Predicting quality of life in advanced hypopharyngeal and laryngeal cancer

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INTRODUCTION

Advanced hypopharyngeal and laryngeal cancers and their treatment significantly impair quality of life (QOL), whether organ-preservation treatment protocols are used or not (Hanna et al., 2004). Therefore, assessing QOL in these patients is of the utmost importance, and it is now a standard outcome in clinical studies involving head and neck cancer patients (Oksam et al., 2010). Lack of time and resources in the busy clinical setting are important limiting factors in the uptake of psychometrically validated questionnaires into routine clinical practice (Mehanna et al., 2005).

Therefore, predicting which patients will fare less well in terms of QOL is important to identify these patients and initiate appropriate interventions early on.

OBJECTIVE

Identify significant predictors of global QOL in advanced hypopharyngeal and laryngeal cancer.

METHODS

A cross-sectional study was conducted at a head and neck cancer clinic in a tertiary referral center. We included a convenience sample of patients presenting for follow-up between September 2011 and March 2012 with stage III or IV hypopharyngeal or laryngeal cancer diagnosed at least 12 months ago. To increase sample size, a mail-in questionnaire was sent to the first 100 patients diagnosed between 2006 and 2010. Longitudinal studies have shown that QOL in this population stabilizes 12 months after diagnosis [3]. Exclusion criteria is the inability to understand English or French. Three questionnaires were administered to all patients.

Most predictor data was collected using chart review. Data from the HADS questionnaire was used as a predictor to control for anxiety and depression symptoms.

STATISTICAL ANALYSIS

Bivariate analyses were used to identify possible predictors of QOL. For continuous variables, T-test was used for two groups, and ANOVA was used for three or more groups. For continuous variables, Pearson’s correlation coefficient was used with a T-test to determine whether the correlation coefficient is different from zero. A p value level of statistical significance was set at 0.05. For a T-test with 80% power, 5 alpha level, and assuming a standard deviation of 25, a sample size of 26 patients per group is required for adequate sample size in order to detect a 0.2 point difference in the QOL scale. For a one-way ANOVA with 3 levels, 80% power, 5% alpha, and a standard deviation of 25, a minimum of 16 patients per group is required to detect a 0.3 point difference. SPSS 19 was used for statistical analysis.

RESULTS

We identified 40 eligible patients for inclusion, and all accepted to participate. Of the 100 mailed questionnaires, 24 were returned (24.0%). Data on QOL was collected for 64 patients. Descriptive statistics are shown below. Mean follow-up time since diagnosis is 4.5 years (standard deviation 3.4 years), and median follow-up is 3.3 years.

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**QOL questionnaires used**

- **EORTC C30 [2]**
  - Cognitive function
  - Role function
  - Social function
  - Emotional function
  - Global health/QOL scale
  - 5 symptom scales

- **EORTC QLQ-HN35 [3]**
  - Head and neck specific
  - 25 items, 9 minutes
  - 3 symptom scales

- **EORTC QLQ-C30**
  - 30 items, 9 minutes
  - 1 symptom scale

**Correlations between global health/QOL scale and other scales**

- **EORTC QLQ-HN35 results**
  - *A high score for the symptom scale represents a high level of symptomatology.

**Results (continued)**

- **EORTC QLQ-HN35 results**
  - *A high score for the symptom scale represents a high level of symptomatology.

**RESULTS**

We identified 40 eligible patients for inclusion, and all accepted to participate. Of the 100 mailed questionnaires, 24 were returned (24.0%). Data on QOL was collected for 64 patients. Descriptive statistics are shown below. Mean follow-up time since diagnosis is 4.5 years (standard deviation 3.4 years), and median follow-up is 3.3 years.

**Descriptive results for predictors**

**EORTC QLQ-C30 results**

- *A high score for the global health/QOL or any functional scale represents a high level of functioning. A high score for a symptom scale represents a high level of symptomatology.

**Bivariate relationships between predictors and global health/QOL**

**DISCUSSION**

- We have identified anxiety and depression (defined as scores ≥ 8 on the HADS questionnaire) as significant predictors of decreased global health status/QOL in advanced hypopharyngeal and laryngeal cancer.
- In additional to statistical significance, the mean difference in scores is clinically significant as the minimal clinically important difference is 0.5 points (Choula et al., 1998).
- The assumption that organ preservation protocols result in better QOL outcomes is not confirmed by our study. This has also been previously shown in the literature (Hanna et al., 2004; Guibert et al., 2011).
- Depression is a modifiable factor in head and neck cancer and there is some emerging evidence that randomized controlled trials on the use of antidepressants in head and neck cancer to improve QOL outcomes (Lydall et al., 2008).
- Global health/QOL is significantly correlated with the other scales from EORTC QLQ-C30 and QLQ-HN35 in our study and in other studies (Gray et al., 2011).
- A larger sample size would have enabled the detection of a smaller difference in QOL outcomes.
- The cross-sectional nature of this study limits the identification of pre-treatment anxiety, depression, and QOL scores. These will be addressed in a future study.

**CONCLUSION**

Anxiety and depression are significant independent predictors of decreased global health status and functional status in stage III and stage IV hypopharyngeal and laryngeal cancer. Treatment regimen did not affect QOL. Future directions include confirmation of these results in a prospective manner.

**REFERENCES**


**ACKNOWLEDGEMENTS**

We wish to thank the Otolaryngology-Head and Neck Surgery outpatient clinic staff and head and neck surgeons at Notre-Dame Hospital for their support while conducting this study.