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INSIDE

Rapid Diagnostic Testing for Malaria — It's Finally Here!

SPECIAL REPORT

By Stan Deresinski, MD

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Dr. Deresinski serves on the speaker's bureau for Merck, Pharmacia, GlaxoSmithKline, Pfizer, Bayer, and Wyeth, and does research for Merck. This article originally appeared in the September 2007 issue of Infectious Disease Alert. *It was peer reviewed by Connie Price, MD. Dr. Price is Assistant Professor, University of Colorado School of Medicine. She reports no financial relationship relevant to this field of study.*

Synopsis: *The BinaxNOW® Malaria test, a 15-minute immunochromatographic test with a high sensitivity for the diagnosis of malaria due to* Plasmodium falciparum *has been approved for use in the FDA.*

Source: CDC. Notice to readers: Malaria rapid diagnostic test. *MMWR.* 2007;56(27):686.

THE DIAGNOSIS AND TREATMENT OF SEVERE FORMS OF MALARIA IS an emergent matter. However, the microscopic diagnosis of malaria requires skill and experience and the availability of capable personnel at all hours of the day and night is becoming increasingly problematic in US hospitals. A number of effective rapid diagnostic tests (RDT) not requiring the skill of the microscopist have been available in many places of the world, but not in the United States, for several years. As a result, despite the need for immediate examination of thick and thin blood smears, in some facilities the smears are saved until a qualified individual is available to examine them, or they are sent to outside laboratories. This approach, as well as misdiagnosis, may lead to fatal delays in initiation of therapy for severe malaria due to *Plasmodium falciparum*.

However, on June 13, 2007, the FDA approved the first malaria RDT authorized for use by laboratories in the United States, the BinaxNOW® Malaria test (Inverness Medical Professional Diagnostics, Scarborough, Maine). This immunochromatographic test uses whole blood and takes approximately 15 minutes to complete. It targets 2 antigens, one specific to *P. falciparum* (histidine-rich protein 2 or HRP2) and one found in

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all 4 human plasmodial parasites (an aldolase).[1] Thus, while it specifically identifies *P. falciparum*, it cannot distinguish among the other species. It is recommended that laboratories using BinaxNOW should have available to them blood containing *P. falciparum* to serve as a positive control.

Because of their infrequency in trials evaluating the test, available data are inadequate to confidently assess the ability of BinaxNOW to detect cases of infection with either *Plasmodium ovale* or *Plasmodium malariae*. Furthermore, it is unable to detect the presence of a second malarial species in patients with mixed infection that include *P. falciparum*. Finally, it may miss cases of infection with low-level parasitemia. For these reasons, microscopy should be performed in conjunction with the RDT. In cases of a positive RDT test, microscopy allows for confirmation of infection, speciation of non-falciparum parasites, and detection of mixed infection, as well as determination of parasite density. Microscopy may also be considered in patients with a negative test but with a high pre-test probability of infection. This may be especially useful if infection with *P. ovale* or *P. malariae* is suspected. Finally, serial microscopy must be used to determine changes in the degree of parasitemia in response to therapy.

The sensitivity and specificity of the test in the diagnosis of *P. falciparum* infection in Thailand in a cohort with a prevalence of malaria by microscopy was 13% were 100% and 96.2%, respectively.[2] The sensitivity for diagnosis of *P. vivax* infection was 87.3%, and the specificity for non-falciparum infections was 100%. In a study in returned travelers in an area not endemic for malaria, the sensitivity and specificity relative to microscopic diagnosis were 98.8% and 98.4%, respectively.[3] In another study in returned travelers in which it was compared to diagnosis by PCR, the BinaxNOW test had a sensitivity of 94%-96% in the diagnosis of *P. falciparum* infection and 84% for non-falciparum infections.[4] The overall specificity was 99%. False negatives have been associated with low levels of parasitemia and false positives may occur in the presence of rheumatoid factor. ■

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Oral Antibiotics for Pyelonephritis in Children

ABSTRACT & COMMENTARY

By Hal B. Jenson, MD, FAAP

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Dr. Jenson is on the speaker's bureau for Merck.

This article originally appeared in the September 2007 issue of Infectious Disease Alert. *It was edited by Stan Deresinski, MD, and peer reviewed by Connie Price, MD.*

Synopsis: *Treatment of the first episode of pyelonephritis in children with oral antibiotics alone for 10 days is not inferior to parenteral therapy for 3 days followed by oral therapy for 7 days.*

Source: Montini G, et al. Antibiotic treatment for pyelonephritis in children: Multicentre randomised controlled non-inferiority trial. *BMJ*. 2007 July 4 [Epub ahead of print].

A MULTICENTER, NON-INFERIORITY, OPEN-LABELED, RANdomized, controlled trial of oral amoxicillin-clavu-

lanate (50 mg/kg/day divided 3 times a day for 10 days) compared to initial parenteral treatment with ceftriaxone (50 mg/kg/day as a single daily dose for 3 days) followed by oral amoxicillin-clavulanate (for 7 days) for children < 6 years of age with acute pyelonephritis and no anatomic urogenital tract abnormalities was conducted from 2000 to 2004 among 502 children one month to 7 years of age in 28 primary care practices in northern Italy. *Escherichia coli* was the pathogen in 436/462 (94.4%) of urine cultures. Antimicrobial resistance was 25/407 (6%) to amoxicillin-clavulanate and 3/343 (< 1%) to ceftriaxone. Ultrasonography and DMSA scintigraphy were planned no later than 10 days after initiation of antibiotic treatment.

The primary outcome measurement was renal scarring at 12 months, which was similar for both oral treatment only (27/197 [13.7%]) vs initial parenteral treatment (36/203 [17.7%]), risk difference -4% (95% CI, 11.1% to 3.1%). Renal scarring was also similar among the 278 children with pyelonephritis that was confirmed by DMSA scintigraphy (26/96 [27.8%] vs 33/100 [33%]). There were no significant differences between the 2 groups for secondary outcomes of: time to defervescence (36.9 hours [SD 19.7 hours] vs 34.3 hours [SD 20 hours], mean difference 2.6 hours [0.9 to 6.0 hours]); white cell count (9.8x109/L [SD 3.5 x109/L] vs 9.5x109/L [SD 3.1x109/L], mean difference 0.3x109/L [0.3 to 0.9x109/L]); and sterile urine after 3 days (185/186 vs 203/204, risk difference 0.05% [95% CI, 1.5% to 1.4%]). One patient in each group had a positive urine culture after 3 days; each had *E. coli* cultured initially and *Pseudomonas aeruginosa* cultured on the second urine sample. The duration of hospitalization was similar in both groups (5.17 days vs 5.05 days); by study design all children were hospitalized for a minimum of 3 days.

COMMENTARY

Acute pyelonephritis in young children is a serious concern because of the risk for sepsis, and especially the risk of sequelae of renal scarring, which is thought to be partially preventable by prompt, adequate treatment of acute infections. The recommendations for initial treatment of uncomplicated first urinary tract infections include broad guidelines that permit both parenteral and oral regimens, according to the judgment of the physician. Pediatricians have traditionally considered pyelonephritis, or upper tract infection, as more serious and requiring initial parenteral therapy, while oral therapy is considered sufficient for cystitis, or lower tract disease. However, there are no reliable, routinely available methods to clinically distinguish between upper and lower tract infections, and pediatricians frequently presume the presence of upper tract disease and initiate parenteral therapy.

Numerous studies of various parenteral antibiotic regimens have shown effectiveness for treatment of urinary tract infections in children. Only one previous study, among children < 2 years of age, compared exclusive oral treatment with initial parenteral antibiotics, and showed no difference in renal scarring (9.8% of children treated orally vs 7.2% of children treated intravenously; mean extent of scarring of approximately 8% in both groups) between the 2 groups at 6 months. This new study shows that the first urinary tract infection in children < 6 years of age without urogenital tract abnormalities may be effectively treated with an exclusive regimen of oral amoxicillin-clavulanate for 10 days. This has the obvious advantages of ease of administration and also, as outpatient therapy, the potential to reduce healthcare costs without adversely affecting outcome. Adherence to an oral antibiotic regimen at home is critical. ■

SSRIs and Fractures

ABSTRACT & COMMENTARY

By Leon Speroff, MD

Professor of Obstetrics and Gynecology, Oregon Health and Science University, Portland

Dr. Speroff reports no financial relationship relevant to this field of study.

This article originally appeared in the September 2007 issue of OB/GYN Alert. *It was peer reviewed by Catherine LeClair, MD. Dr. LeClair is Assistant Professor, Obstetrics and Gynecology, Oregon Health and Sciences University, Portland. She reports no financial relationship relevant to this field of study.*

Synopsis: *Daily use of SSRIs is associated with a 2-fold increase in the risk of fractures.*

Source: Richards JB, et al. Effect of selective serotonin reuptake inhibitors on the risk of fracture. *Arch Intern Med*. 2007;167:188-194.

RICHARDS AND COLLEAGUES REPRESENTING THE Canadian Multicentre Osteoporosis Study Research Group reported the effect of daily selective serotonin reuptake inhibitors (SSRIs) use in a prospective cohort study in 7 regional centers of 5008 adults over the age of 50.[1] In this large group, 137 (2.7%) were daily SSRI users, 609 (12.2%) reported clinical depression, and 114 (83.2%) of the users were female. After adjusting for age, hip bone density, fractures at baseline, and estrogen use in women, daily SSRI use

was associated with an increased risk of fragility fractures; hazard ratio = 2.1 (1.3-3.4). Daily use of SSRIs was associated with about a 2-fold increased risk of falling, and these individuals had lower bone densities. Controlling for falls and lower bone density still left an increased risk of fractures in SSRI users, which began after 1 to 1.5 years of use.

COMMENTARY

SSRIs are the favored treatment for depression in older adults, a problem that affects about 10% of the older population. Several earlier studies had reported an increased risk of fractures with the daily use of SSRIs; however, these earlier studies were unable to control for the various factors that influence this risk, especially falls, depression, and bone density. The current study indicates that the increase in fractures persisted after controlling for these factors.

Does this side effect of SSRIs make sense? Is it the SSRI or the lifestyle associated with clinical depression? Unfortunately, it appears that there is a direct effect of SSRIs on bone. Components of the neural system are involved in bone metabolism. Serotonin receptors and serotonin transport have been identified in osteoblasts and osteocytes. The bone effects of parathyroid hormone and mechanical stimulation are modulated by the serotonin system. Mice with a mutation for the serotonin transporter develop less bone mass and strength.[2] Therefore, daily SSRI use can impair bone formation, tilting the balance in favor of resorption and bone loss, and decreased bone densities have been reported in both male and female SSRI users (but not in users of tricyclic antidepressants).[3,4]

It is not always easy to know which came first, depression, or fractures leading to subsequent depression. It has been reported that depressed people and SSRI users have a greater incidence of falls,[5] and thus it is not unreasonable to consider that depression comes first in some people. However, orthostatic hypotension and syncope are more common in SSRI users, and this could also contribute to the greater prevalence of falls.

Depressed people are sedentary and eat poorly, factors that favor bone loss. Some have speculated that increased cortisol levels associated with depression might lead to bone loss, similar to that observed with the pharmacologic administration of corticoid-steroids. On the other hand, American studies, despite finding a link between depression and fractures, failed to detect an increase in depression associated with lower bone density measurements.[5,6] However, other studies have reported increases in depression associated with lower bone densities.[7-9]

Where does that leave us? Should consideration be given first to estrogen therapy prior to using SSRIs to treat depression? In the Canadian study, an increased risk of fracture was present in those women who had a history of estrogen treatment. But would concomitant estrogen therapy both alleviate the depression and reduce the risk of falling? Should users of SSRIs be treated with an antiresorptive agent, estrogen, or a bisphosphonate? Note that the increase in fractures in the Canadian study was observed even when the data were corrected for bone density. This would suggest that SSRIs affect bone quality, not just bone density, an impact that might not be prevented with either estrogen or bisphosphonate treatment. Another important issue is whether this same problem will be encountered in younger women who have had breast cancer and are being treated with SSRIs for hot flushing.

Obviously this is a muddled picture. Considerable publicity has successfully raised clinical consciousness regarding the increased risk fractures associated with the use of corticoidsteroids. The overall risk is about the same as that reported with SSRIs, although osteoporotic and hip fractures are higher.[10] It is time that we are more aware of the increased risk of fractures with the daily use of SSRIs. Interventions that reduce the odds of falling and enhance the ability to withstand the impact of a fall are important. This includes patient education regarding hazards in the home, monitoring drug use, adequate nutrition, and a good exercise program. Aggressive monitoring of bone density is warranted; adequate calcium and vitamin D supplementation are necessary, and until more studies clarify this problem, it seems reasonable to consider treatment with one of the antiresorptive agents. ■

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Bone Loss in the Elderly Associated with SSRIs

ABSTRACT & COMMENTARY

By Mary Elina Ferris, MD

Clinical Associate Professor, University of Southern California

Dr. Ferris reports no financial relationship to this field of study.

This article appeared in the August 29, 2007 issue of Internal Medicine Alert. *It was edited by Stephen Brunton, MD, and peer reviewed by Gerald Roberts, MD. Dr. Brunton is Clinical Professor, University of California, Irvine, and Dr. Roberts is Clinical Professor of Medicine, Albert Einstein College of Medicine. Dr. Brunton is a consultant for Sanofi-Aventis, Ortho-McNeil, McNeil, Abbott, Novo Nordisk, Eli Lilly, Endo, EXACT Sciences, and AstraZeneca, and serves on the speaker's bureau for McNeil, Sanofi-Aventis, and Ortho McNeil. Dr. Roberts reports no financial relationship relevant to this field of study.*

Synopsis: *Older women taking SSRIs had higher rates of hip bone loss compared to both nonusers and TCA users, when measured twice over an average of 5 years.*

Source: Diem SJ, et al. Use of antidepressants and rates of hip bone loss in older women: the study of osteoporotic fractures. *Arch Intern Med*. 2007;167:1240-1245.

Women older than age 65 were recruited from multiple sites for the Study of Osteoporotic Fractures, initially excluding women with bilateral hip replacements, inability to walk without help, and African-Americans due to their low incidence of hip fracture. Use of selective serotonin reuptake inhibitors (SSRIs) was compared to tricyclic antidepressants (TCA) and nonuse of any antidepressant. Women were followed over 8 clinical visits between 1986 through 2004, with assessments of multiple factors, including activities of daily living, medication use, and depression inventories; bone mineral density (BMD) was measured at visits 6 and 8, with an average interval of 5 years between them.

The final cohort included 2,722 women from an initial recruitment of 9,704. This included a later addition of 12% African-American women. An average yearly age-adjusted bone loss of -0.77% at the hip was found in SSRI users, who comprised 8% of the total, contrasted with -0.49% in nonusers. Results were not significantly changed by adjustments for multiple confounding factors, including exclusion of the most severely depressed who scored higher on the depression inventory. Results also were consistent for both partial and continuous SSRI users.

Bone density loss at the femoral neck, trochanter and total hip per year was at least 1.6 times higher among SSRI users than nonusers. No difference in loss was seen between nonusers and TCA users.

COMMENTARY

Although there are many factors that contribute to bone loss in elderly women, the suspicion that SSRIs may further accelerate loss is based on laboratory observations in mice that these drugs cause reduced bone formation. Osteoblasts, osteoclasts, and osteocytes have receptors for serotonin and serotonin transporter systems, so inhibition with SSRIs is conceivable. However, previous observational studies in humans have presented conflicting results, and often did not separately analyze SSRI use from other antidepressants.

This study, along with an accompanying article showing the same results in a different cross-sectional study of elderly men,[1] suggests that use of SSRIs is associated with increased loss of bone density in the hip. In elderly men, the decline was even more striking, with 3.9% less density at the hip and 5.6% less at the spine, compared to both TCA and nonusers. Obviously, many depressed persons also have other variables that contribute to bone loss, such as inactivity, lack of sun exposure, and poor diet. These studies attempt to control for those variables, especially when comparisons with other anti-depressant usage supports the same findings.

Neither of these studies correlated the dosing of the medications with rate of bone loss, and they note that

TCA users may include a more diverse group that uses lower doses for medical indications other than depression. Nonetheless, given the accumulating evidence that SSRIs may adversely affect bone loss in vulnerable elderly populations, it would be prudent to consider BMD measurements in long-term SSRI users who may be at risk for developing osteoporosis, such as postmenopausal women, heavy smokers, and those with prior fractures or low body mass index.[2] ■

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Nurse Staffing Influences Infection Rates in Elderly

ABSTRACT & COMMENTARY

By Leslie A. Hoffman, PhD, RN

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Dr. Hoffman reports no financial relationship to this field of study.

This article originally appeared in the September 2007 issue of Critical Care Alert. *It was edited by David J. Pierson, MD, and peer reviewed by William Thompson, MD. Dr. Pierson is Professor, Pulmonary and Critical Care Medicine, Harborview Medical Center, University of Washington, and Dr. Thompson is Staff Pulmonologist, VA Medical Center; Associate Professor of Medicine, University of Washington. Dr. Drs. Pierson and Thompson report no financial relationships relevant to this field of study.*

Synopsis: *In this study of 51 adult ICUs, units with higher nurse staffing had a lower incidence of central line-associated bloodstream infections, ventilator-associated pneumonia, and decubiti.*

Source: Stone PW, et al. Nurse working conditions and patient safety outcomes. *Med Care.* 2007;45:571-578.

THE SAMPLE FOR THIS STUDY COMPRISED 15,846 patients admitted to 51 adult ICUs in 31 hospitals participating in the Centers for Disease Control and Prevention's Nosocomial Infection Surveillance system. All Medicare patients in these institutions who experienced central line-associated bloodstream infections, ventilator-associated pneumonia (VAP), and catheter-associated urinary tract infections were identified using standard protocols. Medicare files and discharge codes were used to identify 30-day mortality and decubiti. Nurse staffing, overtime, and wages were determined using administrative databases. In addition, ICU nurses were surveyed using the Perceptions of Nurse Work Environment scale. A total of 1095 RNs responded, for an average response rate of 60% (range 44% to 100% per ICU).

Patients admitted to an ICU with more RN hours per patient day had a significantly lower incidence of central line-associated bloodstream infections, VAP, 30-day mortality, and decubiti ($P < 05$). Patients admitted to ICUs in which the nurses perceived a more positive organizational climate had a slightly higher odds of developing a central line-associated bloodstream infection (adjusted OR 1.19; 95% CI, 1.05-1.36), but were 39% less likely to develop a catheter-related urinary tract infection (adjusted OR 0.61; 95% CI, 0.44-0.83). When nurses worked less overtime, patients experienced fewer central line-associated bloodstream infections (adjusted OR 0.33; 95% CI, 0.15-0.72). Conversely, when nurses worked more overtime, patients had increased odds of acquiring catheter-associated urinary tract infection ($P < .0001$) and higher rates of decubiti (adjusted OR 1.91; 95% CI, 1.17-3.11). Nurses' wages were not associated with any of the patient safety outcomes. Also, magnet accreditation was not related to any of the patient safety outcomes measured.

■ COMMENTARY

This study adds to the mounting body of evidence that supports an association between adverse patient safety outcomes and insufficient RN staffing. In this study, 3 of 4 patient safety indicators examined, eg, central line- associated bloodstream infections, VAP, 30-day mortality, and decubiti, occurred less frequently when patients were admitted to an ICU with more RN hours per patient day. Each year, an estimated 250,000 cases of central line-associated bloodstream infections occur in hospitals in the United States, with an estimated attributable mortality of 12%-25% for each infection. The marginal cost to the health-care system is approximately $25,000 per episode. Thus, strategies that reduce the incidence of such complications can be highly cost-effective. Similarly, VAP and decubiti represent very costly complications.

While it may appear cost-effective to reduce nursing hours, the net result may be an increase in costly complications. Of interest, the study also found an association between the number of overtime hours and patient safety outcomes. Increased overtime was associated with a higher number of catheter-related urinary tract infections and decubiti, suggesting that longer work hours can

impact the incidence of some infection-related complications. Less overtime was associated with fewer central line infections. The explanation for this finding is less obvious. Potentially, the need for less overtime resulted in more meticulous catheter care. There has also been an emphasis on improving workplace culture as a means of improving patient outcomes. Results here were mixed.

Findings of this study were presented as a pooled analysis of data from the 51 hospitals and 31 ICUs participating in the study. Likely, it would be necessary to examine data at the unit (ICU) level to interpret how (or if) nurse perceptions of their work environment influenced risk for these complications. In good and adverse work environments, nurses are confronted with the challenge of providing a safe environment where patients can trust caregivers who attempt to deliver care despite a multitude of interfering forces that include personnel shortages, increased work hours, new therapies and technology, reimbursement structures, and the ever-changing transformation of systems and processes. These results suggest that improving nurse conditions by providing adequate staffing can improve patient safety. ■

Beta-Blockers for Asymptomatic LVSD

ABSTRACT & COMMENTARY

By Michael H. Crawford, MD

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Dr. Crawford is on the speaker's bureau for Pfizer.

This article originally appeared in the September 2007 issue of Clinical Cardiology Alert. *It was peer reviewed by Rakesh Mishra, MD, FACC. Dr. Mishra is Assistant Professor of Medicine, Weill Medical College, Cornell University; Assistant Attending Physician, NewYork-Presbyterian Hospital.*

Source: Colucci W, et al. Metoprolol reverses left ventricular remodeling in patients with asymptomatic systolic dysfunction. *Circulation*. 2007:116:49-56.

Asymptomatic individuals with systolic left ventricular (LV) dysfunction have an increased mortality. Angiotensin converting enzymes inhibitors (ACEI) and angiotensin receptor blockers (ARB) favorably affect such patients, but little is known abut the effect of beta-blockers in this group. Thus, Colucci and colleagues hypothesized that beta-blockers would ameliorate LV remodeling in asymptomatic patients with LV systolic dysfunction, and they designed a randomized, controlled trial, REversal of VEntricular Remodeling with Toprol-XL (REVERT), to test this hypothesis. Entry criteria included an LV ejection fraction (EF) < 40%, LV end-diastolic volume > 75 mL/m^2, no symptoms during ordinary activity for 2 months, and ACEI or ARB therapy for 3 months. Unstable patients, or those with other significant morbidities, were excluded. Of the 164 patients randomized, 149 had at least one dose of the drug and a follow-up echocardiogram, and constituted the modified intention-to-treat study population. The subjects were randomized into 3 groups: metoprolol extended release 200 mg/day; 50 mg/day; or placebo for 12 months. The primary end point was end-systolic volume index at 12 months.

Results: At 12 months, there was a 14 mL/m^2 decrease in end-systolic volume index and a 6% increase in EF ($P < 0.05$ for both vs placebo) in the high-dose metoprolol group. Similar directional changes were observed in end-diastolic volume index and with low-dose metoprolol at 6 months, but they were not statistically different from placebo. Heart rate was significantly decreased by metoprolol, but blood pressure was not. Colucci et al concluded that in asymptomatic patients with reduced LV systolic function, metoprolol ameliorates LV remodeling and improves systolic function.

■ COMMENTARY

The hypothesis chosen for this study is a surrogate end point for mortality and hospitalization for heart failure. In the MERIT-HF trial, symptomatic patients with heart failure due to systolic dysfunction treated with metoprolol exhibited improved survival and less hospitalizations vs placebo. An imaging sub-study showed reductions in LV volumes and an improvement in EF. Thus, Colucci et al in REVERT argue that similar changes in LV size and function seen in their study with metoprolol therapy in asymptomatic patients with LV systolic dysfunction would strongly support that mortality and morbidity would be reduced as well. They further argue that a large randomized trail to study metoprolol vs placebo in asymptomatic patients will not be done because of the large number of patients needed would make the cost prohibitive. They make a good point because, despite an average EF of 27%, the death rate in REVERT was only 5% in 12 months. The implication is that asymptomatic patients with a low EF should receive beta-blockers. This is already recommended for post myocardial infarction patients with low EF. This study would extend such therapy to others with low EF. Some might argue that the patients studied were similar to symptomatic patients because their definition of asymptomatic was no symptoms with ordinary activities. Their

average BNP level was only 75 pg/mL and only two-thirds were on any diuretic therapy. So, these were clearly different patients then those studied in MERIT-HF.

Another point worth noting was that 94% of their patients were on ACEI or ARBs, which are known to prolong life and reduce hospitalization in asymptomatic patients with systolic LV dysfunction. Thus, beneficial effects on LV remodeling in such a group seems more remarkable. Unfortunately, the patients were not studied again after stopping beta-blocker therapy to see if the effect persisted or was only present on therapy. Consequently, we have no idea how long to continue therapy if we elect to add beta-blockers to asymptomatic patients. Also, the effect seems dose related, since most endpoints were improved more on the higher doses of metoprolol. In addition, fewer patients in the high-dose group discontinued therapy because of adverse events. Thus, there is little downside to recommending beta-blockers for asymptomatic patients with LV systolic dysfunction. ■

CME Questions

1. ***True or False?*** **In cases of a positive RDT test, microscopy allows for confirmation of infection, speciation of non-falciparum parasites, and detection of mixed infection, as well as determination of parasite density.**
2. **Acute pyelonephritis in young children is a serious concern because of:**
   a. the risk for sepsis;
   b. the risk of sequale of renal scarring
   c. both a and b
3. **Out of an estimated 250,000 cases of central line-associated bloodstream infections occuring in hospitals each year, what is the estimated atrributable mortality per infection?**
   a. 10%-20%
   b. 12%-25%
   c. 15%-30%
   d. 20%-40%

Answers: 19. (True); 20. (c); 21. (b)

CME Objectives

The objectives of *Hospital Medicine Alert* are to:

• review pertinent safety, infection control, and quality improvement practices;

• discuss diagnosis and treatment of acute illness in the hospital setting; and

• review current data on diagnostic and therapeutic modalities for common inpatient problems. ■