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Hospitalist Update

The Use of Perioperative Beta Blockers in Non-cardiac Surgery Patients

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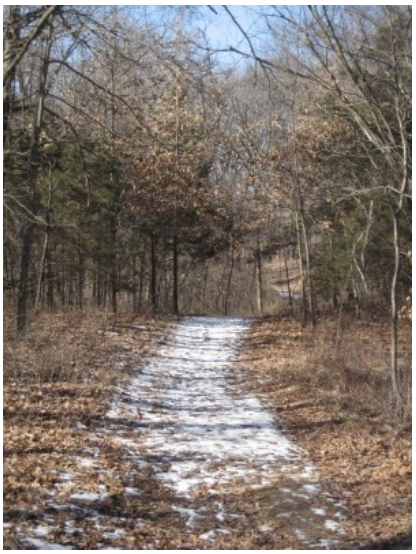

Currently, more than 30 million noncardiac surgeries are performed in the United States each year. Perioperative cardiac complications are a major cause of morbidity and death in these patients, prolonging hospitalizations and significantly increasing health care costs. The potential role of beta blockers in reducing the incidence of perioperative cardiac complications has been a subject of debate and controversy for some time.

In the 1970s, it was recommended that we avoid the use of beta blockers during the perioperative period since they might induce bradycardia and hypotension. However, subsequent studies showed that there was a dose-related reduction in the incidence of MI with beta blocker therapy and, in the 2002 American Heart Association/American College of Cardiology guidelines, it was recommended that perioperative beta blockers be used unless specific contraindications were documented. These guidelines were updated and endorsed in 2007, with Class 1B and Class IIB indications for those patients with CAD, CAD equivalent, inducible ischemia and noncardiac vascular surgery.

Then, a Canadian research team organized a large, international, randomized trial called POISE (Perioperative Ischemic Evaluation Study); results of the trial were published in 2008. Researchers enrolled more than 8000 patients who were scheduled for noncardiac surgery and had risk factors for perioperative cardiac complications. The patients received either extended-release metoprolol (100 mg) or placebo, starting 2-4 hours before surgery and continuing for 1 month postoperatively. Although the 30-day incidence of nonfatal myocardial infarction was significantly lower in the group receiving metoprolol than in those receiving placebo (3.6% vs. 5.1%), the metoprolol group experienced significantly higher all-cause mortality (3.1% vs. 2.3%) and a significantly higher incidence of stroke (1.0% vs. 0.5%). These adverse outcomes may be explained, in part, by higher rates of hypotension and bradycardia in those receiving metoprolol. The research team could not identify any subgroup that clearly (cont)

(cont) benefitted from the use of metoprolol and, in summary, the reduction in perioperative myocardial infarction and primary cardiac events was achieved against a backdrop of higher rates of stroke and overall mortality.

The American College of Cardiology and the American Heart Association has thus released a Focused Update to the Practice Guidelines, based on the new clinical trial data; this Update summarizes and sheds light on the risks and benefits of using beta blockers to reduce perioperative cardiac events in patients undergoing noncardiac surgery and provides specific recommendations regarding which patients will likely benefit and in which patients there is insufficient evidence to support use of perioperative beta blockers. These new guidelines are published in the **November 24, 2009, issue of *Circulation***.

A brief summary of the new guidelines:

The perioperative use of beta blockers is intended to protect against myocardial infarction by lowering the heart rate and blocking the negative effects of stress hormones. For patients already taking beta blockers at the time of surgery, these medications should be continued (as per the 2007 guidelines). The work group advises that it is reasonable to consider the addition of perioperative beta blockers in:

1. Patients at high risk for myocardial infarction or other cardiac complications in light of abnormal stress test results or known CAD who undergo vascular surgery

2. High risk patients undergoing intermediate risk surgery or in those with multiple risk factors (e.g. diabetes mellitus, history of CHF, significant renal disease) who undergo vascular surgery

When patients who are not already on beta blockers are started on perioperative beta blockade, the medication should be initiated well before the procedure and the dose should be titrated as blood pressure and heart rate allow. The new guidelines do not support the routine use of perioperative beta blockers, especially in higher, fixed-dose regimens, and reinforce the avoidance of beta blockade in patients with contraindications for their use.

CASE REPORT **Damascene Kurukulasuriya MD**

A 62 year old female was admitted to the hospital for elective, two-stage spinal surgery. She had a history of type 2 diabetes mellitus, hypertension, anemia, subclinical hypothyroidism, mild mental retardation, Ogilvie's syndrome and a compression fracture of her thoracic spine; she had a history of multiple past episodes of ileus, requiring hospitalizations. Following the initial, posterior procedure, the patient was kept intubated for stage 2, an anterior approach on postoperative day (POD) 3. After this second surgery, the patient developed episodic hypotension and hypoxemia, associated with anemia and a host of metabolic derangements (hyponatremia, hypokalemia, marked hypoalbuminemia and a labile serum glucose).

On POD 4, the patient developed a recalcitrant ileus, treated with NG suction, NPO status, electrolyte correction and TPN; by POD 5, a KUB film showed colonic dilatation up to 9 cm. The GI Service was consulted but, over the next 5 days, multiple interventions, including enemas and sigmoid decompression, failed to relieve the ileus. When the colonic dilatation reached 11.5 cm, neostigmine therapy was tried with no success. Finally, on POD 10, decompressive colonoscopy and surgical cecostomy were performed and the patient's condition gradually improved. Following transition to an oral diet and ongoing PT/OT (with use of a Miami J brace), the patient was discharged to a skilled nursing facility on POD 20, to be followed in clinic by Orthopedic Surgery and General Surgery.

DISCUSSION: While Ogilvie's Syndrome represents an advanced form of ileus, lesser degrees of postoperative ileus are relatively common. Unfortunately, when not managed appropriately, clinical outcomes are often poor, with a significant increase in length of stay, ongoing patient discomfort (especially following spinal, thoraco-abdominal or pelvic surgery) and frequent development of postoperative delirium.

The prevention of postoperative ileus begins during the preoperative medical evaluation. Attention to inadequately managed constipation, underlying mobility disorders, diabetic gastroparesis, chronic bowel dysmotility, hypothyroidism, hypokalemia, hypercalcemia and constipating medications are all important; the latter include narcotics, calcium supplements, calcium channel blockers, diuretics and any medication with anticholingergic activity (which includes many psychoactive medications).

While these preoperative measures are very important, it is also essential to pay close attention to bowel function in the postoperative period; electrolyte abnormalities, medications, inactivity and inadequate bowel regimens can all complicate the patient's management. Excessive use of narcotics, often triggered by the misinterpretation of symptoms in demented and delirious patients, is perhaps the most common cause of iatrogenic ileus.

FROM THE JOURNALS — Robert Folzenlogen MD

The following articles should be of interest to Hospitalists:

Zoungas, S. et al, *Systemic Review: Sodium Bicarbonate Treatment Regimens for the Prevention of Contrast-Induced Nephropathy*, Annals Int Med 2009, 151:9, pages 631-638

Krawitt, EL, *Autoimmune Hepatitis*, NEJM 2006; 354:54

Thomsen, RW et al., *Risk for Hospital Contact with Infection in Patients with Splenectomy*, Annals Int Med 2009, 151:8, pages 546-555

Anaya, DA et al., *Necrotizing Soft-Tissue Infection: Diagnosis and Management*, Clin Infect Dis 2007; 44:705

Banks, PA and ML Freeman, *Practice Guidelines in Acute Pancreatitis*, Am J Gastroenterology 2006; 101:2379

ID CORNER — William Salzer MD

NEW DRUG REVIEW: TELAVANCIN

Attached is a nice review of a drug recently approved for gram positive infections: telavancin. It is currently approved for skin and soft tissue infection; the FDA has held up its approval for hospital acquired pneumonia.

Telavancin: A novel Lipoglycopeptide, Clin Infect Dis 2009; 49:1908-1914

http://www.journals.uchicago.edu/doi/pdf/10.1086/648438

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MISSOURI HOSPITALIST CALENDAR

41st Annual Cardiovascular Conference at Snowmass, January 11-15, information at www.acc.org/education/programs/brochures/snowmass_2010.cfm

Hospital Medicine 2010, April 8-11, Washington, DC, information online at www.hospitalmedicine.org

48th Annual USC Weil Symposium on Critical Care & Emergency Medicine, April 11-15, Westin Mission Hills, Rancho Mirage, CA, 800-USC-1119 or register online at www.peopleware.net/0128 and select course #2580

Internal Medicine 2010, American College of Physicians, April 22-24, Toronto, register online: www.acponline.org

American Geriatric Society, Annual Meeting, May 12-15, Orlando, information and registration via www.americangeriatrics.org

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Please direct all comments, ideas and newsletter contributions to the Editor:

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Please forward this newsletter to Hospitalists that you might know!