

Hospital Medicine

Evidence-Based Information for Hospitalists
Intensivists, and Acute Care Physicians [ALERT]

ABSTRACT & COMMENTARY

What is the Best Rate Control Agent for Patients with Sepsis and Atrial Fibrillation?

By Samuel Nadler, MD, PhD

Critical Care, Pulmonary Medicine, The Polyclinic Madison Center, Seattle; Clinical Instructor, University of Washington, Seattle

Dr. Nadler reports no financial relationships relevant to this field of study.

SYNOPSIS: Beta-blockers may be associated with better outcomes in patients with sepsis and atrial fibrillation.

SOURCE: Walkey AJ, et al. Practice patterns and outcomes for treatments for atrial fibrillation during sepsis: A propensity-matched cohort study. *Chest* 2016;149:74-83.

Both sepsis and atrial fibrillation (AF) are common conditions in the ICU, and the presence of both together is not a rare occurrence. Common approaches to the management of AF include rate control agents and cardioversion. However, in the context of sepsis, cardioversion is often unsuccessful, and rate control is the most appropriate goal. The choice of rate control agent can be complicated. Beta-blockers (BBs) and calcium channel blockers (CCBs) may cause hypotension in a patient already with shock due to sepsis. Amiodarone can be pro-arrhythmic and has many drug inter-

actions. Digoxin may be less effective in sepsis due to high catecholamine levels, and its use may be problematic with variable renal function.

This study evaluated the practice patterns of treating AF and sepsis and compared outcomes to better inform the choice of rate control agents. A cohort of 113,511 adult patients was identified from an advanced database of patients in non-federal hospitals in the United States admitted with sepsis with AF. Of these, 39,711 (35%) received a single intravenous therapy for AF. The most common prescription was for a

Financial Disclosure: *Hospital Medicine Alert's* physician editor, Kenneth P. Steinberg, MD, peer reviewer Rachael Safyan, MD, executive editor Russ Underwood, and associate managing editor Jill Drachenberg have no relevant financial relationship related to the material presented in this issue.

[INSIDE]

The Current Outlook for
Cardiac Tamponade

page 19

Prognostic Value of Coronary
Calcium on Standard Chest CT
Scans?

page 20

Use of CNMs and Hospitalists

page 21

Hospital Medicine Alert,
ISSN 1931-9037, is published monthly by
AHC Media, LLC
One Atlanta Plaza
950 East Paces Ferry NE, Suite 2850
Atlanta, GA 30326.
AHCMedia.com

GST Registration Number: R128870672.
Periodicals Postage Paid at Atlanta, GA 30304
and at additional mailing offices.

POSTMASTER: Send address changes to
Hospital Medicine Alert,
PO, Box 550669,
Atlanta, GA 30355.

Copyright © 2016 by AHC Media, LLC. All
rights reserved. No part of this newsletter may
be reproduced in any form or incorporated
into any information-retrieval system without
the written permission of the copyright owner.

This is an educational publication designed to
present scientific information and opinion to
health professionals, to stimulate thought, and
further investigation. It does not provide advice
regarding medical diagnosis or treatment for
any individual case. It is not intended for use
by the layman.

SUBSCRIBER INFORMATION
(800) 688-2421
Customer.Service@AHCMedia.com
AHCMedia.com

Questions & Comments:
Please call Jill Drachenberg
at (404) 262-5508 or email at
Jill.Drachenberg@AHCMedia.com
Subscription Prices
United States:
Print: 1 year with free *AMA PRA Category I
Credits*[™]: \$249
Add \$19.99 for shipping & handling.
Online only: 1 year (Single user) with free
AMA PRA Category I Credits[™]: \$199

MULTIPLE COPIES: Discounts are available
for group subscriptions, multiple copies, site-
licenses, or electronic distribution. For pricing
information, please contact our Group Account
Managers at Groups@AHCMedia.com or
(866) 213-0844.

Back issues: Missing issues will be fulfilled
by customer service free of charge when
contacted within one month of the missing
issue's date.

Canada: Add 7% GST and \$30 shipping.
Elsewhere: Add \$30 shipping.

ACCREDITATION
AHC Media is accredited by the Accreditation
Council for Continuing Medical Education
to provide continuing medical education for
physicians.

AHC Media designates this enduring material
for a maximum of 2.25 *AMA PRA Category
I Credits*[™]. Physicians should only claim
credit commensurate with the extent of their
participation in the activity.

This CME activity is intended for hospitalists,
intensivists, and acute care clinicians. It is in
effect for 36 months from the date of the
publication.

CCB (36%), followed by a BB (28%), digoxin (20%), and amiodarone (16%). Compared with BBs, CCBs were less likely to be prescribed in the Northeast, in teaching hospitals, and by surgeons. Digoxin was more likely to be prescribed in older patients and those with pre-existing comorbidities, such as heart failure, valvular heart disease, cirrhosis, cancer, chronic obstructive pulmonary disease, or shock. Patients with septic shock with new-onset AF, heart failure, cancer, or acute organ failure more commonly used amiodarone. Pulmonary and critical care physicians more likely prescribed it. Using propensity-score matching, relative rates of mortality were determined for each agent. Compared with all other agents, patients receiving BBs had the lowest mortality (relative risk [RR], 0.92; 95% confidence interval [CI], 0.86-0.97) vs CCB (RR, 0.79; 95% CI, 0.75-0.84) vs digoxin (RR, 0.65; 95% CI, 0.61-0.69) vs amiodarone.

■ COMMENTARY

This study's strength is its examination of a large cohort of patients in the United States admitted with sepsis complicated by AF. It uncovered significant variability in practice patterns that differ due to patient factors but also geographic location, teaching status, and physician specialty.

Compared with BBs, patients in the Midwest had a multivariate-adjusted RR of 2.8 (95% CI, 2.07-3.77) times more likely to receive amiodarone. Patients in the South had an increased RR of 1.96-fold (95% CI, 1.64-2.33) in terms of receiving CCBs. Surgeons were least likely to prescribe agents other than BBs (RR of 0.39 for CCBs, RR of 0.50 for digoxin, and RR of 0.68 for amiodarone), while cardiologists and pulmonary/critical care physicians were associated with increased amiodarone use (RR of 1.38 and 1.36, respectively).

Other patient-specific factors, including comorbidities, acute organ failure, mechanical ventilation, and site of infection, had associated RRs ranging from 0.72-1.45. Interestingly, no significant variability in prescrib-

ing patterns was attributable to race or age. About 10% of the variability was unexplained. Thus, there was no clear "standard of care."

More striking were the data regarding mortality and choice of rate control agent. However, closer examination of these findings raises questions. This study design used propensity matching to eliminate known confounding variables. Important variables will continue to confound this analysis. For example, surgeon prescriptions were associated with decreased likelihood of CCB, amiodarone, and digoxin use. Patients in surgical ICUs are quite different from those in cardiovascular units or medical ICUs.

[It uncovered significant variability in practice patterns that differ due to patient factors but also geographic location, teaching status, and physician specialty.]

While amiodarone use was associated with the worst outcomes, it was also used more in patients with acute respiratory failure (RR = 1.4), acute circulatory failure (RR = 1.37), acute renal failure (RR = 1.2), and acute liver failure (RR = 1.37). These patients clearly have a higher acuity and therefore have a higher likelihood of death, regardless of rate control agent choice. The authors appropriately cautioned that these findings should be considered "hypothesis-generating" and support the need for randomized, controlled trials.

This article reveals significant practice variations in the treatment of concomitant sepsis and AF, both due to patient and non-patient factors. No clear "gold standard" exists. Researchers must conduct further randomized, controlled trials to evaluate which rate control agents yield the best patient outcomes. ■

The Current Outlook for Cardiac Tamponade

By Michael Crawford, MD

Professor of Medicine, Chief of Clinical Cardiology, University of California, San Francisco

Dr. Crawford reports no financial relationships relevant to this field of study.

SYNOPSIS: In the modern era, cardiac tamponade is most commonly caused by malignancies with poor prognosis. As compared to older literature, iatrogenic causes have increased, most resulting from complications of percutaneous coronary intervention.

SOURCE: Sánchez-Enrique C, et al. Cause and long-term outcome of cardiac tamponade. *Am J Cardiol* 2016;117:664-669.

Little is known about the etiologies and prognosis of cardiac tamponade in the modern era. Thus, investigators from Madrid performed a retrospective observational study from 2003 to 2013 on 136 consecutive cases of cardiac tamponade. Patients with large pericardial effusions but no clinical signs of pericardial tamponade were not included. Pericardial fluid was evaluated. An exudative effusion was defined as a pericardial fluid protein to serum protein ratio of > 0.5 , or was highly cellular, or had a glucose < 60 mg/dL. The patients were classified into seven groups: infective, neoplastic, uremic, iatrogenic, myocardial infarction (MI), other causes, and idiopathic. Researchers followed all patients for at least 1 year. The median age was 65 years, and 55% were men. Pericardiocentesis was required in 81%. Most had a transudate or hemorrhagic fluid. A positive cytology occurred in 15% and bacteria in 4%. Malignancy was the most common cause (32%), followed by infection (24%), idiopathic (16%), iatrogenic (15%), post-MI (7%), uremic (4%), and other (2%). The most common malignancies were lung (55%) and breast (18%). In the iatrogenic group, percutaneous coronary interventions (PCI) were the most common. Cardiac tamponade recurred in 10%, and 48% died. Malignancy carried the highest probability of both events (hazard ratio, 5.47; 95% confidence interval, 3.27-9.61; $P < 0.001$). The authors concluded the most common cause of cardiac tamponade is malignancy, and it has the worst prognosis. With aggressive management, other causes have a much better prognosis, especially iatrogenic causes.

■ COMMENTARY

Pericardial tamponade is infrequent, and much of our knowledge about its causes and prognosis is based on older literature. Thus, this contemporary 10-year experience in a modern urban hospital is of interest. Older literature suggested idiopathic

was the most common diagnostic category, but now one-third of cases are due to malignancy. There are several possible reasons for this. Physicians may be better at diagnosing malignant effusions. Before, performing cytology on pericardial fluid was worthless; however, in this series it was positive in 46% of proven malignancy cases. Infection was common, whereas physicians once considered infective cardiac tamponade unusual. Surely the use of polymerase chain reaction and perhaps better culture techniques have increased the ability to diagnose infected fluid.

[Before, performing cytology on pericardial fluid was worthless; however, in this series it was positive in 46% of proven malignancy cases.]

However, the infective causes have changed. Tuberculosis is much less common, although not gone, and the viral causes are now likely to be cytomegalovirus and herpes, rather than coxsackie and echovirus. Although not in this series, other contemporary populations would have more HIV. Iatrogenic causes would have been unusual in the last century, but now share third place with idiopathic.

Interestingly, most of the iatrogenic cases were post-PCI, probably because more stents are deployed now than 10 years ago. Post-MI was next most frequent and it was most commonly free wall rupture. That seems unique to this series, as hospitals with ST elevation MI PCI teams on call rarely experience cardiac rupture. Finally, there were no cases of rheumatic diseases causing tamponade, which may be due to modern therapy with biologic agents. ■

ABSTRACT & COMMENTARY

Prognostic Value of Coronary Calcium on Standard Chest CT Scans

By *Michael H. Crawford, MD*

Professor of Medicine, Chief of Clinical Cardiology, University of California, San Francisco

Dr. Crawford reports no financial relationships relevant to this field of study.

SYNOPSIS: Coronary calcium scan on standard CT scans performed for other indications is of equivalent prognostic value to that seen on ECG-gated coronary studies and should be included in radiology test reports.

SOURCES: Hughes-Austin JM, et al. Relationship of coronary calcium on standard chest CT scans with mortality. *JACC Cardiovasc Imaging* 2016;9:152-159.

Hecht HS. "See No Evil." *JACC Cardiovasc Imaging* 2016;9:160-162.

Coronary artery calcium (CAC) scores performed on ECG-gated, 3 mm sliced CT scans are strong predictors of coronary artery disease (CAD), cardiac events, and mortality. Physicians perform standard 6 mm sliced chest CT scans much more often for a variety of reasons. A study by Hughes-Austin et al is a case-controlled analysis of patients who underwent both scan types between 2000 and 2003 and were followed for 8 years to assess whether CAC observed on a standard CT scan was as useful as that on a coronary-specific CT scan. Among 4544 community living subjects who underwent whole body CT scans, which included both types of chest CT imaging, 157 subjects who died were matched with 494 controls by sex and age. Subjects with known CAD were excluded. Researchers calculated a CAC score on all CT scans using the Agatston method. They read the 3 mm gated scans at the time of acquisition. Readers blinded to the 3 mm results later studied the 6 mm scans. The group collected clinical data as well, and the primary endpoint was all-cause mortality. The mean age of the 651 subjects was 68 years, and 63% were men. The mortality cases had higher median CAC scores on both scan types. The correlation between the two was excellent ($r = 0.93$), but the median Agatston score on the 6 mm scans was 22 vs 104 on the gated 3 mm scans. CAC scores adjusted for traditional CAD risk factors showed identical risk ratios (RR) for mortality on the two scan types (RR, 1.5). The authors concluded standard chest CT scans performed for other reasons can provide useful information on CAD risk.

■ COMMENTARY

It seems like a no brainer that radiologists reading standard chest CT scans should report on coronary calcium the way they do lung nodules and other incidentalomas. This knowledge would help clinicians with primary prevention decisions without having to

order other tests, some of which would add radiation exposure. However, scant available data suggest that clinicians report less than half of observed CAC and infrequently conduct formal scoring. Dr. Hecht plays the devil's advocate in an accompanying editorial, noting there is no evidence that reporting CAC on a standard CT scan results in better outcomes.

Also, it takes time, especially if a physician performs a formal CAC score, adding more time to an already-crowded schedule. Additionally, there are downstream effects of reporting. The ordering physician, who may have little understanding of the issues involved, has to deal with information that no one requested. This could start a test cascade that could lead to cardiac catheterization and an unnecessary percutaneous intervention. To prevent this, physicians may need education. As Dr. Hecht points out, this occurs in the radiology report for nodules, etc. and could be templated in the electronic medical record for coronary calcium.

[However, scant available data suggest that clinicians report less than half of observed CAC and infrequently conduct formal scoring.]

Standard CT scans are performed 8 times more frequently than coronary CT scans, and this is rising with the 2014 lung cancer screening guidelines. A semi-quantitative (mild, moderate, severe) coronary calcium reporting dictum would make a lot of sense and not cause excessive extra work. ■

Use of CNMs and Hospitalists

By John C. Hobbins, MD

Professor, Department of Obstetrics and Gynecology, University of Colorado School of Medicine, Aurora

Dr. Hobbins reports no financial relationships relevant to this field of study.

SYNOPSIS: A study assessing the effects of instituting a model of certified nurse midwife with MD laborist backup on a private patient population showed a decrease in cesarean section rate and an increase in vaginal birth after cesarean delivery rate without any change in combined neonatal outcome.

SOURCE: Rosenstein MG, et al. The association of expanded access to a collaborative midwifery and laborist model with Cesarean delivery rates. *Obstet Gynecol* 2015;126:716-723.

For many reasons, there has been a recent trend for labor management to be overseen in shift fashion by hospitalists (“laborists”), but little attention has been directed to the patient-related benefits and/or liabilities of these programs. To address these needs, Rosenstein et al launched a study to assess various clinical outcome measures before and after adopting a combined laborist/certified nurse midwife (CNM) program.

[Interestingly, in the private group, the CSR rose steadily at a rate of 0.6% prior to the program’s start but had an immediate drop of 6.9% over the first year, while continuing to drop at 2% per year thereafter.]

Marin County Hospital delivers care to a mixed pregnant population of public and private patients. Prior to 2011, the public patients insured under California’s Medi-Cal program, comprising about half of the patients, were cared for predominantly by CNMs, with backup by in-house “laborist” MDs employed by the hospital. The private patients were delivered by private practitioners, often taking calls from their offices or homes. In 2011, it became economically unfeasible to support the laborist/CNM type of coverage for the public patients only, so this type of coverage was expanded to include private patients wishing to use this practice model. Ten private physicians from community practices were hired part time to provide in-house shift coverage for the public and private patients in the new program. They functioned as backups to on-duty CNMs. Those not choosing this program were followed by the original private

practice model. The apparent win/win aspect of the new program was more convenient for the physicians and, interestingly, became progressively more appealing to the private patient population as demonstrated by the CNM/laborist private deliveries increasing from 21% initially to 42% three years later.

The authors focused on three dependent variables: cesarean section rate (CSR), rate of vaginal birth after cesarean (VBAC), and combined neonatal outcomes, and comparisons were made between public and private patients before and after the program launched.

Between April 2005 and March 2014, there were 13,194 births, and of those meeting study criteria, 3413 were delivered before 2011 and 1474 were delivered after this time. Half of the patients had private insurance (49%). In publicly funded patients, 80-90% of deliveries were by CNMs before and after the program began.

In the private nulliparous group, the CSR decreased from 31.7% to 25% with the new program (odds ratio, 0.56; 95% confidence interval, 0.39-0.81). In contrast, the public patient CSR remained essentially the same at 15.5-16.1% throughout the study period. Interestingly, in the private group, the CSR rose steadily at a rate of 0.6% prior to the program’s start but had an immediate drop of 6.9% over the first year, while continuing to drop at 2% per year thereafter. VBAC rates in privates increased from 13.3% to 22.4% ($P < 0.002$). VBACs in the publicly insured patients stayed about the same, but the slope showed a gradual downward trend before and through the program’s initiation (following a nationwide pattern). There were no significant differences in combined neonatal morbidity between groups before or after the program began.

■ COMMENTARY

This study indicated that moving from a typical private practice labor model of having physicians

from individual practices exclusively managing and delivering the patients in their practices to a combined CNM/laborist model resulted in lower CSRs and higher VBAC rates. The predominantly CNM-delivered public patients had consistently lower CSRs and higher VBAC rates than the private model, but there was little difference before and after the program began. The authors also noted that the new model was less expensive to maintain.

So the new system seemed to attain the goals set forth by the American College of Obstetricians and Gynecologists to reduce the CSR without adversely affecting neonatal outcomes, while costing less.

The “good old days” credo of following one’s patients in labor from start to finish, resorting to a handoff only when the doctor was too tired to function properly, is becoming a relic. Actually, this concept has been undergoing a fade out for many years, giving way to a model based on part-time employment, physician convenience, and, potentially, better patient safety. The CNMs provide the adjunctive components of competency and compassion.

The patients one might suspect to be the least satisfied are those possibly expecting to be managed throughout their pregnancies and delivered by the physician whom they had personally chosen to undertake their care. However, this has become an

unrealistic expectation, since for years the obstetrician often has been juggling many balls in the air, only one of which involves labor management. And the warm and fuzzy aspects of labor management that are touted on websites and call-waiting advertisements are often provided at least as well by CNMs.

[However, this has become an unrealistic expectation, since for years the obstetrician often has been juggling many balls in the air, only one of which involves labor management.]

So, although some of us old timers might lament the probable demise of the old model, it seems that patients don’t expect this type of continuity of care anyway. Nevertheless, it is hoped that while we are adapting to the various new pressures of practicing medicine in an era of complicated electronic medical records, imposed documentation, relentless regulations, malpractice worries, and the current “punch in and punch out” mentality, the compassion and warmth with which we have always tried to deliver care can be retained. ■

SHORT REPORT

Optimal Antiplatelet Therapy for Secondary Prevention of Ischemic Stroke

By *Matthew E. Fink, MD*

Louis and Gertrude Feil Professor in Clinical Neurology and Chairman, Department of Neurology, Weill Cornell Medical College; Neurologist-in-Chief, New York Presbyterian Hospital

Dr. Fink reports he is a consultant for Procter & Gamble and Pfizer.

SOURCE: Kim JT, et al. Different antiplatelet strategies in patients with new ischemic stroke while taking aspirin. *Stroke* 2016;47:128-134.

Patients presenting with acute ischemic stroke are often taking aspirin on a regular basis for prevention of cardiovascular disease. The optimal antiplatelet therapy for secondary prevention has been uncertain in this setting.

The authors of this study analyzed 1172 patients in a prospective, multicenter stroke registry database from 14 hospitals in South Korea, selecting patients with acute non-cardioembolic stroke, who were taking aspirin for prevention of cardiovascular disease at the time of onset of stroke.

These patients were then divided into three groups, 1) maintaining aspirin monotherapy (MA group = 212), 2) switching aspirin to another antiplatelet agent (SA group = 246), and 3) adding another antiplatelet agent to aspirin (AA group = 714).

The patients were then followed for 1 year, using a primary endpoint of a composite of all stroke, myocardial infarction, and vascular death. The results were analyzed in a Cox proportional hazards regression analysis. After 1 year of follow-up, compared to the aspirin only group, there was

a reduction in the composite vascular event rate compared to the SA group (hazard ratio [HR], 0.50; P = 0.03) and in the AA group (HR, 0.40; P < 0.001).

This study strongly suggests that compared with

maintaining patients on aspirin alone, switching to a different antiplatelet agent, or adding a second antiplatelet agent to aspirin may be better in preventing subsequent vascular events in patients who experienced a new ischemic stroke while taking aspirin. ■

STROKE ALERT

Intracerebral Hemorrhages Associated with Non-vitamin K Oral Anticoagulants Appear to Be Smaller than Those Associated with Warfarin

By *Matthew E. Fink, MD*

Louis and Gertrude Feil Professor in Clinical Neurology and Chairman, Department of Neurology, Weill Cornell Medical College; Neurologist-in-Chief, New York Presbyterian Hospital

Dr. Fink reports he is a consultant for Procter & Gamble and Pfizer.

SOURCE: Wilson D, et al. Volume and functional outcome of intracerebral hemorrhage according to oral anticoagulant type. *Neurology* 2016;86:360-366.

Intracerebral hemorrhage is the most dangerous complication of treatment with oral anticoagulants, and this complication carries a high mortality. Because of the increasing prevalence of atrial fibrillation in the elderly population, and the increasing use of oral anticoagulants, the overall prevalence of intracerebral hemorrhage is increasing.

In recent years, there has been a rapid transition of treatment from the use of warfarin to the non-vitamin K oral anticoagulants (NOAC – dabigatran, rivaroxaban, apixaban), and randomized trials comparing these agents with warfarin indicate a lower risk for intracerebral hemorrhage. However, it is not clear if the volume and severity of hemorrhages are different between these two classes of medications.

The investigators studied patients from a prospective registry in the United Kingdom of patients with anticoagulant-associated intracerebral hemorrhages, and compared the size and clinical consequences of hemorrhages associated with warfarin and the NOAC agents.

From a population of 344 anticoagulant-associated intracerebral hemorrhages, 11 were related to NOAC treatment and 52 were related to warfarin treatment. The median size of hematomas in the NOAC group was 2.4 mL, compared to 8.9

mL for the warfarin group. In a linear regression analysis, use of warfarin and lobar location of the hematoma predicted a larger hematoma size.

A multivariate linear regression to identify confounding variables, including sex, hypertension, previous ischemic stroke, and white matter disease, did not show any other significant variables. In addition, the warfarin-associated hemorrhage group had a worse clinical outcome.

[A multivariate linear regression to identify confounding variables, including sex, hypertension, previous ischemic stroke, and white matter disease, did not show any other significant variables.]

This is a small prospective observational study, but it does suggest that warfarin-associated intracerebral hemorrhages may be larger and have worse clinical outcomes than hemorrhages associated with the newer anticoagulant agents. ■

EXECUTIVE EDITOR
Russ Underwood

ASSOCIATE MANAGING
EDITOR
Jill Drachenberg

CONTINUING
EDUCATION AND
EDITORIAL DIRECTOR
Lee Landenberger

EDITOR
Kenneth Steinberg, MD
Professor of Medicine, Program
Director, Internal Medicine
Residency Program, University of
Washington

ASSOCIATE EDITOR
Jennifer A. Best, MD, FACP,
FHM
Associate Professor, University of
Washington School of Medicine
Seattle, WA

PEER REVIEWER
Rachael Safyan, MD
Clinical Fellow,
Columbia University Medical
Center,
New York, NY

CME INSTRUCTIONS

To earn credit for this activity, please follow these instructions:

1. Read and study the activity, using the provided references for further research.
2. Scan the QR code to the right, or log onto AHCMedia.com, then select "My Account" to take a post-test. *First-time users must register on the site.*
3. Pass the online tests with a score of 100%; you will be allowed to answer the questions as many times as needed to achieve a score of 100%.
4. After completing the test, a credit letter will be emailed to you instantly.
5. Twice yearly after the test, your browser will be directed to an activity evaluation form, which must be completed to receive your credit letter.



CME QUESTIONS

1. Based on the study by Sánchez-Enrique and colleagues, the most common cause of cardiac tamponade in the modern era is:

- A. Acute viral pericarditis
- B Chest trauma
- C Uremic pericarditis
- D. Malignancy

2. According to the case-controlled study by Hughes-Austin et al., how does assessment of coronary artery calcification compare between the use of standard chest CT scan and a dedicated coronary artery CT scan for predicting clinical outcomes?

- A. The dedicated coronary artery scan is a much better predictor of coronary artery disease, cardiac events, and mortality
- B. The routine chest CT scan is a much better predictor of coronary artery disease, cardiac events, and mortality
- C. The two modalities were similar in predicting coronary artery disease, cardiac events, and mortality
- D. Neither test is able to predict coronary artery disease, cardiac events, and mortality

3. The small, prospective, observational study by Wilson and colleagues identified which of the following outcomes in patients who had an intracerebral hemorrhage while on anticoagulation:

- A Patients on non-vitamin K oral anticoagulants (NOACs) had smaller hemorrhages
- B. Patients on warfarin had worse clinical outcomes
- C. Patients on non-vitamin K oral anticoagulants (NOACs) had larger hemorrhages
- D. A and B only

CME OBJECTIVES

Upon completion of this educational activity, participants should be able to:

- discuss pertinent safety, infection control and quality improvement practices;
- explain diagnosis and treatment of acute illness in the hospital setting; and;
- discuss current data on diagnostic and therapeutic modalities for common inpatient problems.

[IN FUTURE
ISSUES]

We Need Your Help!

The *Hospital Medicine Alert* editors are planning topics for 2016 issues and would like your feedback. Please help us by answering three questions at the following link: <https://www.surveymonkey.com/r/HMEDSPRING2016>. Thank you for your help!

To reproduce any part of this newsletter for promotional purposes, please contact:
Stephen Vance
Phone: (800) 688-2421, ext. 5511
Email: Stephen.Vance@AHCMedia.com

For pricing on group discounts, multiple copies, site-licenses, or electronic distribution please contact:
Tria Kreutzer
Phone: (800) 688-2421, ext. 5482
Email: Tria.Kreutzer@AHCMedia.com

To reproduce any part of AHC newsletters for educational purposes, please contact:
The Copyright Clearance Center for permission
Email: Info@Copyright.com
Phone: (978) 750-8400