

# Postop Cognitive Dysfunction Rises With Age

BY DAMIAN McNAMARA

MIAMI BEACH — With the aging of the U.S. population, hospitalists increasingly act as perioperative geriatricians and manage the unique challenges of this population, including increased cognitive dysfunction and delirium.

“Acute hospital care is becoming acute geriatric care,” Dr. Robert M. Palmer said. People aged 65 years and older accounted for 13% of the U.S. population and 38% of hospital discharges in 2005, according to a report based on data from the National Hospital Discharge Survey (Vital Health Stat. 13. 2007;165:1-209).

“There is something very different about these elderly perioperative patients,” said Dr. Palmer, clinical director of the division of geriatric medicine and gerontology, University of Pittsburgh.

Cognitive dysfunction is more common than delirium among elderly patients, but the two conditions are part of the same spectrum, Dr. Palmer said at a meeting on perioperative medicine sponsored by the University of Miami.

In a study of patients undergoing major noncardiac surgery, postoperative cognitive dysfunction occurred in 41% of patients aged 60 years and older, 37% of patients aged 18-39 years, and 30% of those aged 40-59 (Anesthesiology 2008;108:18-30).



**‘There is something very different about [the responses of] these elderly perioperative patients.’**

DR. PALMER

For example, an 82-year-old woman who has been independent in all activities of daily living prior to a hip fracture “is at high risk, greater than 40%, of postoperative cognitive dysfunction” after hip surgery, Dr. Palmer said. “We don’t totally understand the etiology.”

A meeting attendee asked about quick assessment of cognitive function. “Ask

[the patients] about activities of daily living—have they been able to pay bills, do finances, and take medication without assistance?” Dr. Palmer said. Also ask patients or family members about history of memory loss. Also consider a bedside digit span test. “Ask them to repeat a random string of numbers. Give them the numbers 1 second apart in a monotone,” he said. “Someone with delirium can only repeat three or fewer numbers.”

Cognitive dysfunction can be long-lasting in some patients. “Even at months after surgery, 13% [of those aged 60 and older] had signs of postoperative cognitive dysfunction versus none in an age-matched control group,” he said. None of the younger or middle-aged patients had cognitive dysfunction at 3 months.

In contrast, postoperative delirium is more likely to last only 24-72 hours after surgery (Anesthesiology 2007;106:622-8). This disorder of attention and cognition also can exist preoperatively and/or emerge in the recovery room.

Predictors of delirium following elective surgery include age 70 or older, al-

cohol abuse, baseline cognitive impairment, severe physical impairment, abnormal preoperative electrolyte or glucose levels, abdominal aortic aneurysm surgery, and noncardiac thoracic surgery (JAMA 1994;271:134-9). Risk was 2% in patients with none of these predictors, 11% among those with one or two risk factors, and 50% in patients with three or more risk factors.

Anticholinergics, benzodiazepines, and meperidine can increase the risk of postoperative delirium, according to consensus data (Arch. Intern. Med. 2003; 163:2716-24). “These agents, generally speaking, should be avoided in all elderly patients,” Dr. Palmer said.

In addition to cessation of any high-risk medication, the use of supplemental oxygen, adequate nutritional intake, and ambulation on postoperative day 1 can reduce the risk of postoperative delirium. It is also important to treat any severe pain, he said. “Patients who are in pain cannot participate in physical therapy, so you need to address pain before you do everything else.” ■

## Preoperative Assessment Merits Close Attention in Liver Disease

BY DAMIAN McNAMARA

MIAMI BEACH — When performing a preoperative assessment of the patient with liver disease, consider specific risk factors during the history and physical examination, said Dr. Paul Martin at a meeting on perioperative medicine sponsored by the University of Miami.

Also assess the likelihood of renal insufficiency and portal hypertension, two of the most concerning perioperative developments.

“Assessing liver patients for surgery is one of the most common consults we get in the hospital,” said Dr. Martin, professor of medicine and chief of hepatology at the University of Miami.

Taking a careful history is essential. “You really want to know if the patient has ever had variceal hemorrhage, ascites, encephalopathy, or jaundice,” Dr. Martin said. Also, if the patient has a relevant surgical history, ask: What did the surgeon say your liver looked like? Did you have any bleeding problems afterward? Correct any coagulopathy before surgery, he added. “Coagulopathy and thrombocytopenia are really the important clues of underlying liver disease.”

Exclude patients with acute hepatitis from surgery. “If patients really had a compelling reason for surgery, I would wait until the liver enzymes are trending downward.”

A patient with cirrhosis is at increased risk for renal insufficiency and/or portal hypertension during surgery. Advise the surgeon and anesthesiologist to watch for onset of renal insufficiency, “because it’s a marker of markedly reduced survival,” Dr. Martin said.

Although evidence of renal insufficiency “is what concerns us most” during the perioperative period, avoiding perioperative hypotension also is important, he noted. “Patients with hypotension are poorly tolerant of any drop in blood pressure.”

What has changed in assessment of liver disease is the Model for End-Stage Liver Disease (MELD) score (visit [www.unos.org/resources](http://www.unos.org/resources) and look for the MELD Calculator). “In any patient we see now who we suspect for cirrhosis, we do a MELD score right away,” he said. “Punch in a few numbers, including the INR [international normalized ratio], and it gives you the likelihood of a patient dying from surgery over the next few months.”

Operative risk can also be predicted using the Child-Turcotte-Pugh (CTP) classification, which assigns points based on values for bilirubin, albumin, prolonged prothrombin time/INR, ascites, and encephalopathy stage. The classification system correlates with mortality among patients with liver cirrhosis (Hepato-gastroenterology 2008;55:1034-40).

A patient with a CTP-A classification generally has no limitations for surgery, Dr. Martin said. Perioperative mortality increases for someone classified as CTP-B, and major hepatic surgery should be avoided. A CTP-C patient is not a candidate for any major elective surgery, and instead should be considered for liver transplantation, he said.

A meeting attendee asked for advice about a common patient type: “I get asked a lot to assess a class Child’s B cirrhotic plus, approaching a C, with hip fracture.” Dr. Martin replied: “That patient should not have a general anesthetic, if possible. Use a spinal. There is a substantial risk [of complications], as high as 50%.” He added, “If there is a nonoperative option, that would be the best option, but often, we don’t have that luxury.”

Also, cirrhotic patients who experience intraoperative hypotension, who have a respiratory procedure (such as thoracotomy) or who have biliary and liver procedures, are more likely to run into problems after surgery, he said. ■

## Hyperglycemia Linked to Poor Outcomes With TPN

BY BETSY BATES

Hyperglycemia prior to, and shortly after, initiation of total parenteral nutrition was strongly associated with poor clinical outcomes in critically ill hospitalized patients, whether they had a history of diabetes or not, Emory University researchers determined in a retrospective study.

Patients had an almost threefold risk of dying if their maximum blood glucose before or within 24 hours of starting total parenteral nutrition (TPN) was above 180 mg/dL, compared with those whose levels stayed below 120 mg/dL. Many other factors were taken into account for the statistical analysis, including age, sex, and diabetes status, Dr. Guillermo E. Umpierrez, professor of medicine at Emory University, Atlanta, said at the Southern regional meeting of the American Federation for Medical Research.

Although hyperglycemia is a common complication of TPN, its prevalence and impact on clinical outcomes have been uncertain. Dr. Umpierrez and his associates reviewed the records of 276 medical/surgery patients who required TPN a mean 11 days after admission. Most came from surgical or medical intensive care units or the burn unit, but nearly 25% came from non-ICU floors. Also, 23% had a history of diabetes. Patients received TPN for

a mean duration of 15 days. In-hospital mortality was 27% in the study, funded by the American Diabetes Association and the National Institutes of Health.

Patients who died had a higher maximum blood glucose before TPN (mean 147 mg/dL) than those who survived (mean 131 mg/dL), as well as a higher maximum blood glucose within 24 hours of TPN initiation (mean 202 mg/dL vs. 160 mg/dL). The differences in blood glucose were highly statistically significant.

In a multivariate analysis, the risk of pneumonia and the risk of acute renal failure were independently related to maximum blood glucose above 180 mg/dL vs. below 120 mg/dL.

In a later interview, Dr. Umpierrez said that pre-TPN blood glucose levels could alert medical teams to the possibility of TPN-related hyperglycemia. “Hospitalists should pay attention to blood glucose levels, not only in those receiving TPN but in patients with hyperglycemia before TPN,” he said. “Frequent blood glucose monitoring is needed to prevent and/or correct hyperglycemia.”

At his institution, the findings prompted a change in protocol to initiate insulin infusion as TPN is begun or to start insulin infusion in patients on TPN whose blood glucose is “persistently elevated,” which he defined as a level over 140 mg/dL. ■