Subjective and Objective Measures of Dysphagia in Head and Neck Cancer: The Relationship With Depression

Brian M. Lin, BA; Heather M. Starmer, MA, CCC-SLP; Christine G. Gourin, MD, MPH
Department of Otolaryngology-Head and Neck Surgery, Johns Hopkins University

ABSTRACT

Objective: We have previously found a high incidence of depression in head and neck cancer (HNCA) patients, which is associated with poorer perception of quality of life (QOL) and swallowing. We sought to determine if depression was associated with worse swallowing function on objective swallowing evaluation.

Methods: Two hundred forty-six patients were evaluated with the Beck Depression Inventory Fast-Screen (BDI-FS), University of Washington Quality of Life (UW-QOL) and MD Anderson Dysphagia Inventory (MDADI) questionnaires. Patients who underwent instrumental swallowing evaluation comprised the study population, with swallowing assessed using the Penetration Aspiration Scale (PAS).

Results: Complete data was available for 46 patients. Depressive symptoms were identified in 15% of patients, and abnormal PAS scores were present in 7% of patients. There was a significant correlation between global UW-QOL and overall MDADI scores (r=0.4, P=0.0065), global UW-QOL and BDI-FS scores (r=-0.4, P=0.0031), and overall MDADI and BDI-FS scores (r=-0.3, P=0.0257).

Discussion: Multivariate linear regression analysis of variables associated with BDI-FS scores revealed that non-white race (ß=2.843, p=0.005) and UW global scores (ß=-0.029, 0.031) were significantly associated with BDI-FS scores, after controlling for all other variables including age, sex, comorbidity, primary tumor stage, primary site, tobacco use, alcohol abuse and marital status. Linear regression analysis of variables associated with UW global scores showed a significant association only for BDI-FS scores (ß=5.1, P=0.031). There was no significant association between patient or tumor variables, BDI-FS, UW global QOL, or PAS score on MDADI or on all of the above variables and PAS score.

Methods and Materials

Head and neck cancer patients presenting to the Department of Otolaryngology-Head and Neck Surgery at the Johns Hopkins Medical Institution between April 2008 and June 2011 who participated in University of Washington (UW) QOL, MD Anderson Dysphagia Inventory (MDADI), Beck Depression Inventory-Fast Screen (BDI-FS) evaluation, who also underwent evaluation by a speech-language pathologist with a corresponding Penetration-Aspiration Scale (PAS) score comprised the study population. Patients who were under 18 years of age, had a preexisting diagnosis of depression that predated their cancer diagnosis, distant metastatic disease, or non-squamous neoplasms were excluded.

Spearman’s correlation coefficient was used to evaluate relationships between UW swallowing, UW global QOL, overall MDADI, BDI-FS, and PAS scores. Multiple linear regression analysis was performed to identify variables associated with significant differences in UW QOL, MDADI, BDI-FS, and PAS scores. This protocol was approved by the Johns Hopkins Medical Institutions Institutional Review Board.

Results

Forty-six patients were eligible for analysis, with UW-QOL, MDADI and PAS data collected in 31 patients before treatment and 17 patients after treatment. The majority of patients were white, male, smokers, and married. The mean age was 60 years (range, 39-88 years). The oropharynx was the most common primary tumor site (61%), followed by larynx or hypopharynx (15%), and oral cavity (15%). Low-grade primary site disease (T0, T1, and T2) was present in the majority of patients (80%); the majority of patients presented with advanced (III or IV) TNM stage (76%). HPV status was known for 65% of patients, and was positive in 93% of patients tested. Depressive symptoms were identified in 15% of patients. Abnormal PAS scores were present in 7% of patients.

Discussion

In this study, depression and decreased QOL in HNCA patients is associated with patient-perceived swallowing dysfunction, but not with objective measures of swallowing function. One explanation for the apparent lack of correlation between subjective and objective measures of swallowing dysfunction is that sensory deficits secondary to HNCA and its treatment may alter patient perception of swallowing. Depression itself may cause disturbances in patient appetite and swallowing, resulting in heightened patient perception of swallowing dysfunction. The questions that comprise patient questionnaires used to screen for swallowing dysfunction and evaluate QOL are subjective in nature, focusing on patients’ emotional perception of function and well-being rather than quantifying physical function. Thus, the mental health of patients may factor into the manner by which patient respond on questionnaires. Self-reported swallowing dysfunction may serve as a marker for patients at risk for depression.

These data suggest that patient-perceived swallowing dysfunction is more likely to be related to depressive symptoms and poor QOL than objective swallowing dysfunction. In addition, our findings illustrate the role of silent swallowing dysfunction in HNCA patients, as abnormal swallowing evaluations did not correlate with patient perception of dysfunction, and underscores the importance of objective evaluation of swallowing function regardless of reported symptoms, especially in high-risk patients.

Conclusions

Depression negatively impacts patient perception of global QOL and swallowing, but does not correlate with objective swallowing assessment. These data emphasize the need to distinguish between objective measures of function and patient perception of function, and highlights the importance of considering both objective as well as subjective data in QOL analysis.

References


