Acta Cardiol Sin 2019;35:522–523
Editorial Comment
doi: 10.6515/ACS.201909_35(5).20190906A

A Brave New World

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Atrial fibrillation (AF) is the most common sustained cardiac arrhythmia in the adulthood and is associated with increased risks for cardiovascular morbidities mortality. To prevent thromboembolic complications, patients with AF at risk require long-term treatment with oral anticoagulants.[1] Meanwhile, in patients with coronary heart disease (CHD), in particular acute coronary syndrome (ACS) or requiring percutaneous coronary intervention (PCI) with or without stenting, aspirin and/or a P2Y12 antagonist is recommended by current guidelines.[2] Therefore, it is quite a dilemma for physicians when deciding a more appropriate antithrombotic regimen in patients with AF who happen to require PCI. Such a burden is not trivial as up to a third of patients with AF have concomitant CHD that have or will need PCI and AF occurs in about 10% of patients with ACS.[3,4] Evidence has suggested that antiplatelet therapy and anticoagulation therapy are not interchangeable when managing these two separate disease entities.[5,6] Adding both treatments to one single patient with concomitant AF and CHD is challenging and must be balanced between highly-tied efficacy and safety.[7]

In this issue of the Journal, Wang, et al., showed a changing pattern of practice in the management of patients with AF who also had ACS and/or required PCI by using a hospital database.[8] They included 532 patients between 2006 and 2016. Among these high-risk patients (85% had a CHA_2DS_2-VASc score $\geq$ 2 and 69% had a HAS-BLED score $\geq$ 3), 72% received dual antiplatelet therapy while the rest were prescribed with oral anticoagulant based therapy. Not to our surprise, they found that the use of dual antiplatelet therapy was associated with numerically more overall thrombotic and hemorrhagic events though being limited by statistical power. What is their implication to our current practice? Perhaps, it is how the paradigm shifted from dual antiplatelet therapy alone to oral anticoagulant based therapy within a decade. Before 2012, 78% of patients in their cohort received dual antiplatelet therapy alone, whereas 65% were with dual antiplatelet therapy alone since 2012 onward when more patients were not given with aspirin.

The phenomenon they reported coincided with the publication of the What is the Optimal antiplatElet and anticoagulant therapy in patients with oral anticoagulation and coronary StenTing (WOEST) trial. In 2013, the WOEST study demonstrated that combining a P2Y12 receptor antagonist with warfarin substantially reduced bleeding while preserving efficacy in patients receiving PCI, comparing with triple therapy (aspirin, a P2Y12 receptor antagonist, and warfarin).[9] Besides, four non-vitamin K antagonist oral anticoagulants (NOACs) came into AF management in the beginning of this decade. For patients with AF, four NOACs have been studied in four large scale clinical trials, showing the similar efficacy and better safety when comparing with well-managed warfarin.[10] However, all four landmark trials in AF management excluded patients requiring dual antiplatelet therapy, which is most likely used in conditions as post-PCI or -ACS care. Finally, just before the end of this decade, all four approved NOACs have completed their own journeys in the setting of patients with AF requiring PCI by showing that omitting aspirin in their regimens resulted in fewer bleeding while preserving efficacy compared with any of oral anticoagulants with dual antiplatelet therapy.[11-14]

Furthermore, 2019 marks a beginning of a new world. In the Atrial Fibrillation and Ischemic Events with Rivaroxaban in Patients with Stable Coronary Artery Disease (AFIRE) trial, 2236 patients with AF who had undergone coronary intervention for > 1 year or who had CHD not requiring any revascularization were randomized to receive monotherapy with rivaroxaban or combination

Received: September 3, 2019 Accepted: September 6, 2019
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therapy with rivaroxaban plus a single antiplatelet agent. The AFIRE study further showed oral anticoagulant therapy alone substantially reduced bleeding while preserving efficacy, comparing with combining single antiplatelet therapy with oral anticoagulant therapy.[15] Now, we have a full set of best evidence supporting the management in patients with AF and CHD, in particular using NOACs. Nevertheless, we should keep in mind that with strict criteria for enrollment clinical trials are criticized on their generalizability of their findings. Therefore, as a physician, we should balance the risk and benefit of each regimen for each patient to optimize the treatment strategy.

FUNDING SOURCE

None.

DISCLOSURE

Kang-Ling Wang has received honoraria from AstraZeneca, Bayer, Boehringer Ingelheim, Daiichi-Sankyo, Orient EuroPharm, and Tanabe.

Chern-En Chiang has been on the speaker bureau for AstraZeneca, Bayer, Boehringer Ingelheim, Daiichi-Sankyo, Merck Sharp & Dohme, Novartis, Pfizer, Sanofi, and Servier.

DISCLAIMER

This article reflects the views of the authors only.

DECLARATION OF CONFLICT OF INTEREST

The authors declare no conflict of interest.

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