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THE PRESENT AND FUTURE

STATE-OF-THE-ART REVIEW

Practical Management of Anticoagulation in Patients With Atrial Fibrillation

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ABSTRACT

Anticoagulation for atrial fibrillation has become more complex due to the introduction of new anticoagulant agents, the number and kinds of patients requiring therapy, and the interactions of those patients in the matrix of care. The management of anticoagulation has become a "team sport" involving multiple specialties in multiple sites of care. The American College of Cardiology, through the College's Anticoagulation Initiative, convened a roundtable of experts from multiple specialties to discuss topics important to the management of patients requiring anticoagulation and to make expert recommendations on issues such as the initiation and interruption of anticoagulation, quality of anticoagulation care, management of major and minor bleeding, and treatment of special populations. The attendees continued to work toward consensus on these topics, and present the key findings of this roundtable in a state-of- the-art review focusing on the practical aspects of anticoagulation care for the patient with atrial fibrillation. (J Am Coll Cardiol 2015;65:1340–60) © 2015 by the American College of Cardiology Foundation.

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In September 2013, following a series of pivotal trials and drug approvals, the American College of Cardiology (ACC) convened a roundtable discussion at the Heart House to address clinical issues regarding oral anticoagulant alternatives to warfarin in patients with nonvalvular atrial fibrillation (AF). The meeting included representatives of specialty societies, the U.S. Food and Drug Administration (FDA), industry, and patient advocates (Online Appendix 1). Discussions covered 4 general topics:

1. Initiation and interruption of anticoagulant therapy;
2. Quality, cost, and team-based management of anticoagulation;
3. Management of bleeding and emergency care; and
4. Complex disease states and special populations.

The discussion was supplemented with focused reviews of the English language published data in PubMed to November, 2014, that pertained to the roundtable themes.

Data from the ACC's PINNACLE Registry showed large variations in the percentage of appropriate anticoagulation for AF even before the introduction of direct-acting oral anticoagulants (DOACs) (1). Management of anticoagulation crosses the bounds of specialty and type of practice (**Central Illustration**). This review attempts to provide practical consensus recommendations as well as to point out gaps in knowledge and areas of future inquiry.

ASSESSING THE BENEFITS AND RISKS OF ORAL ANTICOAGULANT AGENTS

Oral anticoagulant therapy (OACT) reduces stroke risk in patients with nonvalvular AF. Patients with valvular AF and those with prosthetic mechanical heart valves or significant (moderate to severe) mitral stenosis were excluded from clinical trials, and therefore, this document will not suggest changes in their management. Patients with nonvalvular AF (paroxysmal, persistent, or permanent) with or without symptoms are all considered for OACT on the basis of their individual risk profile.

The 2014 AF guidelines recommend the use of the CHA_2DS_2-VASc (Congestive heart failure or left ventricular dysfunction; Hypertension; Age ≥75 years; Diabetes mellitus; Stroke, transient ischemic attack, or thromboembolism; Vascular disease; Age 65 to 74 years; Sex category) scoring system (**Table 1**) (2) instead of $CHADS_2$ (Congestive heart failure, Hypertension, Age ≥75 years, Diabetes mellitus, Stroke or transient ischemic attack) (3), because it increases the number of patients who meet criteria for anticoagulation therapy while more accurately identifying truly low-risk patients. Many patients (women, those age 65 to 75 years, and patients with vascular disease) are redistributed from the low- to higher-risk categories (3).

Several bleeding risk scores are available, including HAS-BLED (Hypertension, Abnormal renal or liver function, Stroke, Bleeding, Labile INR, Elderly, Drugs and alcohol) and ATRIA (Anticoagulation And Risk Factors In Atrial Fibrillation) (4,5), which may identify patients at higher risk of bleeding; however, more information is needed on their clinical utility (2). Tools, such as the AnticoagEvaluator and the Stroke Prevention in Atrial Fibrillation Risk Tool, are available at the point of care to estimate the risk of stroke and benefits of anticoagulation therapy in patients with AF (6,7).

CLINICAL TRIALS COMPARING DOACs WITH VITAMIN K ANTAGONISTS

There are 2 classes of DOACs: factor Xa (FXa) inhibitors, such as rivaroxaban, apixaban and edoxaban; and direct thrombin inhibitors, such as dabigatran. **Table 2** highlights selected trials comparing the safety and efficacy of DOACs to adjusted-dose warfarin with target international normalized ratio (INR) of 2 to 3.

These trials have limitations, including non-inferiority study designs and relatively short treatment follow-up. The median time in therapeutic range (TTR) for warfarin patients was ≤69% in each of the trials; the results may have been different if the patients had achieved a greater percentage of TTR. Limited guidance is provided concerning the potential advantage of using DOACs in patients taking warfarin with TTR >75%. When data from the trials are combined, DOACs appear to reduce stroke, intracranial hemorrhage (ICH), and overall mortality compared with warfarin, with similar major bleeding risks. However, gastrointestinal bleeding appears

ABBREVIATIONS AND ACRONYMS

ACS = acute coronary syndrome(s)
AF = atrial fibrillation
DOAC = direct-acting oral anticoagulant
DAPT = dual antiplatelet therapy
FFP = fresh frozen plasma
ICH = intracranial hemorrhage
INR = international normalized ratio
OACT = oral anticoagulant therapy
TTR = time in therapeutic range
VKA = Vitamin K antagonist

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