

Perioperative Nutrition: A High-Impact, Low-Risk, Low-Cost Intervention

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In this issue of *Anesthesia & Analgesia*, Paul Wischmeyer et al¹ have produced a Joint Consensus Statement on Nutritional Screening and Therapy within a Surgical Enhanced Recovery Pathway. The article provides a concise review of the literature evaluating the incidence and surgical outcomes of patients presenting for major surgery with poor nutritional status. The evidence presented shows that malnourished patients are 3 times more likely to have a complication at the time of surgery, and 5 times more likely to die compared with well-nourished patients. This article also assesses the impact of preoperative, perioperative, and postoperative nutritional interventions.

The Perioperative Quality Initiative process (described in the article) allows a pragmatic evidence-based approach for recommendations to help address 3 key issues currently impeding the introduction of a coordinated approach to perioperative nutrition:

1. A simple preoperative nutritional screening tool to trigger intervention;
2. Methods of providing nutritional support preoperatively; and
3. Optimizing postoperative nutrition.

The evidence presented on the incidence and influence of malnutrition in patients presenting for major surgery is disturbing. Up to 65% of patients presenting for major abdominal surgery have or are at risk of malnutrition during their surgical episode. The frail elderly, those with visceral malignancy, and patients presenting for major gastrointestinal surgery are at particularly high risk. The various disease states alter the balance between nutrients consumed and the metabolic demand of the host. The added burden of increased catabolism due to cancer cachexia or chronic

inflammatory states results in sarcopenia, which significantly alters outcome.²

Not only does malnourishment increase postoperative morbidity and mortality, it increases length of hospital and intensive care unit stay, as well as rates of readmission to hospital.^{3,4} The increase in cost of care for the malnourished is significant, particularly when the potential intervention is economical and has almost zero risk of harm. Wischmeyer et al have highlighted that there is a downstream cost saving of \$52 in hospital costs for every \$1 spent on appropriate nutritional intervention. A week of preoperative protein supplementation is <\$40. Despite this, only 1 in 5 institutions in the United States has a preoperative screening program to identify those patients at risk despite the majority of surgeons recognizing that intervention will reduce complications.

The authors have stressed some important approaches to nutritional management that are relatively new concepts. The first is the importance and value of protein intake goals rather than total calorie intake. The second is the evidence that eliminating oral fluid intake for 12–18 hours before surgery is not necessary, and that isotonic carbohydrate drinks can be safely given to most patients up to 2 hours before anesthesia. We are finally managing to reverse one of the biggest nonevidence-based dogmas in current medical practice: nil by mouth after midnight.

The French have always led the way in the field of gastronomy. Anthelme Brillat-Savarin wrote in 1825 a text, “Physiologie du Gout, ou Meditation de Gastronomie Transcendante” (Physiology of taste, or meditations of transcendent gastronomy), in which he set out 20 aphorisms. The third of these aphorisms, which states “the destiny of nations depends on the way they feed,” is profound in the face of modern US society, in which obesity is a major issue, with a recent Centers for Disease Control and Prevention report showing that nearly 40% of American adults and nearly 20% of adolescents are obese.⁵ The fourth aphorism was “Dis-moi ce que tu manges, je te dirai ce que tu es” (tell me what you eat and I will tell you what you are; more recently termed “you are what you eat”).

Perioperative nutrition has long been ignored in preference to interventions based around drug and surgical therapeutic interventions. Drug treatments with the same evidence-based impact on patient outcomes are normally hailed as a major advance in the treatment of our patients and accepted into mainstream medical practice. Whether a treatment is an active treatment intervention or an intervention to reduce harm, failure to deliver them would be deemed to be malpractice in the current health care system.

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For instance, routine use of aspirin and streptokinase in treating acute myocardial infarction was reinforced after the Second International Study of Infarct Survival (ISIS 2) study, originally published in 1988 in the *Lancet*.⁶ The number needed to treat to save 1 life with aspirin, streptokinase, or both was between 42 and 26, depending on whether the patient received aspirin, streptokinase, or both. The risk of harm was low in the aspirin group, at 1 in 167, due to gastrointestinal side effects. It was higher in the streptokinase group due to the risks of cerebral hemorrhage (0.1%) and bleeding requiring blood transfusion (0.5% vs 0.2% in the placebo arm); but the intervention became a standard of care at the time as the risk benefit ratio favored intervention. The use of statins to reduce cardiovascular risk in patients with known ischemic heart disease demonstrates a number needed to treat over 5 years of 83 to save 1 life, with the risk of side effects of muscle damage varying between 1% and 10% depending on how it is reported.⁷⁻⁹ Nutritional intervention in those with malnutrition is much more effective than these well-established drug interventions, and appears to have an extremely low risk of side effects. With this low risk for harm and significant potential benefit, nutritional intervention should be a mandatory “opt in,” with screening and treatment for all patients; just as risk of thromboembolic events are screened for and prophylaxis is instituted in nearly all surgical patients.

This article is a must-read for anyone involved in surgery and in perioperative services. The potential gain for patients by implementing a screening process and giving timely preoperative nutritional supplements that are continued through the operative and postoperative period is one of the simplest, safest, and most cost-effective interventions to improve a surgical patient’s outcome. The challenge now is to ensure that all patients receive it. After all, as Brillat-Savarin wrote in 1825, “you are what you eat.” ■

DISCLOSURES

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