CONTINUING EDUCATION

Enhanced Recovery After Surgery—The Importance of the Perianesthesia Nurse on Program Success

Jacque A. Crosson, MSN, RN, CPAN

Continued advancements in perioperative care and anesthesia technology have improved surgical outcomes and accelerated the patient's ability to resume preoperative activities. With the current emphasis on decreased utilization of expensive hospital resources, a shorter length of stay while maintaining patient satisfaction is encouraged for maximum reimbursement. Through the implementation of evidence-based protocols that standardize care and promote patient medical optimization, the surgical stress response, complications, and time spent in the hospital can be reduced. Enhanced recovery after surgery uses a multidisciplinary and multimodal evidence-based approach to maximize patient recovery. Perianesthesia nurses are critical to its success and have an obligation to understand and participate in the process to optimize patient outcomes. After completing this educational article, the reader will be able to recognize the importance of the perianesthesia nurse in implementing an enhanced recovery after surgery program; review the patient benefits of enhanced recovery; and describe the impact of multimodal pain management on patient length of stay and patient mobility.

Keywords: *fast track, enhanced recovery after surgery, perianesthesia, multimodal interventions, patient satisfaction, surgical stress response.*

OBJECTIVES—1. Discuss the importance of the perianesthesia nurse in implementing an ERAS program; 2. Review the patient benefits of enhanced recovery; and 3. Describe the impact of multimodal pain management on patient length of stay and patient mobility.

As chief of surgery and professor at Copenhagen University Hvidovre Hospital from 1989 to 2004, Dr Henrik Kehlet[1] was investigating the effect of regional anesthesia on stress, pain, and postoperative outcomes. He and his coworkers are credited with the concept of pre-emptive analgesia or premedicating patients with pain medications before their surgical procedures. Continuing his studies, in the late 1990s, he hypothesized that multimodal interventions[2] may decrease the surgical stress response with a positive effect on postoperative outcomes. During this time, many surgeons had begun performing laparoscopic procedures. This minimally invasive technology allowed patients to mobilize sooner and leave the hospital in less than 24 hours. Dr Kehlet evaluated multiple studies comparing endoscopic versus open

Jacque A. Crosson, MSN, RN, CPAN, Perianesthesia Nursing, Mayo Clinic Hospital, Phoenix, Arizona.

Conflict of interest: None to report.

Address correspondence to Jacque A. Crosson, 1409 E Oregon Ave, Phoenix, AZ 85014; e-mail address: crosson.jacque@mayo.edu.

1089-9472/$36.00

http://dx.doi.org/10.1016/j.jopan.2016.09.010

cholecystectomy on postoperative endocrine metabolic responses, immune function, pulmonary function, and hypoxia to determine if his hypothesis was valid.[3] Interestingly, he found no significant differences in endocrine, inflammatory, or immune responses with either approach. However, pulmonary function improved, and hypoxemia decreased with the laparoscopic approach. Clinically significant, gastrointestinal function returned faster in the minimally invasive group allowing these patients early oral nutrition.[3] Missing from the data was an evaluation of the effects of multimodal medications, sleep disturbances, surgical techniques, and patient positioning.

Dr Kehlet's questions included the following: Did effective multimodal pain medication improve the patient's ability to mobilize effectively? Were patients able to obtain restful sleep while in the hospital due to effective pain management? Did the American laparoscopic technique result in less pulmonary dysfunction? Finally, could patient positioning during the procedure (head up versus head down) impact endocrine metabolic changes with cardiovascular effects?[3]

In the review by Dr Kehlet of multiple studies on open versus laparoscopic cholecystectomies between 1992 and 1997, sufficient evidence of clinically relevant differences in metabolic responses was not meaningful.[3] Significant limitations existed, specifically, physician traditional regimens including unnecessary drains and tubes had not changed. Therefore, limited mobilization, inadequate pain relief, and inadequate oral nutrition kept patients dependent on nursing.[3] To determine advantages between endoscopic and open procedures, Dr Kehlet hypothesized that traditional postoperative care must change to include the integration of minimally invasive surgery with effective pain control, early enforced nutrition, and mobilization.[3]

Enhanced Recovery After Surgery

A review of the literature by Dr Kehlet prompted him to revise his original hypothesis and further refine the notion of fast track surgery. The integration of fast-track surgery concepts evolved into a focus on enhanced recovery after surgery (ERAS). Patient management before, during, and after surgery is pivotal to successful outcomes. The primary goal of ERAS is to decrease surgical stress[4] and its subsequent increased demands on end-organ function.[2] These functional changes are mediated by endocrine and metabolic responses activated by the surgical injury. Catabolic hormones increase, anabolic hormones decrease, the autonomic nervous system activates our fight or flight responses, and pulmonary function is impaired both by volatile anesthetic gasses and opioids.[2] In the simplest of terms, enhanced recovery helps patients get better sooner after surgery by minimizing the physical assault on the body and decreasing the human physiological stress response.[5]

The first priority in ERAS begins with patient medical management before an elective procedure. Diabetes, coronary artery disease, and hypertension should be optimized with patient medication adherence demonstrated. Smoking (counseling beginning 4 weeks before surgery)[6] and alcohol cessation are also important so that these patients benefit from accelerated recovery through the multimodal and multidisciplinary approaches.[4] Adequate nutritional status decreases the risk of infection, wound healing, and length of stay.[6]

Unmanaged disease processes and end-organ dysfunction increase a patient's American Society of Anesthesiologists' risk stratification,[7] thereby increasing the potential for postoperative morbidity and mortality. Other untoward sequelae include an extended length of stay in the hospital to manage medical conditions exacerbated by the effects of surgical stress. The longer a patient is unable to mobilize because of medical management issues, the greater the risk for cardiovascular, pulmonary, and thromboembolic events. In addition, early and progressive ambulation enhances return of bowel function, allowing for more aggressive advance in nutrition and decreased muscle wasting.[4,8]

The entire process of ERAS was developed as a multidisciplinary team effort. Preadmission counseling begins important education for the patient and caregiver while allowing for identification of medical conditions before surgery. Allowing patients to consume supplemental carbohydrate drinks up to 2 hours before surgery and elimination of the traditional bowel preparation have important implications including an increase in