

Fluid Protocol, Postop Factors Affect Survival

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MIAMI BEACH — A soon-to-be-published Cochrane review is expected to indicate the superiority of intraoperative initiation of fluid management protocols and to quantify the link between perioperative complications and postoperative survival, according to one of the study's coauthors.

The review, "Perioperative Increases in Global Blood Flow to Explicit Defined Goals and Outcomes Following Surgery," gives evidence-based guidance on these two controversial issues, gleaned from "very different" studies with a total of 4,546 patients, Dr. Mark Hamilton reported at a meeting on perioperative medicine sponsored by the University of Miami.

The 22 studies in the review included elective and emergency patients undergoing general, vascular, or cardiac surgery. Overall perioperative mortality was 10.6%.

Use of a fluid protocol was associated with 216 perioperative deaths. There were 265 deaths among patients

treated without a protocol (odds ratio, 0.82). This statistically significant reduction in mortality was "quite clear" for the protocol groups vs. controls, Dr. Hamilton said.

The timing of the intervention is significantly more protective if flow-directed therapy is intraoperative vs. preoperative or postoperative, according to the review, although the final answer on the optimal management strategy remains elusive, said Dr. Hamilton, consultant and honorary senior lecturer in anesthesia and intensive care medicine at St. George's Hospital in London. He had no relevant financial disclosures.

Fundamental problems of perioperative fluid therapy include an inability to accurately evaluate blood volume, identify fluid overload, identify hypovolemia, or precisely evaluate tissue perfusion, Dr. Hamilton said.

Multiple organizations have developed guidelines to steer hospitalists, surgeons, and other perioperative clinicians regarding fluid management, but they are backed by varying levels of evidence, he said.

Dr. Hamilton recommended the British Consensus Guidelines on Intravenous Fluid Therapy for Adult Sur-

gical Patients (www.ebpom.org). The 28 perioperative recommendations include several with an evidence level of 1a or 1b.

Another finding is that significant perioperative complications can have a long-term effect on surgery patients.

"This is where it gets more interesting," Dr. Hamilton said. "This is the most consistent theme in the studies." A lack of a standard definition for perioperative complications worldwide has impeded previous efforts to compile overall complication rates, he said.

In one study, any of 22 complications in the National Surgical Quality Improvement Program database within 30 days of surgery was the most important factor associated with decreased postoperative survival (Ann. Surg. 2005;242:326-41).

Postoperative complications were associated with a 69% reduction in median survival among 105,951 patients who had surgery between 1991 and 1999, and were more indicative of survival after major surgery than were preoperative or perioperative risk factors. ■

Apnea Tied to Postoperative Pulmonary Complications

MIAMI BEACH — Obstructive sleep apnea is an emerging risk factor for postoperative pulmonary complications, and although evidence does not yet support universal screening, it may be worthwhile to test some elective surgery patients for apnea, Dr. Gerald W. Smetana said.

"If it's not urgent surgery, take a time out and test to confirm sleep apnea," Dr. Smetana said. "The evidence is more compelling now."

In one study, researchers prospectively assessed 172 patients with at least two risk factors for obstructive sleep apnea before surgery and measured clinical severity using home nocturnal oximetry (Chest 2008;133:1128-34). They found that patients who experienced five or more oxygen desaturations per hour had significantly higher rates of postoperative pulmonary complications, compared with those with fewer episodes (15% vs. 3%, adjusted odds ratio 7.2).

Postop complications in the study were respiratory (nine patients), cardiovascular (five patients), bleeding (two patients), and gastrointestinal (one patient). Although the numbers were small, results were "pretty significant" for pulmonary complications, Dr. Smetana said at a meeting on perioperative medicine sponsored by the University of Miami.

Older age, American Society of Anesthesiologists' class of 2 or greater, chronic obstructive pulmonary disorder, and heart failure are other risk factors identified in the American College of Physicians guidelines on "risk assessment for and strategies to reduce perioperative pulmonary complications for patients undergoing non-cardiothoracic surgery" (Ann. Intern. Med. 2006;144:575-80).

"There is class A evidence that these are risk factors," said Dr. Smetana, a coauthor of the ACP guidelines and an attending physician in the division of general medicine and primary care at Beth Israel Deaconess Medical Center in Boston.

"Pulmonary vary from cardiovascular risks in an important way—procedural risks are more important than patient risk factors. Even relatively healthy patients can have risk of pulmonary complications," Dr. Smetana said. Pulmonary complications include pneumonia, respiratory failure, atelectasis, bronchospasm, and exacerbation of COPD.

A meeting attendee asked about asthma. "If it is well controlled, surprisingly, it is not a risk factor for postoperative pulmonary complications," said Dr. Smetana, who is also on the medicine faculty at Harvard Medical School, Boston.

In terms of risk reduction, lung expansion modalities are the only intervention with good evidence, he said.

Active muscle training before surgery reduces pulmonary complications in high-risk patients, according to a randomized, controlled trial of 279 elective coronary artery bypass graft patients (JAMA 2006;296:1851-7). Preoperative inspiratory muscle training reduced postoperative high-grade pulmonary complications (OR 0.52) and pneumonia (OR 0.40), compared with a usual care group.

A meta-analysis indicated that postoperative continuous positive airway pressure lowers the overall pulmonary complication rate after abdominal surgery (Ann. Surg. 2008;247:617-24), making it "a good option for patients who cannot tolerate active muscle training," he said. ■



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Preop Screening IDs Patients For Early Hospitalist Consult

MIAMI BEACH — Early identification of surgical patients who could benefit from postoperative consults minimizes complications, a pilot study has shown.

After an administrative review showed that hospitalists were being consulted late in the perioperative period, Dr. Elizabeth Marlow and Dr. Chad Whelan, both of the University of Chicago, designed a system to preoperatively identify patients at a higher risk of postoperative complications. "We were getting called a few days after we should have been consulted. This got

me to think—is there a way to identify patients earlier to avoid complications?" Dr. Marlow said.

The researchers conducted the pilot study to see whether surgeons would be receptive to the offer to consult on these patients before their procedures, and if earlier consults would improve outcomes. To test the system, they contacted two high-volume orthopedic surgeons (doing primarily joint replacement surgery) at the university, Dr. Marlow said during a poster session at a meeting on perioperative medicine sponsored by the University of Miami.

Using patient data spanning 6 months, they screened 58, and identified 35, patients before elective surgery who could benefit from a consult. Then Dr. Marlow and Dr. Whelan accessed the patients' electronic medical records (EMRs) to identify risk factors—including age over 75, use of chronic anticoagulation, stage 3 kidney disease, diabetes, hypertension, and heart failure—associated with postoperative

complications in orthopedic surgery patients. In addition, some consultations were suggested based on subjective assessment by the hospitalist or surgeon.

"We get a list of scheduled patients, and we review their labs or notes, sometimes 3 months in advance," said Dr. Marlow, an instructor in the university's hospital medicine section. The surgeons, who can choose to opt out, are informed the week of the planned surgery via the EMR system that they have a patient scheduled who could benefit from a hospitalist consult.

The screening system helped fully identify patient medications preoperatively and has minimized the occurrence of postoperative delirium, for example, Dr. Marlow said. "We can also help with diabetes management and patients on long-term blood thinners."

The researchers plan to refine their clinical criteria to improve the screening system. The pilot project helped them improve communication among hospitalists and consultative practices by members of their group.

They want to expand this service to other areas of the hospital and are negotiating with vascular surgeons and urologists. Cystectomy patients, for example, could benefit from preoperative screening and postoperative consult. "These patients tend to be older men and women, and they have a lot of comorbidities," Dr. Marlow said.

Geriatricians at the medical center also are interested in this service. "A lot of orthopedic patients are older," Dr. Marlow said, adding that some issues are better addressed by a geriatrician. ■



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