Introduction*: American College of Chest Physicians Guidelines for the Prevention and Management of Postoperative Atrial Fibrillation After Cardiac Surgery

Peter Philip McKeown

*Chest 2005;128:6S-8S
DOI 10.1378/chest.128.2_suppl.6S

The online version of this article, along with updated information and services can be found online on the World Wide Web at: http://chestjournal.chestpubs.org/content/128/2_suppl/6S.full.html

Chest is the official journal of the American College of Chest Physicians. It has been published monthly since 1935. Copyright 2005 by the American College of Chest Physicians, 3300 Dundee Road, Northbrook, IL 60062. All rights reserved. No part of this article or PDF may be reproduced or distributed without the prior written permission of the copyright holder. (http://chestjournal.chestpubs.org/site/misc/reprints.xhtml) ISSN:0012-3692
Atrial fibrillation (AF) and atrial flutter (AFL) are arrhythmias that commonly occur following cardiac surgery. The precipitating events are not always obvious, although predisposing factors including age have been defined. Postoperative AF and AFL add significantly to both the cost and morbidity of cardiac surgery. This guideline report, which was created under the auspices of the American College of Chest Physicians (ACCP), critically reviews evidence-based literature defining optimal treatment and prophylaxis for postoperative AF. Specific issues addressed include the following: (1) controlling the ventricular response rate in the patient with postoperative AF and AFL; (2) preventing thromboembolism in the setting of AF and AFL including the appropriate role of anticoagulation therapy; (3) pharmacologic approaches to converting AF or AFL to normal sinus rhythm, and maintaining normal sinus rhythm postoperatively; and (4) pharmacologic and surgical prophylaxis against postoperative AF and AFL. The resulting clinical practice guidelines represent the best-supported treatments, based on a rational scientific approach formulated from randomized clinical trials and systematic reviews. The panel convened by the Health and Sciences Policy Committee of the ACCP reviewed the currently available evidence to provide a basis for making specific recommendations for patient care.

Key words: anticoagulation; atrial fibrillation; cardioversion; coronary artery bypass graft; thromboembolism; ventricular response rate

Abbreviations: ACCP = American College of Chest Physicians; AF = atrial fibrillation; CPG = clinical practice guideline

Atrial fibrillation (AF) is a relatively common condition that occurs increasingly with age. It is an independent risk factor for death with a risk ratio of 1.5 for men and 1.9 for women. Hemodynamic instability associated with AF can require urgent cardioversion. In patients who are relatively stable, important clinical decisions on therapeutic strategies include (1) rate control, (2) anticoagulation therapy to prevent stroke, and (3) conversion to normal rhythm by pharmacologic or electrical means.

AF after cardiac surgery is a common problem that adds to morbidity and significantly increases costs. In a review of the literature, Maisel et al suggested that the incidence of post-cardiac surgery atrial arrhythmias ranged from 10 to 65%. An overall incidence of 26.7% was determined from a meta-analysis of 24 trials. The incidence is lower for isolated coronary artery bypass graft surgery than for valve surgery or for combined valve surgery and coronary artery bypass graft surgery. The onset of postoperative AF usually occurs on the second or third postoperative day. There is a threefold to fourfold increase in the risk of stroke in patients with AF. Early anticoagulation therapy reduces the risk of stroke but carries the risk of bleeding and cardiac tamponade.

The American College of Cardiology, the American Heart Association, and the European Society of Cardiology in collaboration with the North American Society of Pacing and Epidemiology developed and published a set of guidelines for the management of patients with AF in 2001. Limited attention was focused on postoperative AF.

The Agency for Healthcare Research and Quality...
also addressed AF in a review published in conjunction with the Johns Hopkins University Evidence-Based Practice Center. However, the specific management of AF in cardiac surgery patients was not addressed.

The risk factors for postoperative AF include the following: increased age; hypertension; rheumatic heart disease; increased intraoperative ischemic times; left ventricular hypertrophy; preoperative use of digoxin; peripheral vascular disease; and obstructive lung disease. There is also evidence of a genetic predisposition.

The main issues that arise in managing patients with postoperative AF include the following:

1. Control of ventricular response rate;
2. Prevention of thromboembolism and the role of anticoagulation;
3. Conversion to normal sinus rhythm; and
4. Prophylaxis.

Each of these topics is covered within separate chapters of this review.

While published guidelines have addressed the management of chronic AF, including the risk of stroke, the evidence for best practices in treating that subset of patients with AF associated with cardiac surgery has not been separately addressed. It was this gap in the literature that prompted the current evidence-based clinical practice guideline (CPG). The panel members for this evidence-based CPG were selected by the American College of Chest Physicians (ACCP), and include liaison representatives from the American College of Cardiology, the American College of Surgeons, the Society for Thoracic Surgeons, and the Society of Cardiovascular Anesthesiologists. To remove the potential for bias on the part of those reviewing evidence and making recommendations based on the evidence, the Health and Science Policy Committee incorporated several relevant specialists in each writing group, such as a cardiologist, cardiac surgeon, and an anesthesiologist. The Johns Hopkins University Evidence-Based Practice Center was selected to perform a comprehensive literature review and scoring assessment of the evidence.

The methodology for grading evidence and making recommendations was modified from the ACCP guidelines for antithrombotic therapy. The methodological approach is described in detail in the article by Fleisher et al in this supplement. The reporting design is new and was developed by the Health and Science Policy Committee of the ACCP as a unified format for future guideline publications.

There is strong evidence that CPGs can improve clinical outcomes. This guideline for the management of patients with postoperative AF is only a first step toward improving clinical outcomes for patients with this condition. The dissemination, implementation, and evaluation of changes in the behavior of health-care professionals as a result of guideline development is an essential prerequisite to improved patient care. The full implementation of this and other CPGs requires the recognition by physicians and institutions of the net benefit of evidence-based medicine. Physicians must be willing to modify their opinions and behavior when evidence indicates that to do so improves outcomes.

APPENDIX

ACCP Committee for Clinical Practice Guidelines on Atrial Fibrillation After Cardiac Surgery

Peter McKeown, MBBS, FCCP, Chair; John Alexander, MD, FCCP; Lawrence Cresswell, MD (Society of Thoracic Surgeons); Emile Daoud, MD; Andrew Epstein, MD; T. Bruce Ferguson, MD (American College of Surgeons); David Gutterman, MD, FCCP; Charles Hogue MD; Alan Lisbon, MD; Eric Prysztowski, MD (American College of Cardiology); David Schroeder, MD, FCCP; Marcus Wharton, MD; and Peter Zimetbaum, MD.

Johns Hopkins University Evidence-Based Practice Center Staff

Eric Bass, MD; David Bradley, MD; Lee Fleisher, MD (Society of Cardiovascular Anesthesiologists); Elizabeth Martinez, MD; William Maisel, MD; Lisa Lubomski; and Rachel Slacum.

REFERENCES

technology assessment; number 12. Rockville, MD: Agency for Healthcare Research and Quality, January 2001; AHRQ Publication No. 01-E026


Introduction*: American College of Chest Physicians Guidelines for the Prevention and Management of Postoperative Atrial Fibrillation After Cardiac Surgery
Peter Philip McKeown
*Chest 2005;128; 6S-8S
DOI 10.1378/chest.128.2_suppl.6S

This information is current as of August 3, 2011

Updated Information & Services
Updated Information and services can be found at:
http://chestjournal.chestpubs.org/content/128/2_suppl/6S.full.html

References
This article cites 11 articles, 4 of which can be accessed free at:
http://chestjournal.chestpubs.org/content/128/2_suppl/6S.full.html#ref-list-1

Permissions & Licensing
Information about reproducing this article in parts (figures, tables) or in its entirety can be found online at:
http://www.chestpubs.org/site/misc/reprints.xhtml

Reprints
Information about ordering reprints can be found online:
http://www.chestpubs.org/site/misc/reprints.xhtml

Citation Alerts
Receive free e-mail alerts when new articles cite this article. To sign up, select the "Services" link to the right of the online article.

Images in PowerPoint format
Figures that appear in CHEST articles can be downloaded for teaching purposes in PowerPoint slide format. See any online figure for directions.