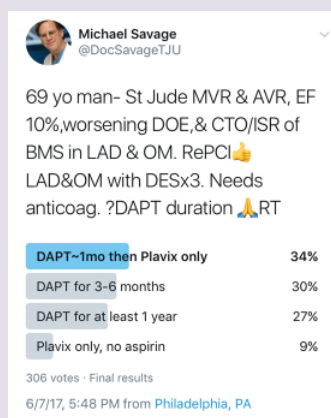


Figure 1. Final voting results of Twitter poll posted in June 2017.

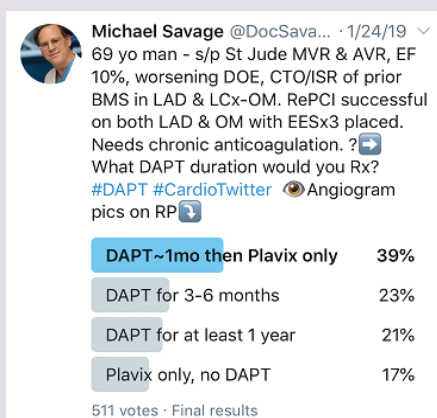


Figure 2. Final results of the Twitter poll reposted in January 2019.

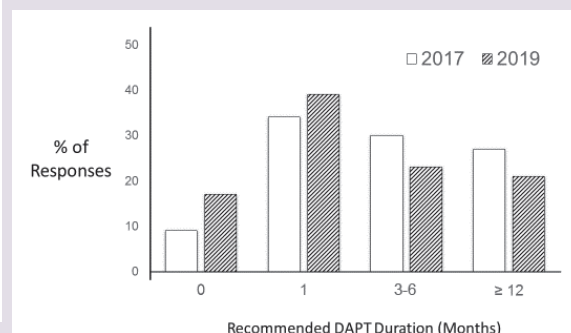


Figure 3. Comparison of the 2017 and 2019 poll results.