Nutrition and Perioperative Care for the Patient with Head and Neck Cancer

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KEYWORDS

• Head and neck cancer • Malnutrition • Supplementation • Perioperative recovery
• Antibiotic prophylaxis • Anticoagulation

KEY POINTS

- Optimal recovery after major head and neck cancer surgery requires contributions from members of a multidisciplinary team. Preoperative counseling can facilitate preparation for surgery and recovery.
- Head and neck surgical wounds are often contaminated with flora from the upper aerodigestive tract. Appropriate perioperative antibiotic administration is needed to decrease the rate of wound infections.
- Perioperative pain management after major head and neck surgery is best accomplished through a multimodal approach that combines narcotic and nonnarcotic agents.
- Patients undergoing major head and neck cancer surgery are at increased risk for developing postoperative VTE and may require the use of sequential compression devices and/or systemic anticoagulants.
- Preoperative conditioning, incentive spirometry, early mobilization, intermittent positive pressure breathing, and deep breathing exercises can reduce the risk of pneumonia.

INTRODUCTION

The recovery from major head and neck ablative and reconstructive surgery is one of the more complex and challenging journeys patients and their families have to endure. The treatment will often have a significant impact on their ability to speak, swallow, and breathe. Because of the nature of their underlying malignancy, as well as the surgery associated with its removal, many individuals are at particularly high risk for perioperative complications, such as malnutrition, wound infections, VTE, and pneumonia. In addition, patients often battle pain and anxiety that can further predispose them to adverse outcomes. Herein, we summarize the current evidence-based best practices for the perioperative care of patients undergoing major head and neck surgery with the hopes of providing guidance that will improve outcomes.

PREOPERATIVE EDUCATION

Recovery after major head and neck surgery can be overwhelming for patients and families. Adjuncts such as tracheostomy and gastrostomy

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tubes, as well as wound care and drain management, require significant patient education and effort to optimize outcomes and avoid complications. Patients can benefit from preoperative education as a means to ease concerns and provide a smooth transition into the recovery period. Such teaching sessions have been shown to benefit patients in understanding the risks of operations, such as parotidectomy and thyroidectomy,[1] with shorter intervals between the education and surgery providing the most benefit.[2] Effective approaches include:

1. Patient education brochures,[3]
2. Preoperative visits with a social worker,[4]
3. Counseling sessions with a speech language pathologist (for patients preparing for total laryngectomy),[5] and
4. The use of multimedia and/or computer-based educational modules.[6,7]

Preoperative education is beneficial to patients undergoing major head and neck cancer surgery, and should be offered, when possible.

NUTRITION

Head and neck cancer and its associated therapy can significantly predispose patients to the development of malnutrition. Etiologies of malnutrition can include difficulty or pain with swallowing, loss of appetite/poor dietary habits, alterations in taste and saliva production, depression, and poor social support. In fact, malnutrition has been shown to occur in up to 50% of this population[8] and can have a significant negative impact on patient quality of life[9] and survival.[10]

For patients undergoing therapy for head and neck cancer, the identification and treatment of significant malnutrition is critical to improving outcomes. The optimization of perioperative nutrition has been shown to reduce the risk of wound infection and refeeding syndrome, and decrease duration of stay in patients undergoing surgical management of head and neck cancer.[11] A recent publication examined the impact of the Enhanced Recovery After Surgery, emphasizing the importance of nutrition on perioperative outcomes.[10] As a part of this effort, it is important to have close communication between all members of the multidisciplinary team, including surgeons and dietary/nutritional experts.

Patient Assessment and Screening for Malnutrition

The evaluation of a patient's nutritional and functional status allows for identification of modifiable factors that can in turn reduce morbidity and avoid interruptions in treatment. Although there are numerous tools that have been proposed for screening patients for clinically significant malnutrition, percent body weight loss and the validated Patient-Generated Subjective Global Assessment (PG-SGA) survey have demonstrated the most relevance.[11–14]

The most straightforward and widely accepted criteria for identifying severe malnutrition is the loss of 10% of body weight over a 6-month period or 5% of body weight over the past month. This is also the method endorsed by the National Comprehensive Cancer Network.[15,16] As a screening tool, when compared with well-nourished patients, this degree of weight loss has been shown independently to predispose individuals to major surgical complications,[12–14] a lower quality of life,[9,17] and increased mortality.[18,19] Van Bokhorst-de van der Schueren and colleagues[13] demonstrated that, after taking into account weight loss greater than 10% as a prognosticator of malnutrition and surgical complications, additional measurements, including percent ideal body weight, nutritional index, and serum albumin were not predictive of major complications. Gianotti and colleagues[14] similarly demonstrated that unlike weight loss of greater than 10%, albumin, total lymphocyte count, total iron-binding capacity, and serum cholinesterase showed a nonsignificant improvement in predictive ability of postoperative infection. In addition to weight loss, the PG-SGA has also shown application as a validated tool for the assessment of malnutrition in the population of patients with cancer (**Fig. 1**).[11,12]

The PG-SGA survey categorizes the patient into 1 of 3 nutritional categories, with the most severely malnourished category being predictive of surgical complications. Indeed, Ravasco and colleagues[12] compared the PG-SGA with percent body weight loss and body mass index in an attempt to identify the best prognosticator of malnutrition. The authors demonstrated that weight loss was the best single prognosticator, but sensitivity and positive predictive value could be improved by combining weight loss with the PG-SGA.

Summary

Percent body weight loss greater than 5% over the last month or greater than 10% over the last 6 months can adequately identify patients at greatest risk of postoperative complications from severe malnourishment. The addition of the PG-SGA may be able to identify a larger number of such patients.