Preventing and Treating Thromboembolism in the 21st Century

Supplement 1 to Volume 72, April 2005

Supplement Editor
Amir K. Jaffer, MD
Medical Director, IMPACT (Internal Medicine Preoperative Assessment Consultation and Treatment) Center and Anticoagulation Clinic, Section of Hospital Medicine, Cleveland Clinic Foundation

Associate Editor
Daniel J. Brotman, MD, FACP
Director, Hospital Medicine Fellowship, Cleveland Clinic Foundation

Associate Editor
Alpesh N. Amin, MD, MBA
Executive Director, Hospitalist Program, Medical Director, Anticoagulation Clinic, Vice Chair for Clinical Affairs, Department of Medicine, University of California, Irvine

Contents

A pharmacologic overview of current and emerging anticoagulants S2
Edith A. Nutescu, PharmD; Nancy L. Shapiro, PharmD; Aimee Chevalier, PharmD; and Alpesh N. Amin, MD, MBA

Prevention of venous thromboembolism in medical and surgical patients S7
Peter J. Kaboli, MD; Adam Brenner, BS; and Andrew S. Dunn, MD

Current and emerging options in the management of venous thromboembolism S14
Amir K. Jaffer, MD; Daniel J. Brotman, MD; and Franklin Michota, MD

Stroke prevention in atrial fibrillation: Current anticoagulation management and future directions S24
Benjamin T. Fitzgerald, MBBS; Steven L. Cohn, MD; and Allan L. Klein, MD

Heparin-induced thrombocytopenia: Principles for early recognition and management S31
John R. Bartholomew, MD; Susan M. Begelman, MD; and Amjad Almahameed, MD

Anticoagulation in special patient populations: Are special dosing considerations required? S37
Franklin Michota, MD, and Geno Merli, MD

Cost considerations surrounding current and future anticoagulant therapies S43
Margaret C. Fang, MD, MPH; Tracy Minichiello, MD; and Andrew D. Auerbach, MD, MPH

Acknowledgment
This supplement was supported by an educational grant from AstraZeneca Pharmaceuticals LP.

Venous and arterial thromboembolism are important causes of morbidity and mortality in the United States. Since the first randomized trial in 1960 establishing the life-saving role of heparin in patients with pulmonary embolism, the diagnosis and treatment of thromboembolism have undergone major advances. In particular, new parenteral anticoagulant therapies have revolutionized the care of patients with venous thromboembolism. Currently available agents include the low-molecular-weight heparins, the direct thrombin inhibitors, and a synthetic pentasaccharide. Other new anticoagulant classes are under development. In contrast, since their development 60 years ago, vitamin K antagonists have remained the only commercially available oral antithrombotic drugs in the United States.

Despite its unpredictable anticoagulant response, narrow therapeutic range, and many drug and food interactions, warfarin remains the most widely used vitamin K antagonist in North America. Late last year the US Food and Drug Administration unanimously rejected approval of an oral direct thrombin inhibitor, ximelagatran, because of concerns over hepatotoxicity. However, ximelagatran has demonstrated equivalent efficacy to conventional therapy in more than a dozen clinical trials among patients at risk for venous and arterial thromboembolism. Thus, there is good reason to continue the quest for a safe and convenient oral alternative to warfarin.

This supplement brings together experts in thromboembolism and anticoagulation to lay out this changing landscape through seven state-of-the-art, evidence-based reviews addressing common clinical problems. Our topics include the pharmacology of anticoagulants; advances in the prevention, diagnosis, and management of thromboembolism; heparin-induced thrombocytopenia; and anticoagulant dosing in patients who are obese, pregnant, or who suffer from renal impairment or cancer. We conclude by presenting economic considerations to help physicians choose among various anticoagulation strategies.

I am excited that this supplement is being distributed to nearly 100,000 physicians around the nation. I hope you find our efforts useful, and I encourge readers to e-mail me with feedback or questions.

Amir K. Jaffer, MD, Supplement Editor
jaffera@ccf.org

The statements and opinions expressed in this supplement to the *Cleveland Clinic Journal of Medicine* are those of the authors and not necessarily of The Cleveland Clinic Foundation, its Board of Trustees, or AstraZeneca Pharmaceuticals LP. They do not necessarily represent formal practice guidelines in effect at The Cleveland Clinic.

The *Cleveland Clinic Journal of Medicine* (ISSN 0891-1150) is published 12 times yearly by The Cleveland Clinic Foundation.

Subscription rates: U.S. and possessions: personal $103; institutional $129; single copy/back issue $18. Foreign: $129; single copy/back issue $18. Institutional (multiple-reader rate) applies to libraries, schools, hospitals, and federal, commercial, and private organizations. Individual subscriptions must be in the names of and paid by individuals.

Postmaster address changes: Cleveland Clinic Journal of Medicine, NA32, 9500 Euclid Avenue, Cleveland, OH 44195. Subscription orders, editorial, reprint, and production offices (same address): (216) 444-2661 (phone); (216) 444-9385 (fax); ccjm@ccf.org (e-mail); www.ccjm.org (Web). Printed in USA.