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Hospital Medicine

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

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ABSTRACT & COMMENTARY

One Quarter of General Medicine Readmissions May Be Preventable

By Kenneth P. Steinberg, MD, FACP, Editor

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Dr. Steinberg reports no financial relationships in this field of study.

SOURCE: Auerbach AD, e al. Preventability and causes of readmissions in a national cohort of general medicine patients. *JAMA Intern Med* 2016; 176:484-493.

Notwithstanding many efforts over many years, it has been difficult to reduce the number and rate of hospital readmissions. The major concept behind the effort to reduce 30-day readmission rates is the impression that some readmissions are preventable and some are not preventable. If that were true, reducing or eliminating the preventable readmissions would be a win for both patient safety and cost reduction. However, little data exists on the actual number of preventable 30-day readmissions. To address this question, the authors conducted an observational study of 1,000 general medicine patients treated at 12 U.S. academic medical centers and readmitted within 30 days of discharge between April 1, 2012 and March 31, 2013.

Eligible patients were 18 years or older and spoke English as their primary language. Patients with scheduled readmissions were excluded. Within the eligible sample of patients, a random-digit generation schema was used to select 5 patients per week at each site. Data were collected from interviews with patients, from reviews of medical records, and surveys of patients' physicians. To determine whether readmissions might have been prevented, 2 physicians reviewed each case (patient and physician surveys, and medical record documentation). The case review process had 2 principal goals: to determine if the readmission was potentially preventable and to identify factors that contributed to the readmission regardless of preventability.

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Based on this process, the authors concluded that 26.9% of the 30-day readmissions were potentially preventable. Among those that were considered potentially preventable, 52.0% were believed to have been potentially preventable with efforts made during the original index hospitalization. After adjusting for confounding variables in multivariate models, the factors most strongly associated with preventable readmissions were ED decision making about readmission (adjusted odds ratio [aOR], 9.13; 95% CI, 5.23 to 15.95), failure to relay important information to outpatient clinicians (aOR, 4.19; 95% CI, 2.17 to 8.09), premature discharge from the index hospitalization (aOR, 3.88; 95% CI, 2.44 to 6.17), and lack of discussion of care goals among patients with serious illnesses (aOR, 3.84; 95% CI, 1.39 to 10.64). While those were the most strongly associated factors with readmission, the most common factors associated with readmission were ED decision making affected 9.0% of potentially preventable readmissions, followed by premature discharge (8.7%), inability to keep appointments after discharge (8.3%), and lack of awareness of whom to contact after discharge (6.2%). Patient reports of care processes and satisfaction were not associated with admission preventability. Also, while functional status has been found to be a risk factor for readmission, it was not associated with potential preventability.

■ COMMENTARY

This is an important study in helping hospitalists grapple with the difficult issue of hospital readmissions. Frequently, any non-scheduled readmission is viewed somehow as a failure or our care or of the system. But many times, readmissions are simply a marker of the fragility of many patients with advanced chronic illnesses. This study shines a light on the important distinction between readmissions that may be truly preventable and those that are not. The observation that a quarter of readmissions may be preventable and the identification of several factors strongly associated with preventable readmission allows us to focus our efforts on areas that might make the biggest difference. These high-priority areas for improvement include improved communication among healthcare teams and between healthcare professionals and patients, greater attention to patients' readiness for discharge, enhanced disease monitoring, and better support for patient self-management. One potentially provocative finding of the study was the role of ED physician decision-making in potentially preventable readmission. In other words, the researchers attributed many of the readmissions to a decision by the ED to readmit the patient when they might otherwise not have needed admission. They note that this is not a critique of ED clinicians but rather a limitation of the health system itself to coordinate care across multiple providers.

[Patient reports of care processes and satisfaction were not associated with admission preventability..]

It is important to recognize some of the limitations of the methodology used in this study. Because the data were obtained and reviewed after readmission, there is the possibility of attribution bias as well as hindsight bias. Attribution bias is the linkage of two events in the view of the researchers but that may not actually be causally linked. Hindsight bias applies to the scenario of second-guessing the admitting physician using data collected well after the admission. Thus, 26.9% may be the upper limit of potentially preventable readmissions.

Nevertheless, the number is a high one and hospitalists are on the front line in the effort to reduce unnecessary and potentially preventable readmissions, a laudable goal that benefits everyone. This study helps us understand the magnitude of the problem and identifies several important factors associated with potentially preventable readmissions to which we can now start to apply some creative solutions. ■

ABSTRACT & COMMENTARY

Postoperative Atrial Fibrillation Management — You Can't Go Wrong

By Cara Pellegrini, MD

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

SYNOPSIS: Rate control and rhythm control strategies for cardiac surgery patients with postoperative atrial fibrillation lead to similar hospital durations, similar complication rates, and similar very low rates of atrial fibrillation at 60-day follow-up.

SOURCE: Gillinov AM, Bagiella E, Moskowitz AJ, et al. Rate control versus rhythm control for atrial fibrillation after cardiac surgery. *N Eng J Med* 2016 [Epub ahead of print].

Atrial fibrillation (AF) is the most common complication after cardiac surgery, with an incidence of 20-50%. It is associated with prolonged hospitalizations, increased complications, and inflated costs. Evidence about how it should best be managed is inconclusive, and this has translated into major variations in practice patterns. Thus, the Cardiothoracic Surgical Trials Network, with funding from the NIH and Canadian Institutes of Health, conducted a randomized, controlled trial across 23 sites in the United States and Canada to examine the best initial treatment strategy.

Of the 2,109 patients who underwent cardiac surgery and had no previous history of AF, 695 developed AF and 523 were randomized to rate control, with a goal heart rate < 100 bpm vs. rhythm control with amiodarone, with or without a rate-slowing agent. If AF persisted for > 24-48 hours after randomization, electrical cardioversion was recommended. Anticoagulation was also recommended if AF persisted or was recurrent 48 hours after randomization. The primary outcome was total number of days in the hospital (ED visits included) in the first 60 days following randomization. Secondary outcomes included length of index hospitalization, readmissions, heart rhythm, time to conversion, and adverse events, with need for pacemaker and death noted specifically.

The study population was mostly white men in the their late 60s. One-third of subjects had a history of diabetes and only 13% had a history of heart failure. About 40% underwent isolated coronary artery bypass grafting (CABG), another 40% underwent isolated valve surgery (repair or replacement), with 20% enduring both procedures. The median number of hospital days was 5.1 in the rate-control group and five in the rhythm control group. There were no significant differences between groups in any hospitalization parameters or overall serious adverse events, including thromboembolic and bleeding events and death. Freedom from AF was similarly high in both groups: 84.2% (rate control) and 86.9% (rhythm control) of patients were free from AF from discharge to 60 days. Those in the rate-control arm had a slightly slower resolution of AF, and were significantly less likely to have been in a stable heart rhythm without AF from day 30 to day 60 than those in the rhythm-control arm (93.8% vs. 97.9%; $P = 0.02$). The authors concluded that there was no net clinical advantage to either approach; both strategies resulted in similar hospitalization durations, similar complication rates, and similar low rates of persistent AF at 60 days.

■ COMMENTARY

AF is quite common following cardiac surgery, with an incidence approaching 50% in those who underwent combined CABG and valve surgery (28% valve surgery alone and 34% CABG only). Happily, it is also generally transient and self-limited in those without a previous atrial arrhythmia history; regardless of treatment assignment, the vast majority of patients were no longer in AF at the end of the study. Even among those with AF at the time of hospital discharge (~8%), if AF had resolved by 30 days (as it did in about half of them), none were found to be in AF at 60-day follow-up. This is a different beast than generic new-onset AF.

The high crossover rate of about 25% in both directions is notable. Most patients in the rate-control arm switched to a rhythm-control strategy due to failure of rate control, and most patients in the rhythm-control arm discontinued amiodarone early due to adverse effects. This high rate of crossover, together with similar cardioversion rates (9.2% in the rate-control group and 13.8% in the rhythm-control group), as well as nearly identical rates of anticoagulation use at time of hospital discharge (42.7% in the rate-control arm and 43.3% in the rhythm control arm) and duration (44.8 and 44.9 days, respectively), may help explain the convergence of outcomes. The reason for similar anticoagulation rates despite a between-group differ-

ence in protocol-specified indication for anticoagulation initiation (46.2% in the rate-control group and 31.8% in the rhythm-control group met criteria) is not clear.

When this trial was far along in its enrollment, the American College of Cardiology, the American Heart Association, and the Heart Rhythm Society published joint guidelines for AF management. These guidelines recommended rate control with beta-blockers as the first-line therapy for patients with stable hemodynamics. This recommendation was based in part on extrapolation of the Atrial Fibrillation Follow-up Investigation of Rhythm Management (AFFIRM) trial, which found no benefit (and some harm) to rhythm control in elderly, non-surgical AF patients. The Gillinov et al study certainly doesn't refute that recommendation; there is no clear, marked advantage to the rhythm-control strategy. However, this study would suggest that there are tradeoffs to the different strategies — toxic effects and intolerances if given amiodarone and a slower resolution of AF and slightly higher AF prevalence during follow-up if not. The authors stated that the management decision ultimately should belong to the individual patient and provider. ■

ABSTRACT & COMMENTARY

Is Anticoagulant Bridging Needed in Patients with Atrial Fibrillation Going to Surgery?

By Harold L. Karpman, MD, FACC, FACP

Clinical Professor of Medicine, UCLA School of Medicine

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

SYNOPSIS: In patients with atrial fibrillation who had warfarin treatment interrupted for an elective operation or other elective invasive procedure, forgoing bridging anticoagulation was not inferior to perioperative bridging with low molecular weight heparin for the prevention of arterial thromboembolism and decreased the risk of major bleeding.

SOURCE: Douketis JD, et al. Perioperative bridging anticoagulation in patients with atrial fibrillation. *N Engl J Med* 2015;373:823-833.

For patients with atrial fibrillation who are receiving warfarin and require an elective operation or other elective invasive procedure, the need for bridging anticoagulation during perioperative interruption of warfarin therapy has long been uncertain.[1-3] Bridging anticoagulation is usually achieved using low-molecular-weight-heparin to minimize or eliminate the time that patients do not have an adequate level of anticoagulation with the intent of minimizing the risk of perioperative arterial thromboembolism.[4] Douketis et al conducted a trial known as the Bridging Anticoagulation in Patients who Require Temporary Interruption of Warfarin Therapy for an Elective Invasive Procedure or Surgery (BRIDGE) to determine whether heparin bridging was required during interruption of warfarin therapy before or after an elective operation or other invasive procedure.[5]

BRIDGE was a randomized, double-blind, placebo-controlled trial in which, after perioperative interruption of warfarin therapy, patients with atrial fibrillation were randomly assigned to receive either bridging anticoagulation therapy with low-molecular-weight-heparin or matching placebo administered subcutaneously twice daily from 3 days before the procedure until 24 hours before the procedure and then for 5-10 days after the procedure. The Duke Clinical Research Institute managed this study, which was conducted at 108 sites in the United States and Canada. The trial enrolled 1884 patients who had received warfarin therapy for ≥ 3 months and were undergoing an elective operation or other elective invasive procedure that required interruption of warfarin therapy. The results revealed that forgoing bridging anticoagulation was not inferior to perioperative bridging with low molecular weight heparin for the prevention of arterial thromboembolism and for decreasing the risk of major bleeding.

■ COMMENTARY

This important study determined that discontinuing warfarin treatment without the use of bridging anticoagulation was not inferior to the use of bridging anticoagulation for the prevention of arterial thromboembolism. Also, the risk of major bleeding nearly tripled in the bridging group compared to the no bridging group. There was less minor bleeding without bridging, and there were no significant differences between groups with regard to myocardial infarction, venous thromboembolism, or death. Analyzing all the data revealed there is a net clinical benefit in favor of the strategy of forgoing bridging as compared with perioperative bridging with low-molecular-weight-heparin. The findings were consistent with a published meta-analysis of observational studies comprised of 12,278 patients, which also revealed no significant difference in the rate of arterial thromboembolism but a higher

rate of major bleeding associated with bridging.[6]

There are major potential limitations in this very complex trial. First, the mean $CHAD_2S$ score was 2.3, which is similar to the score among patients with atrial fibrillation who were assessed in the most recent trials in patient registries that included only a few higher-risk patients with high $CHAD_2S$ scores of 5 or 6. Also, patients undergoing major surgical procedures often associated with high rates of arterial thromboembolism and/or bleeding, such as carotid endarterectomy, major cardiac surgery, cardiac surgery, or neurosurgery, were not represented in the trial since the procedures performed were more representative of the most common interventions patients undergo during an interruption of therapeutic anticoagulation, the majority of which are low-risk procedures such as colonoscopy or surgical procedures performed in an ambulatory environment. Finally, the results of this trial may have diminished relevance because of the decreasing use of warfarin in the treatment of patients with atrial fibrillation giving the availability and the increasing use of the newer oral anticoagulant drugs, which are now so widely used.[4]

It certainly appears patients receiving warfarin therapy for atrial fibrillation can safely forgo bridging with heparin therapy if they are undergoing low-risk procedures such as colonoscopy or simple surgery performed in an ambulatory environment. However, since patients undergoing major surgical procedures associated with high rates of arterial thromboembolism and bleeding, such as carotid endarterectomy, major cancer surgery, cardiac surgery, or neurosurgery, were not represented in this trial, one cannot conclude that anticoagulant bridging is unnecessary when these procedures are scheduled to be performed. ■

REFERENCES

1. Kearon C, et al. Management of anticoagulation before and after elective surgery. *N Engl J Med* 1997;336:1506-1511.
2. Piazza G, et al. Periprocedural management of the chronically anticoagulated patient: Critical pathways for bridging therapy. *Crit Pathw Cardiol* 2003;2:96-103.
3. Gallego P, et al. Bridging evidence-based practice and practice-based evidence in peri-procedural anticoagulation. *Circulation* 2012;126:1573-1576.
4. Baron TH, et al. Management of antithrombotic therapy in patients undergoing invasive procedures. *N Engl J Med* 2013;368:2113-2124.
5. Douketis JD, et al. Perioperative bridging anticoagulation in patients with atrial fibrillation. *N Engl J Med* 2015;373:823-833.
6. Siegel D, et al. Periprocedural heparin bridging in patients receiving vitamin K antagonist: Systematic review and meta-analysis of bleeding and thromboembolic rates. *Circulation* 2012;126:1630-1639.

STROKE ALERT

ICH May Clinically Mimic TIA

By Alan Z. Segal, MD

Associate Professor of Clinical Neurology, Weill Cornell Medical College

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

SYNOPSIS: In a large retrospective review of 2137 patients with intracerebral hemorrhage, 34 had transient symptoms that could have been misclassified as "transient ischemic attack" if brain imaging had not been performed.

SOURCE: Kumar S, et al. Transient neurological symptoms in patients with intracerebral hemorrhage. JAMA Neurol 2016; Jan. 4 [Epub ahead of print].

Transient ischemic attack (TIA) has classically been defined as having a 24-hour time limit. More recently, diffusion-weighted magnetic resonance imaging (MRI) has shown that many TIAs, much shorter in duration, show radiological evidence of permanent tissue damage. The ABCD2 score, which predicts stroke in association with TIA, identifies factors predictive of stroke such as motor or speech disturbance (as opposed to pure sensory) or longer symptom duration (> 1 hour).

In contrast to TIA, the diagnosis of intracerebral hemorrhage (ICH) is easily made on a non-contrast CT scan. This study sought to identify a subset of ICH patients for whom transient symptoms might imply a diagnosis of TIA, when imaging in fact reveals a hemorrhage. This is a retrospective analysis of hospital admissions carrying the diagnosis of ICH between 2000 and 2014 at the Beth Israel Hospital in Boston, under the direction of Dr. Louis Caplan, who has been studying ICH for decades. Out of 2137 patients with ICH, 34 had symptoms lasting less than 24 hours. There were 17 patients with sufficient data to include in the analysis.

Of these, symptom duration was < 30 minutes in the majority (n = 9) and > 12 hours in only one patient. NIH Stroke Scores were all ≤ 5. The majority of patients had small hemorrhages < 30 cc (many < 10 cc), with only two having hemorrhages > 30 cc (33 cc and 40 cc) and a mean hemorrhage volume of 17 cc.

Five patients took antiplatelet therapy at home, which was not thought to affect outcome. Hypertension was determined to be the etiology in eight patients, cerebral amyloid angiopathy in two patients, coagulopathy in two, and other causes in the remainder (cavernoma, Moya-Moya, or undetermined [n = 3]).

■ COMMENTARY

This study emphasizes the clinical spectrum of ICH, since these patients with small-volume ICH did not present with the classical clinical picture of headache, vomiting, and progressive neurological signs. As the authors noted, this study may greatly underestimate the actual occurrence of "TIA-like" ICH, since patients with minor, time-limited symptoms may not seek medical attention, may not be sent for immediate neuroimaging by healthcare providers, or may not even be imaged in the emergency department. A particularly vulnerable population might be patients with a history of multiple prior TIAs. These patients may not undergo repeated imaging and may already be treated with "definitive" antiplatelet therapy (such as a combination of aspirin and clopidrogrel).

Cerebral amyloid angiopathy (CAA) is associated with a "TIA-like" presentation, which is believed to result from micro-hemorrhages setting off a migraine-like cortical spreading depression. In this study, CAA was found minimally, but only 11 of these patients underwent MRI with gradient ECHO sequences. Most of the hemorrhages in this study, located in the basal ganglia and attributed to hypertension, were small and favorably located, causing neurological compromise that was fleeting and mild. In these hemorrhages, motor or sensory tracts may not be directly involved or may be "pushed aside" by a small amount of blood. Isolated seizures also may explain TIA-like symptoms in patients who are otherwise suffering from asymptomatic hemorrhages.

Similar to the ABCD2 score, ICH prognostication may be made using the "ICH score." However, among the patients studied here, the ICH score would be nearly zero. Few would have met the criteria of age > 80 or ICH volume > 30, and none would have met criteria of Glasgow Coma Scale < 13, intraventricular extension, or infratentorial location. As the authors noted, while TIA might be a harbinger of severe stroke to follow, these patients uniformly had an excellent prognosis. ■

ABSTRACT & COMMENTARY

Cardiovascular Events Associated with Masked Hypertension and White-coat Hypertension

By Harold L. Karpman, MD, FACC, FACP

Clinical Professor of Medicine, UCLA School of Medicine

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

SYNOPSIS: Analysis from the Dallas Heart Study consisting of 3027 adults revealed that both white-coat hypertension and masked hypertension were independently associated with increased cardiovascular events, and, therefore, home blood pressure monitoring is recommended for U.S. adults, whether symptomatic or asymptomatic.

SOURCE: Tientcheu D, et al. Target organ complications and cardiovascular events associated with masked hypertension and white-coat hypertension. Analysis from the Dallas heart study. *J Am Coll Cardiol* 2015;66:2160-2169.

Since blood pressure (BP) readings are affected by so many factors (i.e., anxiety, body position, activities, etc.), it has been widely recognized that the office BP may not accurately reflect BPs obtained in the out of office environment.[1-3] The pattern of discordance between home and office BP readings can be divided into two major categories: white-coat hypertension (WCH), which is defined as an elevated office BP reading with normal ambulatory or home BP, or masked hypertension (MH), which is an elevated ambulatory or home BP associated with a normal office BP.[4] The cardiovascular (CV) prognosis of WCH has been controversial, even though some published studies have revealed increased target organ damage and CV complications in patients with WCH.[5-7] Other studies have revealed no significant anatomical or prognostic differences when patients with WCH were compared with a normotensive population.[8,9] Because of the published uncertainties regarding the

clinical and anatomical effects of MH and WCH, Tientcheu et al evaluated the extent of target organ complications and CV prognosis associated with MH and WCH in 3027 participants of the Dallas Heart Study who were followed for 9 years.[10] The Dallas Heart Study is a multiethnic, probability-based population sample of Dallas County adult residents. The study began in the year 2000 and, when evaluated, its population consisted of 54% African-Americans and 49% women, with a median age of 43 years. The same automatic oscillometric BP device was used during the in-home visits and in the office. The average of the third to the fifth BP values measured at home was recorded and used as the encounter BP both in the office and at home. Participants with WCH (3.3% of the sample) and MH (17.8% of the sample) were found to have an increased aortic pulsed wave velocity, cystatin C, and urinary albumin-to-creatinine ratio, and they were independently associated with higher CV events when compared with a normotensive group, even after adjusting for traditional CV risk factors.

■ COMMENTARY

One of the striking observations noted in this study was the significant frequency of MH occurring in 17.8% of participants overall and in 14% of those not receiving antihypertensive therapy. Whereas WCH, which occurred in 3% of the group, has been proposed to be secondary to stress-induced activation of the sympathetic nervous system during encounters with healthcare providers,[11] MH is potentially induced by mental stress at home, excessive consumption of alcohol or caffeine and/or cigarette smoking, although many other lifestyle factors may contribute to the frequency of MH.[12] The important findings demonstrating increased CV risk occurring in patients with both MH and WCH independent of CV risk factors and antihypertensive drug therapy confirms the findings of many previously published studies: Hypertension should be controlled with drug therapy, not only in the office but also in the outpatient environment. Patients must learn to properly monitor their BP at home and partner with their physician to obtain appropriate and adequate antihypertensive drug therapy and counseling as required.

In summary, clinicians should be aware that office BP readings do not provide a complete picture of a patient's BP profile because MH is so common and associated with adverse cardiovascular findings. Obviously, more research is needed in this important area. For now, consider performing home BP monitoring routinely for all adults to uncover MH patients who may require drug therapy to prevent long-term CV damage. ■

REFERENCES

1. Aronow WS, et al. ACCF/AHA 2011 expert consensus document on hypertension in the elderly: A report of the American College of Cardiology Foundation Task Force on Clinical Expert Consensus documents developed in collaboration with the American Academy of Neurology, American Geriatrics Society, American Society for Preventive Cardiology, American Society of Hypertension, American Society of Nephrology, Association of Black Cardiologists, and European Society of Hypertension. *J Am Coll Cardiol* 2011;57:2037-2114.
2. National Clinical Guideline Centre (UK). Hypertension: The Clinical Management of Primary Hypertension in Adults: Update of Clinical Guidelines 18 and 34. London, UK: Royal College of Physicians, 2011.
3. Parati G, et al. European Society of Hypertension practice guidelines for home blood pressure monitoring. *J Hum Hypertens* 2010;24:779-785.
4. Pickering TG, et al. Recommendations for blood pressure measurement in humans and experimental animals: Part one: Blood pressure measurements in humans: A statement for professionals from the Subcommittee of Professional and Public Education of the American Heart Association Council on High Blood Pressure Research. *Hypertension* 2005;45:142-161.
5. Stergiou GS, et al. Prognosis of white-coat and masked hypertension: International database of home blood Pressure in relation to cardiovascular outcomes. *Hypertension* 2014;63:675-682.
6. Franklin SS, et al. Significance of white-coat hypertension in older persons with isolated systolic hypertension: A meta-analysis using the International Database on Ambulatory Blood Pressure Monitoring in Relation to Cardiovascular Outcomes population. *Hypertension* 2012;59:564-571.
7. Mancia C, et al. Long-term prognostic value of white-coat hypertension: An insight from diagnostic use of both ambulatory and home blood pressure measurements. *Hypertension* 2013;62:168-174.
8. Björklund K, et al. Different metabolic predictors of white-coat and sustained hypertension over a 20 year follow-up.: A population-based study of elderly men. *Circulation* 2002;106:63-68.
9. Pierdomenico SD, Cuccurullo F. Prognostic value of white-coat and masked hypertension diagnosed by ambulatory monitoring in initially untreated subjects: An updated meta-analysis. *Am J Hypertens* 2011;24:52-58.
10. Tientcheu D, et al. Target organ complications and cardiovascular events associated with masked hypertension and white-coat hypertension. Analysis from the Dallas heart study. *J Am Coll Cardiol* 2015;66:2160-2169.
11. Grassi G, et al. Muscle and skin sympathetic nerve traffic during physician and nurse blood pressure measurement. *J Hypertens* 2013;31:1131-1135.
12. Franklin SS, et al. Masked hypertension: A phenomenon of measurement. *Hypertension* 2015;65:16-20.

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CME QUESTIONS

1. The study by Auerbach and colleagues identified which of the following factors as strongly associated with potentially preventable readmissions:

A. ED decision making about readmission

B. Failure to relay important information to outpatient clinicians

C. Premature discharge from the index hospitalization

D. Lack of discussion of care goals among patients with serious illnesses

E. All of the above

2. The Gillinov study of rate versus rhythm control in patients with atrial fibrillation after cardiac surgery demonstrated:

A. Similar and low rates of atrial fibrillation after 60 days regardless of strategy

B. The rhythm control group had a decreased length of hospital stay

C. The rhythm control group had a higher rate of thromboembolic events

D. The rate control group had a higher mortality

E. The rate control group had a higher rate of adverse cardiac events

3. In the BRIDGE trial by Douketis and colleagues of patients with atrial fibrillation who had warfarin discontinued in the perioperative period, bridging with low-molecular weight heparin was associated with:

A. Higher rates of major bleeding

B. Lower rates of thromboembolic events

C. Lower rates of myocardial infarction

D. Lower mortality

E. All of the above

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]

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