Objectives: 1) Develop a model to predict the need for post-operative gastrostomy tube placement in patients undergoing surgery in the upper aerodigestive tract based off the pre-operative assessment, tumor location, and planned surgical resection 2) Validate the predictive model using pre-operative assessment data from a recent surgical cohort

Methods: A retrospective chart review of all adult patients diagnosed with head and neck cancers that subsequently underwent tumor resection at Wake Forest Baptist Health from 2007-2012 was performed. Patient charts were screened for patient demographics (ie, gender, age), tumor characteristics including size, location, bilaterality, surgical treatment type, and post-operative placement of gastrostomy tube. A multiple logistic regression model was fit using a backwards selection approach to identify the best set of predictive characteristics for gastrostomy tube placement. This model was validated using independent data not included in the initial analysis.

Results: 559 surgeries were performed with 23% of patients subsequently requiring gastrostomy tube placement. A predictive model was developed which found that the following variables were significant and independent predictors of gastrostomy tube placement.

<table>
<thead>
<tr>
<th>Predictive Model</th>
<th>Odds Ratio &amp; 95% CI</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-operative radiation*</td>
<td>4.1 [2.4-6.9]</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Supraricroid laryngectomy*</td>
<td>26 [4.9-142.9]</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Tracheostomy placement*</td>
<td>2.6 [1.5-4.4]</td>
<td>0.0004</td>
</tr>
<tr>
<td>Clinical node status N0-N2</td>
<td>2.4 [1.4 - 4.2]</td>
<td>0.0077**</td>
</tr>
<tr>
<td>Clinical node status N1-N2</td>
<td>1.6 [0.76-3.3]</td>
<td>0.0077**</td>
</tr>
<tr>
<td>Pre-operative weight loss*</td>
<td>2 [1.2-3.2]</td>
<td>0.0043</td>
</tr>
<tr>
<td>Dysphagia*</td>
<td>2.0 [1.2-3.2]</td>
<td>0.0047</td>
</tr>
<tr>
<td>Reconstruction type</td>
<td>1.9 [1.1-2.9]</td>
<td>0.0175</td>
</tr>
<tr>
<td>Tumor stage</td>
<td>1.8 [1.1-2.9]</td>
<td>0.0265</td>
</tr>
</tbody>
</table>

*Variables coded as Present/Absent **P value for overall N staging (N0-N2)

The model was validated on independent patient data and revealed good prediction for gastrostomy tube placement. Patients that underwent gastrostomy tube placement had mean predictive probabilities twice as high as those patients that did not undergo tube placement.

Conclusions: A validated and comprehensive predictive model is available for use in the pre-operative period to assess need for gastrostomy tube in patients undergoing surgery of the upper aerodigestive tract. Early enteral access in high risk patients may prevent post-operative healing complications and improve overall outcomes including quality of life.
A MULTI-INSTITUTION POOLED ANALYSIS OF G-TUBE DEPENDENCE IN PATIENTS WITH OROPHARYNGEAL CANCER TREATED WITH DEFINITIVE IMRT.

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Purpose/Objective(s): To report the rate of gastrostomy tube (g-tube) dependence in a pooled multi-institutional data set of oropharyngeal cancer patients treated with definitive IMRT.

Materials/Methods: This was a multi-institutional, IRB-approved retrospective study involving three North-American tertiary academic centers. Oropharyngeal cancer patients treated with definitive IMRT between 1998 and 2011 were pooled from 3 institutions. G-tube dependence was calculated from the end of RT using the Kaplan-Meier method. Patients were censored for locoregional failure. Predictors of g-tube dependence were analyzed using binary logistic regression analysis.

Results: A total of 2315 patients were included. The median age was 57 years (range 27-91). Staging distribution was T1-3 in 85%, T4a-4b in 15%, N0-N1 in 25%, and N2a-N3 in 75%. Median RT dose was 70Gy. Cytotoxic chemotherapy and EGFR-inhibitors were administered to 62% and 12%, respectively. The median follow-up was 43.7 months (range 0.1 to 164). The 1- and 2-year rates of g-tube dependence were 6.7% (95%CI: 5.5-7.9%) and 3.7% (95%CI: 2.9-4.5%), respectively. On multivariate analysis, advanced age (OR: 1.065; p<0.001), greater number of smoking pack-years (OR:1.010; p=0.005), and cytotoxic chemotherapy (OR: 2.094; p=0.017) were significantly predictive of greater g-tube dependence at 1-year. The 1-year g-tube dependence rates for patients with age at diagnosis <50, 50-65, and >65 were 2.8% (95%CI: 1.2-4.4%; n=436), 6.1% (95%CI: 4.7-7.5%; n=1327), and 11.6 (95%CI: 8.7-14.5%; n=552), respectively. The 1-year g-tube dependence rates for patients who received radiation therapy alone, cytotoxic chemotherapy, EGFR, and cytotoxic chemotherapy + EGFR were 5.1% (95%CI: 3.3-6.9%; n=684), 7.8% (95%CI: 6.2-9.4%; n=1344), 4.1% (95%CI: 0.9-7.2%; n=202), and 9.5% (95%CI: 2.6-16.4%; n=85), respectively.

Conclusions: This multi-institution series of 2315 patients demonstrates that definitive IMRT for oropharyngeal cancer is associated with a low rate of long-term g-tube dependence.
Objective: To determine the difference in the management of an elderly population with head and neck (H&N) cancer (> 75 years old) with tracheotomy compared to a younger population (< 75 y.o.).

Methods: Retrospective chart review from September 2003 to September 2013 for patients > 75 y.o. with H&N cancer with tracheotomy. This group of elderly patients was compared to all tracheotomies performed in patients < 75 y.o. with H&N cancer from September 2012 to September 2013.

Results: A total of 111 charts were reviewed for patients > 75 y.o. vs 99 for patients < 75 y.o. Mean age is 79 and 53 y.o., respectively (p < 0.0001). When considering only patients with tracheotomies for H&N cancer, the overall hospital stay was 25.5 days (CI 95% 16.9 - 34.1) for older patients vs 12.6 days (CI 95% 6.1 - 19.1) for younger patients. Regarding the length of hospitalisation, 11.1 vs 1.4 days were specifically secondary to tracheotomy care or management (p = 0.006). Self tracheotomy care was achieved in 56% of older patients and 91% of younger patients (p = 0.030). Twenty-eight percent (28%) of patients above 75 y.o. vs 9% of patients under 75 y.o. needed relocation due to tracheotomy care (p = 0.021). Overall, complications during hospitalisation were higher in older patients (73.5 vs 42.1%, p = 0.023). Specific complications for the head and neck area were also significantly higher between these 2 groups (36.4% vs 9.1%, p = 0.030). Older patients had a higher ECOG decline (1.4 to 2.6) vs younger population (0.8 to 0.9) when compared pre and post surgery (p = 0.031 and 0.005 respectively).

Conclusions: Elderly patients have a significantly longer hospitalization stay mainly due to difficult self tracheotomy care compared to younger patients. Once a tracheotomy is performed, they need relocation more often than younger patients. More resources are needed to ease discharge of this vulnerable group.
**S009 SHORT AND LONG-TERM OUTCOMES OF LARYNGEAL CANCER CARE IN THE ELDERLY**

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Objective: To examine associations between pretreatment variables, short-term and long-term swallowing and airway impairment, and survival in elderly patients treated for laryngeal squamous cell cancer (SCCA).

Study design: Retrospective analysis of Surveillance, Epidemiology, and End Results (SEER)-Medicare data.

Methods: We evaluated longitudinal data from 2,370 patients diagnosed with laryngeal SCCA from 2004-2007 using cross-tabulations, multivariate logistic regression, and survival analysis.

Results: Pretreatment dysphagia, supraglottic tumors, advanced stage, treatment with chemoradiation, and salvage surgery were significant predictors of short-term and long-term dysphagia, weight loss, tracheostomy, and gastrostomy placement. Compared to the initial treatment period, the likelihood of dysphagia (OR=1.5 [1.2-1.7]), weight loss (OR=1.3 [1.1-1.6]), esophageal stricture (OR=3.8 [2.5-5.9]), airway obstruction (OR=1.9, [1.6-2.3]), tracheostomy (OR=1.5 [1.2-1.9]), and pneumonia (OR=1.8 [1.4-2.2]) was increased at 1 year after treatment. The odds of airway obstruction, esophageal stricture and pneumonia increased over subsequent years, with significantly increased risk at 5 years for airway obstruction (OR 3.3 [1.8-5.8]) and pneumonia (OR=5.2 [2.5-10.7]). Among surgically treated patients, the likelihood of pneumonia was lower for initial total laryngectomy (OR=0.6 [0.4-0.9]). After controlling for all other variables, long-term outcomes associated with swallowing or airway impairment were associated with poorer survival, with pneumonia associated with the greatest risk of death at 5 years (HR=2.6 [2.4-2.9])

Conclusions: Airway and swallowing impairment is common after laryngeal SCCA treatment in elderly patients, increases over time, and is associated with poorer survival. Patients with pretreatment dysphagia, initial treatment with chemoradiation, and salvage surgery represent a high-risk group with an increased risk of disability and death.
FUNCTIONAL AND QUALITY OF LIFE OUTCOMES RELATED TO SWALLOWING IN PATIENTS SUBMITTED TO THYROID SURGERY

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Introduction: Swallowing symptoms in patients submitted to thyroid surgery has been reported recently, even with preserved function of recurrent laryngeal nerve. In such cases, it is believed that many of these changes are related to laryngotraheal scarring or retraction. In some patients, such swallowing symptoms could lead to a significant negative impact on functional and quality of life outcomes.

Objective: To evaluate the functional and quality of life outcomes related to swallowing in patients submitted to thyroidectomy.

Methods: Prospective evaluation of a consecutive series of previously untreated adult patients undergoing a thyroidectomy (partial or total) at a single institution. Patients were evaluated before, 30-days and one-year after thyroid surgery. They were submitted to subjective and objective assessments of swallowing utilizing the following instruments: a questionnaire designed to assess the frequency of swallowing symptoms in patients submitted to thyroid surgery, the MD Anderson Dysphagia Inventory (MDADI), a fiberoptic endoscopic evaluation of swallowing (FEES) and a superficial electromyography (EMG) of cervical muscles involved in the swallowing process.

Results: A consecutive series of 120 patients were analyzed, most female patients (85.8%), with a median age of 47 years. Most patients (92%) were submitted to a total thyroidectomy, and 12.5% had a level VI lymph node dissection performed. The diagnosis of a well-differentiated carcinoma was performed in 71% of patients. Probably due to the protocol burden, only 82 and 54 patients had participated at the 30-days and one-year evaluation after surgery, respectively. A paired-analysis was performed in each moment, including only patients without vocal fold immobility. The FEES evaluation showed a high rate of pharyngeal stasis at 30-days after surgery (p<0.001), which decreased at the one-year evaluation (p=0.310). The superficial EMG revealed a discrete increase in the mean values of the muscles action potential between the pre and early postoperative assessments, followed by a decrease of the muscle action potential in the long-term evaluation, however most of them were not clinically or statistically significant. There was an increase in average complaints of swallowing symptoms in the early postoperative period, demonstrating an increase in the degree of disturbance of these symptoms, mainly for complaints: tightness of the scar, still feeling something in the throat, feeling of tightness/strangle, cough and dry throat. When comparing preoperative and long-term symptoms evaluations, the complaint of tightness of the scar remained statistically significant. With the MDADI assessment, we found reduced scores in the early postoperative period with improvement postoperatively in the long term, but not statistically significant. In patients who have presented pharyngeal stasis at FEES, complaints with greater degree of disturbance were still feeling something in the throat and dry throat. There was a statistically significant association between complaints of difficulty to swallow and choking with MDADI scores.

Conclusion: Swallowing alterations after thyroidectomy can be considered frequent. However, in most patients such alterations have minor impact on functional outcomes. The short-term quality of life related to dysphagia can be affected by thyroid surgery in some patients. However, just a minority of them the negative impact could be considered significant.
Family caregivers play a vital role in head and neck cancer (HNC) treatment, potentially impacting treatment outcomes. These caregivers face enormous challenges, yet caregiving in the HNC population remains understudied. In addition to common caregiving activities, such as providing emotional support and managing symptoms, HNC caregivers often perform various technical procedures, such as tube feeding and tracheostomy care. Few studies have focused on specific HNC caregiving tasks. A significant barrier to research in this area is the lack of validated instruments that comprehensively characterize HNC caregiving tasks and activities. The lack of validated instruments characterizing what HNC family caregivers actually do indicates a need for instrument development before research in this area can move forward. To address this need, we are developing a new instrument, titled the "Head and Neck Cancer Caregiving Task Inventory." The "Inventory" is being developed in a series of three studies. In Study 1, we assessed content validity using an interdisciplinary panel of professional experts. In Study 2, we assessed face validity using a panel of experienced HNC family caregivers. In Study 3, we are assessing internal consistency reliability and construct validity in a sample of HNC caregiver/patient dyads. The researchers developed the initial Inventory, which consisted of 88 items in 11 HNC caregiving task domains: General Function (9 items); Personal Care (7 items); Medical Care (13 items); Nutrition (14 items); Tracheostomy Care (5 items); Oral Care (5 items); Speech and Voice (5 items); Skin Care (4 items); Rehabilitation (7 items); Psychosocial Support (8 items); and Symptom Management (11 items). In Study 1, 14 healthcare professionals with HNC expertise (1 medical oncologist, 1 otolaryngology-head and neck surgeon, 1 radiation oncologist, 7 nurses, 1 social worker, 1 speech/language pathologist, 1 registered dietician, and 1 physician assistant) reviewed the initial draft of the Inventory and rated the relevance of each task to HNC family caregiving using a 0 (not at all relevant) to 5 (extremely relevant) scale. The HNC experts also provided suggestions regarding further revision of the initial caregiving task items. Mean relevance scores for items in the General Function task domain ranged from 3.64-4.50; Personal Care (3.43-3.86); Medical Care (4.00-4.86); Nutrition (3.93-4.64); Tracheostomy Care (4.14-4.21); Oral Care (3.86-4.29); Speech and Voice (3.86); Skin Care (4.50-4.57); Rehabilitation (3.93-4.57); Psychosocial Support (4.29-4.93); and Symptom Management (3.93-4.93). The Inventory was revised based on HNC expert feedback. The revised Inventory consisted of 107 items in the 11 domains. In Study 2, 13 experienced HNC family caregivers completed the revised Inventory. The caregivers provided feedback on their ability to understand and complete the Inventory and suggestions for further revision of the caregiving task items. The Inventory was revised based on HNC family caregiver feedback. The revised Inventory consists of 108 items in the 11 domains. Study 3 is ongoing. The Inventory may provide a new, psychometrically sound instrument that can be used to advance research in the HNC population, including research on the impact of family caregiving on patient outcomes.
Background: The optimal treatment of laryngeal cancer continues to be debated, as there is no consensus regarding the relative roles of surgical versus nonsurgical treatment regimens. Individualized clinical factors, combined with patient and practitioner preferences, continue to dictate treatment-related decision-making. There are limited data exploring patient perspectives on their choices regarding how their laryngeal cancer has been treated.

Objective: The objective of this pilot study is to provide baseline data describing the perspectives of patients treated for laryngeal cancer with regard to their treatment-related decision-making, taking into account patient-reported functional outcomes.

Patients: Adults with biopsy-proven laryngeal carcinoma were eligible to participate (n=57; 46% treated surgically, 54% treated non-surgically).

Methods: This cross-sectional survey-based pilot study explored patient perspectives regarding treatment-related decision-making for laryngeal cancer. Established and validated survey instruments measuring decisional conflict and decisional regret were administered. Dependent variables included validated patient-reported outcomes assessing voice quality (Voice-Related Quality of Life [VRQOL]), and swallowing function (MD Anderson Dysphagia Inventory [MDADI]). Univariate and multivariate data analyses were performed.

Results: Patients who have been treated for laryngeal cancer who report worse voice-related quality of life recalled more decisional conflict (p=0.01) and experienced more decisional regret (p<0.001). Of the patients for whom speech was a top priority prior to treatment, better VRQOL overall scores and social/emotional sub-scores were correlated with less decision regret about treatment decisions (p<0.02 and p<0.006, respectively). Of the patients for whom eating and drinking were top priorities prior to treatment, better MDADI global scores, emotional sub-scores, and functional sub-scores were all correlated with less decision regret about treatment decisions (p<0.002, p<0.001, and p<0.001, respectively).

Conclusion: Patient-reported functional outcomes significantly impact how patients with laryngeal cancer reflect upon their treatment-related decision-making in light of their personal priorities. Additional research and efforts are required in order to better prepare patients for making preference-sensitive decisions regarding treatment of laryngeal cancer, and to focus upon patient-centered quality of life outcomes from diagnosis onward.
AN EXPLORATION OF PERCEIVED BODY IMAGE IN ADULTS TREATED FOR HEAD AND NECK CANCER.

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Overview: As the population of self-identified "cancer survivors" continues to grow, it is becoming increasingly important and necessary to identify and address a variety of "quality-of-life" (QOL) features that can negatively influence rehabilitation outcomes. Ultimately, negative changes in one or more QOL domain holds significant potential to influence one's perceived well-being in the post-treatment period.

Statement of Problem: It is recognized that one of the most potentially distressing aspects of head and neck cancer (HNC) is the potential for facial and neck disfigurement and its associated high visibility to others. Such physical changes may directly influence one's self-perception of their body-image and self-concept with the secondary potential to negatively impact both short- and long-term functioning; hence, changes in perceived body image (BI) may be seen as a critical component that influences QOL. Such changes also hold the potential to interfere with one's resumption of previous roles and routines after treatment is completed and may impede the important task of rebuilding the self and facilitating improved rehabilitation outcomes.

Objective: The purpose of this study sought to identify and describe potential changes in BI in those treated for HNC.

Methods: 40 male and female patients between the ages of 34 and 65 completed 4 validated questionnaires as part of standard follow-up visits with their otolaryngologist. Questionnaires included the European Organization for the Research and Treatment of Cancer Quality of Life Questionnaire (EORTC-QLQ-C30), as well as the site-specific module designed specifically to address QOL concerns among individuals with HNC (H&N35), the Body Image Scale and the Body Image Disturbance Questionnaire. Comprehensive demographic and treatment information for each participant was also obtained.

Results: Perception of BI image is influenced by HNC and its treatment(s), yet perceived changes in BI are highly individualized. Interestingly, our data suggest that this variability appears to exist independent of whether or not a treatment related alteration to one's physical appearance is clearly identifiable to others. Alterations in perceived BI are also related in part to other more traditional indices of QOL (e.g., physical, role, emotional, social and cognitive status), as well as those that are more specific to HNC. Thus, changes in perceived BI can influence overall evaluation of QOL following treatment.

Implications: These preliminary data suggest that efforts to identify changes in perceived BI may not only be of concern for those with obvious levels of physical disfigurement. The present data suggest that assessment of such changes post-treatment should not be overlooked as part of comprehensive rehabilitation efforts. Thus, an effort to obtain information on changes in BI through the use of time-efficient and low-burden measures is supported. Collectively, the present data are interpreted to support the value of assessments of BI as part of regular and ongoing post-treatment cancer surveillance. Clinical implications and procedures for screening will be outlined.