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A System-Based Nursing Approach to Improve Outcomes in the Postoperative Esophagectomy Patient

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Objective: *To review essential nursing implications in the care of postoperative esophagectomy patients.*

Data Sources: *Peer-reviewed literature, institutional experience, journal articles.*

Conclusion: *Utilizing a system-based approach to assess the post-esophagectomy patient will assist the nurse in ensuring safe and comprehensive care.*

Implications for Nursing Practice: *Nursing care measures to reduce perioperative esophagectomy morbidity includes aggressive fluid management, pain management, use of epidural analgesia, and early ambulation. Therefore, nurses play a significant role in improving the outcomes for the esophagectomy patient.*

Key Words: *esophagectomy, transhiatal, Ivor-Lewis, anastomosis, pneumonia.*

Esophageal cancer is much more common in other parts of the world, but constitutes only 1% of all cancers in the United States.[1] It is estimated that there will be 16,910 new cases and 15,690 deaths in 2016.[2] Men are affected three to four times more often than women and whites are affected three to four times more often than African Americans.[3] The overall 5-year survival rate for people with esophageal cancer is 18%.[4] Given that the prognosis of esophageal cancer is poor, postoperative nursing care in this patient population can have a major impact on the recovery of the patient. Astute nursing care

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of these patients cannot only speed up the recovery time from surgery, but more importantly, dramatically improve overall patient outcomes. There is a gap in the literature on the comprehensive nursing care of this complex patient population. This article uses a system-based approach to guide nurses on the state of the science for the care of esophagectomy patients with the goal of improving their postoperative outcomes.

Etiology and Presentation of Esophageal Cancer

There are multiple hypotheses regarding the causes of esophageal cancer, although the precise etiology is unknown. The majority of esophageal cancer cases fall under two histologies; squamous cell carcinoma (SCC) and adenocarcinoma. Nutritional deficiencies, especially a lack of fruits and vegetables, and thermal injury to the esophagus from foods and beverages of high temperatures have been associated with SCC.[5] Cigarette smoking and alcohol consumption are major risk factors for esophageal SCC, as well as cigar and pipe smoking, but to a lesser extent.[6,7] In Asia, dietary factors significantly contribute to esophageal SCC, including pickled vegetables which contain N-nitroso compounds, and chewing areca nuts or betel quid, which release carcinogenic copper.[8-10] The role of human papillomavirus in esophageal SCC has been widely researched for more than three decades, with continued conflicting findings, the most recent reports conclude no supportive evidence.[11,12] Achalasia, a benign motility disease characterized by a lower esophageal sphincter that does not relax resulting in massively dilated aperistaltic esophagus, is another condition that has been shown to be a risk factor for SCC, with a prevalence of 1.5%.[13]

Adenocarcinoma accounts for more than 70% of newly diagnosed esophageal cancers in North America.[14] Adenocarcinoma is associated with Barrett's metaplasia, typically seen in patients with a history of gastroesophageal reflux disease, and obesity.[15] Barrett's esophagus occurs when the lower esophageal lining abnormally changes from normal squamous epithelial lining to columnar lined epithelium with mucous-secreting goblet cells typically found in the intestines (intestinal metaplasia).[16] Identification of risk factors in the general population has suggested that the incidence of both SCC and adenocarcinoma may be decreased by reducing smoking, gastroesophageal reflux disease, and obesity, and by increasing consumption of fruits and vegetables.[17]

The classic presentation of esophageal cancer is dysphagia (difficulty swallowing). Dysphagia initially occurs with solid food and progresses to include soft foods, liquids, and even saliva over the course of weeks to months.[18] Odynophagia, or painful swallowing, is another common symptom. Regurgitation of food immediately after swallowing can occur as the tumor narrows the esophageal lumen. As a consequence, the patient may begin to experience a decreased appetite with subsequent weight loss. If a mid-esophageal tumor or metastatic lymph nodes invade the left recurrent laryngeal nerve, a patient can present with hoarseness.[19] Similar to other cancers, esophageal cancer can spread via local extension to adjacent structures such as the mediastinum. If a patient reports constant midback or midchest pain, this could suggest mediastinal invasion. Within the wall of the esophagus, there is an extensive network of lymphatic channels, hence a large proportion of patients present with lymph nodes already involved with cancer.[20] Most patients with symptomatic esophageal cancer at initial presentation are diagnosed with advanced disease.[21]

Staging of Esophageal Cancer

The most important prognostic factor for esophageal cancer is the stage of disease at the time of diagnosis. Multiple steps are required to accurately diagnose and stage esophageal cancer. This evaluation consists of an endoscopic biopsy of the tumor, computed tomography (CT) of the chest and abdomen, endoscopic ultrasound to assess depth of primary tumor invasion and to evaluate regional lymph nodes, and a positron emission tomography (PET) scan. The American Joint Committee on Cancer utilizes the tumor, lymph node and metastasis (TNM) staging system as a standard approach to help guide the management of cancer patients, including those with esophageal cancer.[22]

Esophagectomy Versus Chemotherapy and/or Radiation

The National Comprehensive Cancer Network provides guidelines for the treatment of esophageal