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Society Guidelines

Canadian Cardiovascular Society Atrial Fibrillation Guidelines 2010: Implementing GRADE and Achieving Consensus

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ABSTRACT

This article describes the process of the Canadian Cardiovascular Society 2010 atrial fibrillation (AF) guidelines update. Guideline development was based on the GRADE (Grading of Recommendations Assessment, Development and Evaluation) system of evaluation. GRADE separates the quality of evidence (very low, low, moderate, or high quality) from the strength of recommendations (strong or conditional, ie, weak). GRADE allows acknowledgement of values and preferences in the provision of clinical care as well as costs of interventions in determining the strength of recommendations. Disclosures of relationships with industry or other potential conflicts of interest were reported at the outset and annually. Each recommendation was approved by at least a two-thirds majority of the voting panel (those with a significant conflict recusing themselves from voting on those specific recommendations).

RÉSUMÉ

Dans cet article, nous décrivons le processus de mise à jour des lignes directrices de 2010 en matière de fibrillation auriculaire (FA) de la Société Canadienne de Cardiologie. L'élaboration des lignes directrices repose sur le système d'évaluation *Grading of Recommandations Assessment, Development and Evaluation* (GRADE). Le système d'évaluation GRADE distingue la qualité de la preuve (très faible, faible, moyenne ou élevée) de la force des recommandations (forte ou conditionnelle, i.e. faible). Le système d'évaluation GRADE permet de reconnaître les valeurs et les préférences en ce qui a trait à la prestation des soins cliniques, ainsi que les coûts des interventions, pour déterminer la force des recommandations. Les relations du groupe d'experts avec l'industrie ou autres conflits d'intérêts potentiels ont été divulguées initialement et annuellement. Chaque recommandation a été approuvée par au moins les deux tiers du groupe d'experts (ceux qui étaient en conflit d'intérêt se sont abstenus de voter sur certaines recommandations).

Atrial fibrillation (AF) is the most common sustained arrhythmia treated in clinical practice and is associated with substantial morbidity. Indeed, the lifetime risk of developing AF in individuals older than 40 years is 1 in 4.[1] The Canadian Cardiovascular Society (CCS) last published a set of recommendations on the diagnosis and management of AF in 2005.[2] Since then, major advances in the management of AF have occurred, including the results of clinical trials providing guidance on pharmacologic therapies for management of AF,[3-5] antithrombotic therapies for prevention of systemic thromboembolism,[6,7] the continuing evolution of catheter ablation for treatment of AF,[8-10] and the development of a simple semiquantitative scale that closely approximates patient-reported subjective measures of quality of life

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The disclosure information of the authors and reviewers are available from the CCS on the following Web sites: www.ccs.ca and www.ccsguidelineprograms.ca.

This statement was developed following a thorough consideration of medical literature and the best available evidence and clinical experience. It represents the consensus of a Canadian panel comprised of multidisciplinary experts on this topic with a mandate to formulate disease-specific recommendations. These recommendations are aimed to provide a reasonable and practical approach to care for specialists and allied health professionals obliged with the duty of bestowing optimal care to patients and families, and can be subject to change as scientific knowledge and technology advance and as practice patterns evolve. The statement is not intended to be a substitute for physicians using their individual judgment in managing clinical care in consultation with the patient, with appropriate regard to all the individual circumstances of the patient, diagnostic and treatment options available and available resources. Adherence to these recommendations will not necessarily produce successful outcomes in every case.

A complete list of the Primary and Secondary Panel Members are listed in the Appendix on page 30.

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in AF.[11] In 2009, the CCS convened a primary panel of experts to undertake a comprehensive review of current knowledge and management strategies in the field of AF and to develop an up-to-date evidence-based set of recommendations, easily available to primary care physicians, emergency room physicians, internists, and cardiologists, on the diagnosis and management of patients with AF. The guidelines are broadly applicable across a spectrum of practice environments. It is expected that optimized management of AF may improve quality of life and reduce rates of stroke and hospitalization for AF-related causes across all levels of care in a large population of patients.

Simultaneous with the evolution in treatments for AF, the CCS has been implementing a unique Canadian knowledge translation (KT) model for disseminating guidelines.[12,13] Known as the CCS closed-loop model for KT, it has the aim of improving the uptake and integration of guidelines into clinical practice. The model involves assembling a multidisciplinary primary panel to draft guidelines and then using a multipronged, multimedia approach to dissemination. Dissemination strategies involve regional and national face-to-face, interactive, case-based workshops and a dedicated Web site featuring practical tools and tips for end users as well as synchronous and asynchronous e-learning programs. Feedback from KT program participants and guideline end users drives the selection and development of new content for subsequent annual guideline updates, which are then disseminated and evaluated as part of a regular annual cycle. This cyclical approach to guideline development, dissemination, and evaluation results in a powerful compendium of guidelines that address a specific topic and are highly relevant to and highly valued by care providers. The CCS experienced success with this model through applying it to heart failure beginning in 2005. As AF emerged as a major topic requiring updated, comprehensive, multidisciplinary guidelines, the CCS has embarked on this second closed-loop KT program.

A primary working group was formed and met face-to-face in October 2009 to agree on the process of achieving consensus, to address issues related to real or perceived conflict of interest related to specific recommendations, to discuss the process of weighting the strength of a recommendation and the quality of evidence supporting the recommendation, to identify the full membership of the primary panel, to finalize topics for guideline development, and to develop writing groups for each topic. Conflicts were disclosed prior to forming the writing groups. The Appraisal of Guidelines for Research and Evaluation instrument was used to guide primary panel structure and guideline development.[14] Membership of the primary panel was expanded to include wide representation (from primary care, internal medicine, emergency medicine, and general cardiology, in addition to cardiac electrophysiology) and to increase the proportion of panel members having no conflict of interest or relationships with industry to 5 of 19 members (26%). Writing groups were developed with specific attention to content expertise and conflict of interest. It was decided that each recommendation must be approved by a two-thirds majority of the voting panel (those with a significant conflict recusing themselves from voting on those specific recommendations).

The working groups undertook a review of the English language literature, using MEDLINE or Cochrane library searches and a critical appraisal of the evidence focusing predominantly on the results of randomized clinical trials and systematic reviews. In the absence of such data, recommendations were based on the results of large cohort studies or smaller clinical studies. The recommendations were finalized by informed consensus through one face-to-face meeting, conference calls, e-mail correspondence, and final review by all members of the primary panel. Specifically, the writing group presented each preliminary recommendation with its attendant supportive evidence in summary form. Following discussion, an anonymous vote was obtained in which a two-thirds majority was considered consensus. Failing consensus, further discussion was directed at areas of divergence of opinion until either consensus was reached or it was deemed by the chair(s) that consensus would not be reached and a recommendation could not be made. A two-thirds majority was achieved in all cases. The primary panelists were principally responsible for the document, but an independent secondary panel reviewed the recommendations and provided feedback. All members of the primary panel formally approved the final document prior to submission to the Guidelines Committee and CCS Executive for review and approval.

As outlined in a separate communication, this is the first CCS Guidelines Panel to use the GRADE (Grading of Recommendations Assessment, Development and Evaluation) system of evaluation,[13,14] replacing the American College of Cardiology and American Heart Association scale for level of evidence that was used previously.[15] In the past, guidelines have been criticized as being inconsistent in how they rate quality of evidence and strength of recommendations, which may lead to confusion in interpretation of the recommendations and failure to adhere to the guidelines.[16] GRADE (www.gradeworkinggroup.org) was created by a group of international guideline developers, including a large Canadian representation to address the shortcomings of other rating systems.[17-21] The approach separates the quality of evidence (very low, low, moderate, or high quality; see Table 1), from the strength of recommendations (strong or conditional, ie, weak; see Table 2). GRADE allows acknowledgment of values and preferences in the provision of clinical care, as well as of the cost of therapies, in determining the strength of recommendations. GRADE has already been adopted by more than 45 international organizations, including the World Health Organiza-

Table 1. GRADE: Rating quality of evidence

Quality	Comments
High	Future research unlikely to change confidence in estimate of effect; eg, multiple well-designed, well-conducted clinical trials
Moderate	Further research likely to have an important impact on confidence in estimate of effect and may change the estimate; eg, limited clinical trials, inconsistency of results or study limitations
Low	Further research very likely to have a significant impact on the estimate of effect and is likely to change the estimate; eg, small number of clinical studies or cohort observations
Very low	The estimate of effect is very uncertain; eg, case studies, consensus opinion

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GRADE, Grading of Recommendations Assessment, Development, and Evaluation.

Table 2. Factors determining the strength of the recommendation

Factor	Comment
Quality of evidence	The higher the quality of evidence, the greater the probability that a strong recommendation is indicated; eg, strong recommendation that patients with AF at moderate to high risk of stroke be treated with oral anticoagulants.
Difference between desirable and undesirable effects	The greater the difference between desirable and undesirable effects, the greater the probability that a strong recommendation is indicated; eg, strong recommendation that patients with AF ≥ 48-h duration receive oral anticoagulation therapy for at least 3 wk prior to planned cardioversion and 4 wk following.
Values and preferences	The greater the variation or uncertainty in values and preferences, the higher the probability that a conditional recommendation is indicated; eg, aspirin may be a reasonable alternative to oral anticoagulant therapy in patients at low risk of stroke.
Cost	The higher the cost, the lower the likelihood that a strong recommendation is indicated; eg, conditional recommendation for catheter ablation as first-line therapy for AF.

AF, atrial fibrillation.
Modified and reprinted with permission from Guyatt, et al.[17]

tion, the American College of Physicians, the Cochrane Collaboration, the American College of Chest Physicians, and many others.

The updated guidelines are published in 7 articles:

1. Etiology and Initial Investigations
2. Rate and Rhythm Management
3. Catheter Ablation of Atrial Fibrillation and Atrial Flutter
4. Prevention of Stroke and Systematic Embolization in Atrial Fibrillation and Flutter
5. Emergency Department Management of Recent Onset Atrial Fibrillation and Flutter
6. Surgical Therapy for Atrial Fibrillation
7. Prevention and Treatment of Atrial Fibrillation Following Cardiac Surgery

A specific chapter on atrial tachyarrhythmias in the congenital heart disease population was not undertaken at this time but is planned for a future update.

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Appendix 1. Primary and secondary panel members

Primary panel members		
Anne M. Gillis, MD, FRCP(C)	Cochair	Dept of Cardiac Sciences, University of Calgary, Libin Cardiovascular Institute of Alberta
Allan Skanes, MD, FRCP(C)	Cochair	Division of Cardiology, University of Western Ontario
Stuart Connolly, MD, FRCP(C)	Member	Division of Cardiology, Department of Medicine, McMaster University
John Cairns, MD, FRCP(C),	Member	Faculty of Medicine, University of British Columbia
Jafna Cox, BA, MD, FRCP(C), FACC	Member	Division of Cardiology, Dalhousie University
Paul Dorian, MD, MSc. FRCP(C)	Member	Division of Cardiology, University of Toronto
Jeff Healey, MD, FRCP(C)	Member	Division of Cardiology, Medicine Department, McMaster University
Laurent Macle, MD, FRCP(C)	Member	Electrophysiology Service, Montreal Heart Institute, Université de Montréal
Sean McMurty, MD, PhD, FRCP(C)	Member	Division of Cardiology, University of Alberta
Brent Mitchell, MD, FRCP(C)	Member	University of Calgary, Libin Cardiovascular Institute of Alberta
Stanley Nattel, MD, FRCP(C)	Member	Montreal Heart Institute, Université de Montréal
Pierre Page, MD, FRCPS	Member	Montreal Heart Institute, Université de Montréal
Ratika Parkash, MD, MSc, FRCP(C)	Member	Division of Cardiology, Dalhousie University
P. Timothy Pollak, MD, PhD FRCP(C)	Member	Department of Cardiac Sciences, and Physiology & Pharmacology, University of Calgary
Michael Stephenson, MD, CCFP, FCFP	Member	Representative of The College of Family Physicians of Canada, Ancaster, Ontario
Ian Stiell, MD, MSc, FRCP(C)	Member	Department of Emergency Medicine, Ottawa Hospital Research Institute, University of Ottawa
Mario Talajic, MD, FRCP(C)	Member	Montreal Heart Institute, Université de Montréal
Teresa Tsang, MD, FRCP(C)	Member	Division of Cardiology, University of British Columbia
Atul Verma, MD, FRCP(C)	Member	Heart Rhythm Program, Southlake Regional Health Centre
Jan Brozek, MD, PhD	Special Collaborator	Departments of Clinical Epidemiology & Biostatistics and Medicine. McMaster University
Grant Stotts, MD, FRCP(C)	Special Collaborator	University of Ottawa, The Ottawa Hospital. Representative of the Canadian Stroke Network
Secondary panel members		
Malcolm Arnold, MD, FRCP(C)	Member	Division of Cardiology, University of Western Ontario,
David Bewick, MD, FRCP(C)	Member	St. John's, New Brunswick
Vidal Essebag, MD, MSc, FRCP(C)	Member	Department of Cardiology, McGill University Health Center
Milan Gupta, MD, FRCP(C)	Member	Division of Cardiology, Brampton Civic Hospital
Brett Heilbron, MBChB, FRCP(C)	Member	St. Paul's Hospital Heart Centre, University of British Columbia
Charles Kerr, MD, FRCP(C),	Member	St. Paul's Hospital Heart Centre, University of British Columbia
Bob Kiaii, MD, FRCS(C)	Member	Division of Cardiac Surgery, University of Western Ontario
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