Rehabilitation for the Head and Neck Cancer Patient

As the economics of health care increasingly dictate the parameters of patient care delivery, the role of rehabilitation has taken on new meaning with regard to positive patient outcomes. This is particularly true for the head and neck cancer patient coping with devastating physical and functional changes. With treatment advances leading to increased survival, health-care providers must therefore focus on restoring function and assisting the patient to achieve an acceptable quality of life. For the head and neck cancer patient with multiple rehabilitation needs, this can best be accomplished through a comprehensive, coordinated approach, utilizing interdisciplinary clinical and community resources aimed at facilitating the rehabilitation process and ultimately achieving individualized rehabilitation goals.

Although head and neck cancer accounts for only 5% of all malignancies,[1] the resulting disfigurement and functional changes heighten the impact of this disease. Patients diagnosed with a head and neck malignancy face extensive and radical treatment approaches, including surgical intervention, radiation therapy, and chemotherapy, all of which can severely affect the patient's quality of life in terms of speech, swallowing, and cosmetic appearance. Health-care providers must therefore focus not only on eradicating the disease process but also on restoring function and maintaining the psychosocial well-being of the patient and significant others. Realistically, cancer care is incomplete unless rehabilitation is addressed. That is, if we only treat the cancer and do not rehabilitate the patient, then we have failed to provide complete care.[2]

Rehabilitation can be defined as an active, changing process focused on assisting patients to achieve optimal physical functioning after treatment, within the limits imposed by the disease entity.[3] Rehabilitation involves ongoing follow-up and continues until patients have achieved their goals or have reached their rehabilitation potential.

The etiology of most head and neck cancers is related to the use of tobacco in all forms: cigars, cigarettes, pipes, and smokeless tobacco products. When tobacco is used in combination with alcohol consumption, a synergistic effect occurs on the tissues of the upper aerodigestive tract and a malignancy may develop within the oral cavity, pharynx, larynx, or esophagus.[4] Histologically, most head and neck cancers are squamous cell in nature.

The Head and Neck Rehabilitation Process

Pretreatment Interventions

Head and neck tumors are diagnosed through history, presentation of risk factors, head and neck examination, and family history. Diagnostic evaluation includes computed tomography (CT) and magnetic resonance imaging (MRI) to assess tumor extension and identify nodal involvement. A panendoscopy with biopsy allows for thorough examination and tissue diagnosis to document the nature of the tumor.

The tumor is staged using the TNM system of the American Joint Committee for Cancer. This system categorizes primary tumor size (T), degree of nodal involvement (N), and evidence of metastasis (M). Tumor staging is inherent to treatment planning since therapeutic options are determined by tumor location, histology, and staging. Conventional treatment modalities are surgery and radiation therapy, used either alone or in combination. Chemotherapy is reserved for patients with persistent disease[5] or as part of an investigational protocol.

Patients who need radiation therapy are referred to a dentist for a pretreatment dental evaluation and prophylactic dental care because of the potential results of xerostomia, dental caries, and osteoradionecrosis. Dental extractions must be accomplished before radiation is initiated and the patient should be placed on an oral hygiene protocol,[3] including the daily use of fluoride trays.

Preoperative Interventions

Ideally, the process of rehabilitation begins when the cancer is diagnosed and a definitive treatment plan is developed. Preoperative interventions may include the following:

1. **Speech and swallow assessment:** These assessments are crucial in determining the patient's ability to manage food and fluids during and after treatment. Speech therapists can provide interventions to improve swallow function and prevent aspiration.

2. **Craniofacial photothermography:** This technology assesses the blood flow and temperature of the facial skin, which can be affected by radiation therapy. Early identification of skin changes can help prevent complications.

3. **Dental prophylaxis and dental care education:** Dental care education is essential to maintain oral hygiene and prevent complications such as tooth decay and infections.

4. **Dentures and prosthetics:** Patients may require dentures or prosthetics to compensate for mouth soreness or to facilitate eating and speaking during and after treatment.

5. **Psychosocial support:** Patients and their families benefit from support groups, counseling, and other resources to cope with the emotional and physical challenges of cancer treatment.

Postoperative Interventions

Postoperative interventions are aimed at accelerating the recovery process and minimizing complications. These may include:

1. **Physical therapy:** Depending on the site of the tumor, physical therapy may be necessary to improve swallowing, speech, and mobility.

2. **Speech therapy:** Speech therapy may be needed to improve swallowing and communication skills following radiation therapy or surgery.

3. **Nutritional support:** Patients may require nutritional supplements or feeding tubes to maintain adequate nutrition during the postoperative period.

4. **Psychosocial support:** Ongoing support is crucial to address the emotional challenges of postoperative care.

5. **Rehabilitation planning:** Rehabilitation plans should be个体化, focusing on the patient's specific needs and goals.
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Published on Physicians Practice (http://www.physicianspractice.com)

plan has been established. If surgical intervention is to be the primary treatment modality, the patient and significant others should be scheduled for preoperative teaching with a nurse who is knowledgeable about postoperative management of the head and neck cancer patient. Teaching can be done in the physician's office, the otolaryngology-head and neck clinic, or a rehabilitation setting. When possible, the social worker and speech-language pathologist participate in the teaching session.

The social worker performs a psychosocial assessment to determine the patient's preillness personality, coping skills, and support systems and to identify potential emotional, marital, family, financial, and vocational implications of the illness.[6] The speech-language pathologist evaluates the patient's current communication and swallowing status, which provides important baseline information.

The nurse completes a head and neck assessment to identify actual and potential health problems and identify the patient’s physical and emotional strengths and limitations. The nurse also completes a health history, including presenting symptoms, past medical and surgical history, risk factors, allergies, current medications, current methods of pain control, and nutritional status. When indicated, an oral assessment should be performed to determine the size, location, and characteristics of oral cavity lesions. Since altered communication can be an ongoing issue, the patient's educational level and literacy is also determined.

Preoperative teaching, directed at the patient's level of understanding, clarifies and enhances information previously provided by the physician. Patients often have misconceptions or a limited understanding of the surgery, not because the physician failed to provide information but because anxiety prevents the patient from comprehending and processing the overwhelming details of information.

Preoperative teaching is individualized but should include a basic review of normal airway anatomy and physiology and the alterations that will occur as a result of surgery. Using “before and after” diagrams is helpful in illustrating these changes. The nurse should discuss the postoperative plan of care, including an explanation of all equipment and procedures to be used, such as the surgical intensive care experience, airway management via tracheostomy with suctioning, nutritional management via nasogastric tube or gastrostomy tube, wound drains, pain management, and expected progress.[7]

Patients undergoing total laryngectomy can benefit from meeting with a rehabilitated laryngectomee who has achieved a good level of communication. This preoperative session is a key element in successful rehabilitation as the staff begins to establish rapport and trust with the patient and significant others, which, in turn, helps minimize anxiety.

Postoperative Interventions
Effective rehabilitation is contingent upon conscientious postoperative nursing care aimed at promoting wound healing, preventing complications, and fostering self-care abilities. Postoperative patient management includes care of the altered airway, wound and flap care, oral hygiene, nutritional management, speech and swallowing therapy, self-care teaching, and discharge planning.

Tracheostomy Care
The placement of a tracheostomy in conjunction with a planned head and neck operation eliminates the presence of an endotracheal tube in the operating field and ensures preservation of the airway in the face of upper airway edema. The presence of a temporary or permanent tracheostomy (as with total laryngectomy) requires meticulous airway management to maintain an adequate airway and preserve pulmonary function. A cuffed tracheostomy tube is used initially since the inflated cuff creates a seal between the oral cavity and the lungs, preventing aspiration until the patient is able to safely manage secretions. Using the minimal leak technique, cuffs should be inflated to the resting volume, which should not exceed 25 mm Hg.[8]

It is beyond the scope of this paper to discuss the variety of tube materials and designs that address the individualized needs of tracheostomy patients. Tracheostomy care should be performed as a sterile procedure every 4 hours and when necessary to maintain a patent airway and prevent obstruction. The components of care include instilling normal saline, suctioning as needed, cleaning the inner cannula, care of the peristomal skin, and maintenance of humidity via a mist collar. Universal precautions must always be utilized.

Decannulation of a temporary tracheostomy is accomplished when upper airway edema has subsided and the patient demonstrates the ability to manage oral secretions without aspiration.[9] Weaning the patient from a temporary tracheostomy is accomplished by decreasing the size of the tube to a smaller, uncuffed tube and placing a cork or decannulation stopper in the inner cannula. If the patient tolerates corking for a 24-hour period, the tube is removed and an occlusive dressing is
placed over the tracheostomy site. The patient is instructed to place two fingers over the dressing when talking or coughing to create a seal until the wound has healed. The patient is also taught to change the dressing when soiled or wet. The wound will begin to heal within a few days.

**Wound and Flap Care**

Radical surgical resections often result in defects that require the use of reconstructive flaps for wound closure and carotid artery protection, as well as restoration of function and cosmesis. The surgeon individualizes reconstruction based on the patient’s health status, vascular integrity, rehabilitation potential, and the size and location of the defect. Small, intraoral defects may be closed primarily and covered with a skin graft or local flap, while larger defects may require a myocutaneous or free flap.[10] Myocutaneous flaps can be used to repair defects in both anterior and posterior oral cavity sites. A myocutaneous flap utilizes muscle, subcutaneous tissue, and a pedicle of skin, including an extensive blood supply. The flap is exposed and tunneled under the skin to cover the defect. Muscle donor flaps include the pectoralis major, latissimus dorsi, trapezius, and sternocleidomastoid.[11]

Frequent wound assessment and wound care are essential to determine the status of the wound and ensure the integrity of both internal and external suture lines. Assessment parameters include color, temperature, and capillary refill. Flaps are usually pale pink in color. A bluish, dusky, or cyanotic flap indicates venous congestion. A pale or white flap indicates an absence of blood supply. Flaps should feel warm to the touch; a cool flap indicates a compromised arterial blood supply. The tissue should display evidence of good capillary refill by blanching under gentle finger pressure with a quick return of color when pressure is released.[11] All external suture lines should be cleansed using hydrogen peroxide and normal saline followed by the application of an antibiotic ointment.

During surgery, drains are placed in the incision to remove blood and serum and prevent the formation of hematomas and seromas. The nurse maintains patency of the wound drainage catheters and continuous suction via the closed drainage system. Using sterile technique, drains should be emptied and measured every 4 hours, noting the color, amount, and consistency of the drainage. It is important to avoid pressure on the flaps from tracheostomy ties and tracheostomy mist collars and position the patient to avoid tension on the flap.[12]

The advent of microvascular surgery has enabled the use of free flaps, allowing tissue to be transferred from a distant site without the attachment of a pedicle. Common free flaps include the radial forearm flap, used to reconstruct posterior pharyngeal defects, and the fibular free flap, used for mandibular reconstruction. The flap donor site is covered with a split-thickness skin graft and immobilized for several days. Free flap viability is assessed using a Doppler probe, which detects an audible pulse. It is helpful to mark the pulse point with a skin marker if possible. Although the Doppler pulse is an important parameter, clinical observations must also be utilized in total flap assessment.[13]

**Oral Hygiene**

Assessment of intraoral suture lines is best accomplished using a flashlight to inspect the tissues and identify flap dehiscence, crust formation, poor oral hygiene, and pooling of secretions. Intraoral wound care is administered using oral irrigations and mouth rinses, which keep the operative area free of debris, stimulate blood supply, aid in the formation of granulation tissue, and promote a comfortable, functional oral cavity.

If the patient has good oral competence, a mouth rinse or “swish” may be used. Patients who have excessive crusting or thickened saliva benefit from the mechanical action provided by an oral irrigation solution or irrigation device (eg, Water Pik). The most effective irrigating solutions are combinations of normal saline, hydrogen peroxide, and soda bicarbonate. Commercial mouthwashes containing alcohol should be avoided because of their drying and irritating effects on the oral tissues. Unless contraindicated, a Yankauer oral suction tip is a useful aid for the patient who is unable to control saliva. However, patients should be encouraged to swallow the saliva as healing occurs.[4]

**Prevention and Treatment of Complications**

The postoperative head and neck surgical patient is at risk for the development of a salivary fistula. Orocutaneous and pharyngocutaneous fistulas occur when the suture line breaks down and bacteria-laden saliva contaminates the wounds or reconstructive flaps. The use of preoperative radiation therapy poses an additional threat, as radiation decreases tissue vascularity and thus contributes to compromised wound healing.

Signs and symptoms of infection include erythema, edema, and tenderness of the suture line, a low-grade fever, and the presence of saliva or purulent drainage. The suture line may be opened to facilitate drainage and debridement. The wound is then treated with frequent antiseptic dressing changes and the patient is maintained on nothing by mouth to prevent further wound contamination.
Intravenous antibiotics are initiated after wound cultures are obtained. If the wound does not heal by granulation, surgical closure using a reconstructive flap may be necessary.[4]

An infrequent complication occurs when chyle leaks from the thoracic duct into the lateral neck wound, resulting in elevated skin flaps, edema, and erythema. Drainage is copious with a clear, opaque, or milky appearance and may increase in amount when the patient eats. A drainage specimen is sent to the laboratory to be analyzed for the presence of amylase. Drainage must be accurately measured and recorded and the patient should be closely monitored for fluid and electrolyte imbalance.[14] Chylous fistulas are usually managed by surgical closure.

The presence of an exposed neck wound also places the patient at risk for rupture of the common carotid artery, which is a life-threatening emergency. The onset of a wound infection with skin flap necrosis and fistula formation or the presence of tumor invasion are significant predisposing factors. The patient should be placed on a carotid precautions protocol, keeping emergency equipment at the bedside and implementing frequent monitoring of vital signs, airway, responsiveness, pain, intravenous access, and wound status. Changes in wound size, shape, color, absence or presence of induration, drainage, and temperature should be documented.[15] Care should be taken to avoid straining, as occurs with constipation, vomiting, coughing, and deep suctioning, and to reduce emotional stress. The nurse should report complaints of high epigastric pain and any small amounts of bleeding, which may be indications of impending hemorrhage.

In the event of carotid artery rupture, the nurse must remain with the patient while signaling for help. Immediate interventions are aimed at maintaining the airway by inflating the tracheostomy cuff and controlling bleeding with firm pressure to the site using a towel or gauze dressing. Intravenous fluids are rapidly administered to prevent hypovolemic shock. The patient is prepared for transport to the operating room for arterial ligation. In many cases, the patient will remain conscious throughout this event and should therefore be cared for with sensitivity and support.[11]

**Nutritional Management**

Maintenance of proper nutrition is critical to the healing process and, thus, the success of rehabilitation. Most head and neck cancer patients present with nutritional deficiencies due to the tumor burden and associated symptoms of dysphagia, odynophagia, anorexia, and weight loss, all of which can lead to cachexia. Furthermore, chronic alcohol abuse accompanied by liver damage, impairs metabolism, placing the already compromised patient at increased risk for poor wound healing and treatment tolerance. When possible, patients should be referred to a clinical dietitian during the pretreatment phase for a baseline nutritional assessment, which should include a nutritional history, anthropometric measurements, and evaluation of laboratory chemistries.[16]

Nutritional management is critical to postoperative care. The patient should take nothing by mouth until edema subsides, suture lines are healing without complications, and the patient demonstrates the ability to swallow oral secretions. Unless the gastrointestinal tract is compromised, enteral therapy is the feeding method of choice.

A small-bore nasogastric tube is utilized as a short-term feeding intervention, while a gastrostomy tube is preferable for the patient who will require long-term nutritional therapy accompanied by the need for postoperative radiation therapy. A jejunostomy tube is used when a gastrostomy tube is contraindicated, and for the patient who has had a gastric pull-up procedure or jejunal free flap procedure. The clinical dietitian recommends appropriate enteral therapy in terms of product selection and volumes to ensure complete nutrition.[17]

Nutritional responsibilities include administration of enteral feedings, site care, monitoring for complications, and patient education. Once bowel sounds are present, continuous feedings are initiated via a feeding pump at a low volume, slowly increasing the amount of feeding delivered until the patient tolerates a rate of 80 mL/h. At this point, bolus feedings can be implemented. Jejunostomy feedings must always be delivered by a feeding pump; however, feedings may be cycled for the patient’s convenience. If the feeding tube has been surgically placed, the site is cleansed with an antiseptic solution twice daily. When long-term enteral therapy is expected, the patient and significant others should be taught self-care procedures in preparation for discharge.[17]

Potential complications include tube blockage and intolerance problems related to osmolality, bloating, diarrhea, constipation, nausea and vomiting, and the dumping syndrome. If intolerance occurs, feeding is decreased in strength or amount and the dietitian is consulted for further recommendations.[17]

**Self-Care Teaching**

Self-care, as described by Orem, involves those activities performed by an individual to maintain life, health, and well-being. This concept has served as a philosophy and framework for nursing practice, and it is an integral part of rehabilitation as the nurse teaches the patient self-care tasks.[18]
If the patient has had a laryngectomy, the nurse assesses the size and integrity of the stoma and determines the patient’s readiness for self-care teaching. This is an important step in the rehabilitation process as the patient learns to adapt to the changes brought on by the disease and surgical treatment. According to Dropkin, self-care reflects the coping strategies of confrontation and compliance necessary to the process of body image reintegration, which is one of the long-term goals of head and neck rehabilitation.[19] The first step is to determine whether or not the patient has looked in a mirror. If not, the nurse assists the patient in taking this often emotionally painful step. Preparing the patient by describing the stoma, facial edema, ecchymosis, suture lines, and wounds helps the patient confront the altered self-image.

Self-care teaching begins by assessing the patient’s readiness to learn and contracting with the patient for a time to begin learning self-care procedures. When possible, family members should be present to lend additional support. Teaching a procedure, such as tracheostomy or laryngectomy care, is time-consuming and should therefore be implemented early in the recovery period. The teaching process begins with a step-by-step demonstration and explanation of the procedure, which should include instilling normal saline, suctioning, tube care, and tube changes.[20] Any equipment needed by the patient at home, such as a suction machine, should be obtained in advance.

During the teaching process, the nurse carefully gauges the patient’s response and encourages the patient to repeat the demonstration with help. The patient is then placed on a schedule of self-care with nurse supervision, meaning that staff nurses observe the patient performing self-care around the clock to prepare the patient for discharge and promote ongoing compliance with care. Information regarding activities of daily living, such as showering and shaving, stoma covering, and providing humidity, should be provided to the patient and family. In addition, the family should be instructed about emergency mouth-to-stoma resuscitation and signs and symptoms requiring immediate medical attention, such as difficulty breathing or swallowing and drainage or bleeding from the stoma. All instructions should be provided in writing.[21]

The postoperative maxillectomy patient also requires self-care instruction as the nurse assists the patient in viewing the defect. Once the oral packing has been removed, oral hygiene measures are implemented prior to and following meals, using an irrigation device. The nurse also instructs the patient in placement and care of the maxillary prosthesis.[22]

**Discharge Planning**

The postoperative head and neck patient often presents with complex home care needs, such as airway maintenance, wound care, and nutritional follow-up, which require comprehensive discharge planning. The social worker initiates the home health-care referral, based on third-party coverage, while the nurse coordinates the appropriate orders with the attending physician and ensures that the patient and family receive the necessary instructions. The social worker should make a follow-up telephone call to the patient within 3 days of discharge to assess the patient’s health status and adequacy of home health-care interventions.

**Head and Neck Rehabilitation Issues**

Rehabilitation issues for the head and neck cancer patient vary depending on the type of treatment and the extent of resulting dysfunction, as shown in Table 1. These are ongoing problems that can be managed on an outpatient basis, with the appropriate resources.

**Airway Management**

Airway maintenance and stomal management problems require acute outpatient follow-up and quality improvement monitoring. Long-term tracheostomy patients often present with excessive stomal granulation or “proud flesh” due to a delay in epithelization. This can be treated with frequent tracheostomy tube changes, good stoma site care, and use of silver nitrate.

Tracheitis is a problem characterized by erythema of the trachea, unproductive cough, a thickening of secretions with mucous plugging, shortness of breath, and blood-tinged secretions. Tracheitis is treated by providing direct humidity, frequent instillation of normal saline, stoma covering, antibiotics, and the use of guaifenesin.[23]

Stenosis of the stoma is occasionally seen in the postlaryngectomy patient and is managed by placement of a laryngectomy tube, increasing the size of the tube with each change until an adequate airway has been achieved. Occasionally, a surgical revision of the stoma is required. The temporary tracheostomy patient should also be followed closely to determine readiness for decannulation.

**Speech and Swallowing**

Most head and neck cancer patients will encounter difficulties with speech and swallowing. These
can be caused by the tumor burden and as sequelae of surgical intervention as the structural
compentence of the upper aerodigestive tract is altered. Swallowing deficits can occur during any of
the four phases of swallowing—oral preparatory, oral, pharyngeal, and esophageal—and may lead to
aspiration with subsequent pulmonary problems.[24]

Depending on the healing process, swallowing therapy may be initiated during hospitalization or may
be dealt with in the postdischarge period. The speech-language pathologist completes an oral
assessment, observing secretion management and assessing oropharyngeal sensation and function,
as well as cough and swallowing responses. Swallowing ability may be evaluated clinically by giving
the patient a test bolus and observing for signs of aspiration. When indicated, a modified barium
swallow is done to evaluate the postoperative anatomic and physiologic changes in swallowing and
to assist in the development of a swallowing plan.

Swallowing therapy focuses on the use of facilitations and compensatory strategies, including head
and neck positioning; determining the proper temperature, size, and consistency of the food bolus;
and bolus delivery methods, such as alternating soft foods with liquids. Assistive oral feeding
devices, such as syringes and glossectomy spoons, may be utilized for food placement as
needed.[25] In addition, instant thickeners provide a means of thickening liquids and adding
consistency to soft foods without altering their taste.

The clinical dietitian works closely with the speech-language pathologist to plan an appropriate
dysphagia diet and ensure complete nutrition. The speech-language pathologist recommends
appropriate food consistencies, including solids and liquids, as well as the need to implement calorie
counts and supplemental nutrition. As oral intake increases, enteral feeding amounts are decreased
to avoid fullness and work towards weaning from enteral therapy. Other helpful strategies include
calorie counts and food diaries recorded by the patient and monitored by the dietitian.

Some surgical procedures require specific swallowing interventions. For example, the patient with a
supraglottic laryngectomy is taught the supraglottic swallow for airway protection. The patient
is instructed to hold the breath while bearing down to close the vocal folds, then swallow while
breath-holding and coughing while exhaling after the swallow.[24] Cancers of the palate require
resections of the hard and soft palate and may result in nasal regurgitation, difficulty chewing and
altered oral-nasal resonance. In this instance, the speech-language pathologist works closely with
the maxillofacial prosthodontist in fitting of a palatal prosthesis or obturator which allows the patient
to eat and chew without leaking food and fluids and to speak with clarity.[25]

Speech deficits are also evaluated, with therapy aimed at maximizing tongue mobility and improving
articulation and speech intelligibility. The initial assessment following resections of the oral cavity
takes place when healing is ensured. The speech-language pathologist evaluates the integrity of oral
structures, tongue and jaw mobility, articulation, resonance, and intelligibility. Therapeutic
interventions include range-of-motion exercises to increase lateral and vertical tongue mobility and
strength.[25]

Speech therapy following total laryngectomy begins with a preoperative evaluation, as previously
described. Communication options for the laryngectomee include the use of an electrolarynx,
esophageal speech, and tracheoesophageal puncture (TEP) or surgical voice restoration.

The electrolarynx is a battery-operated speech device placed either against the neck or intraorally to
produce a vibratory sound, which is shaped into speech by the lips and tongue. This is usually the
first method of speech communication and can be introduced as soon as the patient is receptive.
Since neck placement is not an option until edema subsides, the device is initially used with an oral
adaptor.

Esophageal speech requires that the patient learn to inject and trap air into the esophagus, then
expel the air to produce sound, which is converted into speech.

The TEP involves the creation of a fistula between the posterior tracheal wall and the esophagus.
This tract is fitted with a small prosthesis that shunts pulmonary air into the esophagus to create a
sound source. A valve can be adapted to the peristomal area for “hands free” speech. Once the
puncture has been surgically created, the speech-language pathologist sizes the tract, places the
prosthesis, and instructs the patient in maintenance and prosthesis placement. TEP can be done
primarily at the time of surgery or as a secondary procedure after healing and radiation therapy.[24]

Maxillofacial prosthetics is a critical component of head and neck rehabilitation, as oral
competence and mastication depend on the integrity of the mandible, maxilla, dentition and gingiva.
The prosthodontist works closely with the surgeon on surgical resections and the potential outcomes
of reconstruction so that a functional intraoral prosthesis can be created. Also, as mentioned, the
prosthodontist also collaborates with the speech-language pathologist in developing a prosthesis
that helps achieve the goals of speech and swallowing.[26]
Trismus
Trismus, or mandibular hypomobility, can significantly affect the patient's ability to eat, speak properly, and perform oral hygiene. Trismus occurs from surgical and radiotherapy changes secondary to soft-tissue fibrosis and can result in such complications as altered nutritional status and difficulties in airway management. Traditionally, trismus has been treated by placing stacked wooden tongue depressors between the molars. Current treatment modalities may incorporate the use of jaw mobility devices, such as the Therabite Jaw Rehabilitation System. Trismus must be identified and treated early to prevent it from becoming irreversible.[27]

Shoulder Dysfunction
Damage or sacrifice of the spinal accessory nerve following radical neck dissection results in shoulder dysfunction accompanied by pain and an inability to lift, push, and carry heavy objects. Physical therapy is usually recommended, with the goal of increasing range of motion and muscle strength while reducing and eliminating pain.

Psychosocial Issues
In addition to facing major disfigurement and dysfunction, the patient with cancer of the head and neck must cope with a life-threatening illness, loss of a major body part, and the need to learn new skills. It is therefore reasonable to expect the patient to exhibit adjustment difficulties throughout the rehabilitation process. In general, the need for psychosocial support varies according to the extent of the treatment and the patient's ability to cope with major losses. It is important to keep in mind that the etiology of head and neck cancer is primarily related to the use of tobacco and alcohol. All health-care providers must be aware of the potential problems related to substance abuse, particularly alcohol and tobacco withdrawal tendencies.[6] The patient should be referred to the appropriate clinician when indicated. Common emotional reactions relate to anxiety and depression. Anxiety can be reactive or illness related, or it can be manifested as an anxiety disorder, which may preexist the cancer diagnosis. Depression is not uncommon among this patient population, particularly in patients with a history of alcoholism.

Breitbart and Holland report that the primary psychosocial problems of rehabilitation are fears of socializing with others, difficulties with dysfunction and disfigurement, and continued use of tobacco and alcohol. Head and neck patients cannot hide cosmetic changes and often become socially isolated.[6] Baile and Scott have found that the most common social problems encountered by the head and neck patient are a limited family/social support system, limited financial resources, and significant stress levels for the patient and family as a unit.[28] The social worker sees patients on an ongoing basis to provide individual and family psychosocial counseling and to communicate with other health-care providers regarding appropriate patient management strategies. A psychiatric referral is initiated if the patient demonstrates suicidal ideation or clinical depression. Patients should also be referred to local cancer support groups and other community resources.

Head and neck cancer survivors share many common bonds and draw strength from each other through the support group modality. Support groups help patients feel less isolated and more empowered. They provide a forum for open discussion of fears and concerns in a therapeutic environment, as well as opportunities for patient education. Patients learn how others cope with the diagnosis and treatment side effects in order to remain hopeful. Spouses and significant others also gain from the experiences of other family members. Issues of discussion typically include the experience and side effects of radiation therapy, symptom management, nutritional tips, frustrations with being understood, and reactions of others. Groups can be led by a social worker or nurse knowledgeable in the process of group dynamics.[29]

Rehabilitation Goals
Goal setting is a major part of rehabilitation and revolves around the patient’s desires and anticipated rehabilitation outcomes. Long-range goals are established with the implementation of each treatment modality and differ depending on the tumor site and expected treatment results. Goals may be focused on prevention, restoration, palliation, or support, but they must be realistic and individualized for each patient.[2]

Resources for Laryngectomees
Devices
Luminaud Co.
8688 Tyler Boulevard, Mentor, OH 44060
(212) 255-9082
Cooper-Rand Electrolarynx,
stoma covers, necklaces
Siemens Hearing Instruments, Inc.
16 E. Piper Lane, Commerce Center B, Suite 128
Prospect Heights, IL 60070-1799
(800) 766-4500
Servox Electrolarynx
Bruce Medical Supply
411 Waverly Oaks Road, P.O. Box 9166
Waltham, MA 02254
(800) 225-8446
Laryngectomy/tracheostomy accessories,
stoma covers, speech aides
Cardinal Manufacturing, Inc.
1055 East 52nd Street, P.O. Box 55223
Indianapolis, IN 46205
(317) 283-4175
E-Z Breathe Foam Filter
Stoma Cover

Pamphlets/Books
“First Aid for (Neck Breathers) Laryngectomees”
American Cancer Society and International Association of
Laryngectomees
1599 Clifton Road, NE, Atlanta, GA 30329-4251
71-100M—Rev. 4/92—No. 4522
Looking Forward ... A Guidebook for the Laryngectomee, 2nd Edition
By Robert Keith
Thieme Medical Publishers, Inc.
381 Park Avenue South, Suite 1501, New York, NY 10157-0208
“What You Need to Know About Cancer of the Larynx”
National Institutes of Health- National Cancer Institute
9000 Rockville Pike, Baltimore, MD 20892
(800) 995-9712, No. 95-1568, March 1995

National Organizations
American Cancer Society
1599 Clifton Road, NE, Atlanta, GA 30329-4251
(800) ACS-2345
International Association of Laryngectomees (IAL)
1599 Clifton Road, NE, Atlanta, GA 30329-4251
(404) 320-3333
Society of Otorhinolaryngology and Head-Neck Nurses, Inc.
116 Canal Street, New Smyrna Beach, FL 32168
(904) 428-1695
Oncology Nursing Society
501 Holiday Drive, Pittsburgh, PA 15220-2749
(412) 921-7373
The American Speech-Language-Hearing Association
10801 Rockville Pike, Rockville, MD 20852
(800) 897-8682
Support for People With Oral and Head and Neck Cancer
S-P-O-H-N-C, Inc.
P.O. Box 53, Locust Valley, NY 11560-0053
(516) 759-5333
Since rehabilitation can be a long process, it is important to establish short term goals that are easily attainable, as well as long-term goals. Goal setting must be ongoing since the disease process, treatment options, and needs of the patient change over time. Patients must be assured that they will be followed until they have met their goals or no longer require rehabilitation services. Table 2 outlines short- and long-term goals related to specific head and neck surgical treatment sites.

Today, head and neck cancer patients are treated in a variety of facilities that may not provide the specialized services found in a large medical center or university setting. Rehabilitation depends on a cooperative effort across the health care continuum, as no single provider can do it alone. Successful rehabilitation requires strong communication and flexibility among all the disciplines in order to maintain continuity from diagnosis to goal achievement. Although there is a definite advantage in having a dedicated, interdisciplinary team, successful rehabilitation can be coordinated by the otolaryngologist-head and neck surgeon through timely referrals to the radiation oncologist, medical oncologist, plastic surgeon, maxillofacial prosthodontist, clinical nurse specialist, speech-language pathologist, social worker, clinical dietitian, and physical therapist, all of whom must be knowledgeable regarding the disease process and the specialized needs of these patients. In turn, these providers must utilize all available resources and consult with specialists in the field of head and neck oncology to ensure the use of appropriate interventions. Utilizing clinical pathways facilitates the referral process and resource utilization while pinpointing treatment variances and decreasing length of stay.

Nursing resources specific to head and neck oncology practice are available through the Society of Otorhinolaryngology and Head-Neck Nurses, a national specialty nursing organization that offers standards of practice, clinical practice guidelines, a core curriculum, a head and neck special interest group, and an annual nursing symposium. The Society also offers nurses the opportunity to network and consult with nurses who are certified specialists in this field. In addition, the American Cancer Society publishes educational materials on head and neck malignancies and provides specialized equipment for patients.[30] The box on this page includes a resource list of specialized equipment, suppliers, and organizations that are available to assist the health-care professional in caring for and educating the patient and family about head and neck cancer.

**Barriers to Successful Rehabilitation**

The advent of managed care has necessitated shorter hospital stays, thus reducing clinical time for implementing effective rehabilitation interventions prior to discharge. Baker reports that an additional barrier is the perception that the head and neck cancer patient has a poor prognosis.[31] Despite progress, barriers to successful rehabilitation do exist. Radiation therapy side effects, such as xerostomia and oral mucositis, can interfere with the patient’s ability to participate in rehabilitation activities so that goals are not always achieved in the established time frame. Pain and fatigue become factors due to fluctuating endurance levels. Psychosocial issues, such as depression, frustration, anger, changes in relationships, coping with losses, and economic issues (eg, insurance access barriers), can also interfere with the rehabilitation plan. Patients often become discouraged with the length of time involved and need ongoing encouragement.

**New Challenges**

As treatment advances lead to increased survival for head and neck cancer patients, the need for comprehensive rehabilitation has never been greater. The rapid growth of managed care places health-care providers on the competitive edge, forcing them to look at cost-containment while delivering quality care. Rehabilitation facilities must work hard to ensure that managed care contracts include rehabilitation treatment benefits, since shorter hospital stays demand that rehabilitation interventions continue on an outpatient basis. Rehabilitation providers must be innovative in providing data to managed care companies to demonstrate that their interventions result in cost-effective, positive patient outcomes.[32]

Health-care providers must also look beyond the hospital walls and focus on prevention and education through community outreach. Tobacco is known to be the primary risk factor for head and neck cancer, as mutation of the p53 gene has been linked to tobacco smoking in squamous-cell carcinoma of the head and neck.[33] Recent studies indicate that smoking among teenagers and the use of smokeless tobacco are on the rise. Smoking cessation education should be initiated in the schools and throughout the community at large. Offering free oral screenings provides an opportunity for early detection, as well as consumer education. The Agency for Health Policy
Research recently published Guidelines for Smoking Cessation to assist health-care providers in this effort.

Caring for head and neck cancer patients presents a challenge to all health care professionals working in this specialty. The quality of life changes imposed by this disease and subsequent treatment are overwhelming for the patient and yet the will to live prevails in the face of enormous adversity. Providers of head and neck oncology care are challenged not only by the specialty but also by the rewards experienced as patients move through the continuum of care, because as long as the disease process exists, so will the need for effective, caring, and well-planned rehabilitation.

References:


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