

Discharge to Institution Tied to Mortality Risk

BY DAMIAN McNAMARA

CHICAGO — One in four elderly patients discharged to an institution after undergoing elective surgery died within 6 months, investigators found in a study designed to identify the incidence of and risk factors for postoperative admission to a skilled nursing center, rehabilitation center, or nursing home.

Although 30-day postoperative mortality for the 167 patients was similar (2% of the transferred patients versus 3% of those discharged to home), the 24% 6-month mortality rate among institutionalized patients was significantly greater than the 5% rate for those discharged, Dr. Arek J. Wiktor said at the annual clinical congress of the American College of Surgeons.

"Elderly patients often have functional decline following major surgery. But there is a lack of outcomes [information] on those who require postdischarge care," Dr. Wiktor said.

He and his associate, Dr. Thomas N. Robinson, both with the University of Colorado at Denver, studied surgical patients aged 50 years and older (mean age, 63). Most (96%) were men.

A total 29 of the 167 patients (17%) required postoperative institutionalization, and there was a significant difference in institutionalization rates between those aged 70 years or older and younger patients, Dr. Wiktor said.

Operative time and blood loss did not differ significantly between patients transferred to a facility and those discharged to home. Mean operative times were 298 minutes in the facility group vs. 276 minutes in the discharge group, and mean blood loss was 561 mL versus 603 mL, respectively.

Identification of risk factors for institutionalization was a secondary aim of the study. Patients admitted to

a facility after surgery were older (mean age of 70 years versus 64 years), had a longer ICU stay (11 days versus 6 days), and had a longer overall hospital stay (20 days versus 9 days) than those discharged to home.

"Preoperative markers of frailty strongly correlated with institutionalization," Dr. Wiktor said. Preoperative cognitive function was assessed on the basis of the Mini-Cognitive Examination. The admitted patients had a mean score of 2.6 versus 4.0 in those ultimately discharged to home, a significant difference. Similarly, the mean preoperative function score was 88.5 in admitted patients versus 97.4 in those discharged to home, as measured on the Barthel Index scale. The researchers also found a significant difference in comorbidities on the Charlson Index: 4.9 in the admitted group versus 2.6 in the discharged group.

Dr. Martin A. Makary, a study discussant, asked why the investigators chose to assess patients 50 years and older for an "elderly" study.

Dr. Wiktor replied, "That is why we chose such a wide age group and started at 50. We didn't want to short-change ourselves if we saw a trend earlier versus later."

Could the age disparity be explained by older patients undergoing more complex procedures? asked Dr. Makary, the Mark Ravitch Chair of Gastrointestinal Surgery and director of the Johns Hopkins Center for Surgical Outcomes in Baltimore.

Complexity was not likely a factor, Dr. Wiktor replied, because the investigators anticipated that all participants would be admitted to critical care after their elective surgery.

"Surprising to me was that four out of five of your elderly patients went home after major surgery," said Dr. Hasan Badre Alam, a comoderator of the session. He commented that none of the risk factors identified are modifiable.

"It would be useful to identify risk factors that distinguish the 24% who are going to die [by 6 months] versus the 76% who will not," said Dr. Alam, a staff surgeon at Massachusetts General Hospital, Boston.

"That is why this research is so interesting and sometimes frustrating," Dr. Wiktor replied. "Patients come with comorbidities, and sometimes there is little you can do. But having a frank discussion with these patients before surgery may lead to them making small changes."

Stratify Risks to Improve Outcomes

Modifiable risk factors for poor surgical outcome would be nice to have, but there would also be tremendous value in just being able to risk-stratify elderly patients preoperatively for a higher-quality informed consent discussion.

It has already been established that patients with dementia who undergo surgery do not fare as well postoperatively as patients without dementia. In this study, cognitive dysfunc-

tion is also linked to poor outcomes.

The more precisely we can stratify risk, the better we will be able to identify target groups for interventional studies that may be able to improve outcomes.

FRANK MICHOTA, M.D., is the Director of Academic Affairs in the Department of Hospital Medicine at the Cleveland Clinic. He reports no relevant conflicts of interest.

Risk Factors Identified for Hernia Repair Outcomes

BY DAMIAN McNAMARA

CHICAGO — Controlling preoperative wound infections prior to repair of ventral hernias might reduce the risk of severe adverse outcomes, according to an analysis based on records from the American College of Surgeons' National Surgical Quality Improvement Program.

Of note, 21% of patients who had severe adverse outcomes within 30 days of ventral hernia surgery had a deep-incision infection. A total of 37% were diagnosed with sepsis, and more than 50% had to return to the operating room.

The findings suggest that preoperative infection control could be beneficial, said Dr. Brook V. Nelson, a surgical fellow at St. Luke's Hospital and the University of Missouri-Kansas City. Some "risks for severe adverse outcomes can be predicted at the time we are making the operative decision" in ventral hernia patients, Dr. Nelson said at the annual clinical congress of the American College of Surgeons.

The multivariate logistic regression analysis by Dr. Nelson and her colleagues indicated that three preoperative risk factors—high body mass index, dependent functional status, and active wound infection—are associated with an increased risk of severe adverse outcomes.

They analyzed the records of 14,883 patients who underwent ventral hernia repair from 2005 to 2007 and were included in the National Surgical Quality Improvement Program database. Severe adverse outcomes occurred within 30 days in 1,106 (7%). A total of 16% of patients with severe adverse outcomes underwent emergency procedures versus 6% of patients without severe adverse outcomes.

In addition to wound infection, preoperative BMI greater than 35 kg/m² and dependent functional status were each significantly associated with higher risk for adverse outcomes. A dependent functional status, for example, was present in 9% of those with a severe adverse outcome, compared with 1% of those without an adverse outcome.

Cessation of cigarette smoking, pulmonary optimization, and delay of surgery for patients with wound infections also are potentially useful interventions identified by the study, Dr. Nelson said.

Patients with severe adverse outcomes were slightly older, with a mean age of 58 years compared with 56 years. Chronic obstructive pulmonary disease, recurrent hernia, and complex surgical repairs also conveyed increased risk, she added.

Dr. Nelson said she had no relevant disclosures.

Low Hemoglobin After Cardiac Surgery Increases Stroke Risk

BY JEFF EVANS

BALTIMORE — A low hemoglobin level following cardiac surgery is associated with significantly increased odds of experiencing a stroke after cardiopulmonary bypass, results of a case-control study suggest.

Although previous studies have associated anemia with adverse cerebrovascular outcomes, including stroke, it is unclear whether low hemoglobin levels contribute to postoperative surgical complications, Dr. Rebecca F. Gottesman and her colleagues at Johns Hopkins University, Baltimore, said in a poster presented at the annual meeting of the American Neurological Association.

The researchers identified the postoperative outcomes of 357 patients who underwent various cardiac surgery procedures with cardiopulmonary bypass at Johns Hopkins Hospital and compared them with the outcomes of 714 control patients matched by age range, gender, and type and year of surgery.

The patients had a mean age of 65 years, and 59% in each group were male. Compared with controls, stroke patients were significantly more likely to

have hypertension (77% vs. 68%) and peripheral vascular disease (20% vs. 10%). The stroke and control groups had similar rates of diabetes (30% vs. 25%, respectively), history of MI (37% vs. 32%), and high cholesterol (51% vs. 45%), Dr. Gottesman and her associates reported.

In a conditional logistic regression analysis, the researchers found that, for each 1 g/dL decline in hemoglobin, the odds of having a stroke significantly increased by 37%. Patients with a postoperative hemoglobin level below the group median of 8.8 g/dL had a 78% greater chance of having a stroke than did those above the median. (Normal hemoglobin levels are greater than 13 g/dL in men and greater than 12 g/dL in women.)

Postoperative hemoglobin levels were below the median in significantly more patients who had a new stroke (57%) than in those who did not have a stroke (41%).

"The association between stroke and post-cardiopulmonary bypass hemoglobin could be the result of hemodilution or cerebral hypoperfusion," the investigators suggested.

The study was supported by grants from the National Institutes of Health and the Dana Foundation.