Short Communication

The Responsiveness of the Liverpool Oral Rehabilitation Questionnaire (LORQ): A Pilot Study

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This study aimed to evaluate the responsiveness of denture patients to the Liverpool Oral Rehabilitation Questionnaire (LORQ). Changes in scores for 20 core items completed from 2000 to 2005 by 16 patients both before and after oral rehabilitation were assessed. The median age of respondents was 68 years and the median time between questionnaires was 2.6 years. Results indicated that masticatory efficiency impacted both food choice ($P = .03$) and social life ($P = .06$). After rehabilitation there was less worry about maxillary prostheses falling out ($P = .07$), less embarrassment while conversing ($P = .02$), and less worry about losing self-confidence from embarrassment caused by dentures ($P = .06$). Also, drooling problems deteriorated ($P = .03$). This exploratory study reports encouraging findings, but a larger prospective multicenter study is required to determine the responsiveness of the current version of the LORQ (version 3). *Int J Prosthodont 2009;22:456–458.*

Oral cancer has a major impact on the physical, psychologic, and social well-being of affected individuals. The importance of the functional rehabilitation of patients after treatment for oral cancer is well-recognized, particularly for oral rehabilitations that aim to restore oral function and orofacial form and hence, promote the patient's well-being.[1]

Health-related quality of life (HRQOL) in oral rehabilitation following treatment for oral cancer is largely unresearched. Although several validated head and neck and oral HRQOL questionnaires are available, they are not specific to this patient group. Therefore, there is a need to develop and employ more specific instruments to assess HRQOL in patients undergoing rehabilitation after oral cancer.[2]

The oral rehabilitation team in Aintree, Liverpool, designed the self-administered Liverpool Oral Rehabilitation Questionnaire (LORQ) to assess the impact of oral rehabilitation following treatment for head and neck cancer. The LORQ version 3 (LORQv3) demonstrated very satisfactory psychometric properties of acceptability, reliability, and validity, identifying differences between cancer and noncancer groups and demonstrating significant correlations between items in the LORQ and in coadministered questionnaires.[3,4] However, there has been no assessment of the responsiveness of the LORQ, and this study gives an initial assessment of change before and after oral rehabilitation.

Materials and Methods

Patients who underwent oral rehabilitation between April 2000 and April 2005 and who had completed the LORQ at baseline and postrehabilitation were recruited for this study. LORQ items refer to problems and symptoms during the previous week and are rated 1 through 4, representing "never," "sometimes," "often," and "always," respectively. This paper compares baseline and postrehabilitation for 20 items common to all LORQ versions. Results indicate the number of patients who "often" or "always" had a problem and the mean score related to such items. The Wilcoxon matched pairs test compared differences before and after rehabilitation. Statistical significance was set at $P < .05$, but borderline trends were also commented on. Ethical approval was obtained for this study (South Sefton LREC EC 82.03).

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Table 1 Comparison of Baseline and Postrehabilitation Scores for Core LORQ Items

Item*	No. of Patients	No. reporting "often"/"always"		Mean score		Response (Postrehab) was			$P^{\dagger}$
		Base	Postrehab	Base	Postrehab	Better	Same	Worse	
Did food particles collect under your tongue?	14	5	2	2.0	1.7	6	6	2	.47
Did food particles stick to your palate?	13	6	5	2.4	2.5	3	4	6	.95
Did food particles stick inside your cheeks?	15	4	5	1.9	2.3	3	8	4	.26
Did you have mouth dryness?	16	8	8	2.5	2.6	2	12	2	.71
Did you experience difficulty with swallowing solids?	15	6	5	2.4	2.0	7	5	3	.17
Did you experience difficulty with swallowing liquids?	16	1	3	1.4	1.8	1	12	3	.20
Did you have problems with drooling?‡	15	1	7	1.7	2.5	2	6	7	.03
Did you experience problems with speech?	16	6	6	2.3	2.3	4	9	3	> .90
Have you been upset by your facial appearance?	15	3	4	1.9	1.9	3	11	1	.71
Did your chewing ability affect your social life?	16	9	7	2.8	2.4	6	9	1	.06
Did your chewing ability influence your choice of foods?‡	16	14	9	3.4	2.9	7	8	1	.03
Did your upper denture cause soreness or ulceration of the gum?	8	3	1	2.0	1.5	3	4	1	.26
Did your lower denture cause soreness or ulceration of the gum?	5	3	1	2.6	1.6	2	3	0	.18
Did you find food particles collecting under your upper denture?	7	1	2	1.6	2.0	0	6	1	.32
Did you find food particles collecting under your lower denture?	4	2	4	2.8	3.5	0	2	2	.18
Were you worried that your upper denture may fall out?	8	4	0	2.4	1.4	4	4	0	.07
Were you worried that your lower denture may fall out?	4	1	0	1.8	1.0	1	3	0	.32
Were you embarrassed about conversing because of your dentures?‡	9	4	2	2.6	1.7	6	3	0	.02
Have you refused dinner/invitations because of embarrassment about your denture?	9	4	5	2.3	2.7	1	6	2	.41
Have you felt loss of self-confidence because of embarrassment about your denture?	9	5	3	2.9	2.2	4	5	0	.06

*Items refer to problems or symptoms experienced during the previous week and are rated on a 1 to 4 Likert scale ranging from never (1) to always (4). Lower mean values represent less of a problem.
†Wilcoxon signed ranks test.
‡$P < .05$.

Results

Ten men and six women were eligible for participation in this study. The median baseline age was 68 years (range: 47 to 92 years) and the median time between questionnaires was 2.6 years (range: 0.5 to 4.4 years). All patients completed the LORQv3 following rehabilitation, but 9 filled out the LORQv1 at baseline. Thirteen subjects were treated for oral cancer (11 squamous cell, 1 ameloblastoma, and 1 verrucous), 2 were treated for mandibular atrophy, and 1 for a failing maxillary dentition/severe gag reflex. Two subjects had T1/2 tumors and 8 had T3/4; 2 were unknown. Ten patients needed vascularized flap reconstruction and 7 needed radiation therapy (5 postoperatively and 2 definitively). Baseline maxillary dental status was either fully edentulous (11 subjects), intact (1 subject), or partially dentate (4 subjects). Mandibular status was either fully edentulous (13 subjects) or partially dentate (3 subjects). Twelve maxillary prostheses comprised 9 conventional complete dentures, an obturator, an implant-retained fixed partial denture, and a conventional removable partial denture. Fourteen mandibular prostheses comprised 7 conventional complete dentures, 4 implant-supported fixed partial dentures, and 3 implant-supported overdentures.

Mean scores improved for 10 items and were worse for 8 items when comparing baseline and postrehabilitation questionnaires (Table 1). Masticatory efficiency impacted food choice ($P = .03$) and social life ($P = .06$), but half of patients still reported problems with these. There were trends of denture patients being less worried about maxillary ($P = .07$) and mandibular ($P = .32$) prostheses falling out, being less embarrassed about conversing ($P = .02$), and less likely to lose self-confidence from embarrassment caused by dentures ($P = .06$). There was also a deterioration in drooling ($P = 0.03$). Mouth dryness, speech, and being upset regarding facial appearance barely changed, if at all.

Discussion

The small sample size reflects referral rates for oral rehabilitation after treatment for oral and oropharyngeal cancer in Liverpool, also noted by other authors.[5] It also reflects the amount of time needed for oral rehabilitation and patient drop-out from treatment failure, tumor recurrence/progression, and death. Expected improvements in masticatory function should encourage better food attrition, improved swallowing and tongue mobility, wider food choice, and a better social life.

While changes in scores are generally consistent with the effects of oral rehabilitation, the effects of other changes in patient conditions/circumstances cannot be discounted. Oral rehabilitation is unlikely to improve mouth dryness, ability to swallow liquids, and alter facial appearance, as reflected in the results. Drooling was significantly worse, perhaps due to scarring of the lower lip (loss of contour and lip competence), loss/alteration of sensation (lips, tongue, or cheeks), or a lack of adaptation to the prostheses.

Conclusion

Although overall findings are encouraging, the cohort comprised cancer and noncancer patients and was nonconsecutive. In addition, not all items were assessed and hence, a larger prospective multicenter study is required with assessments at key time points during oral rehabilitation to determine the responsiveness of the LORQv3.

References

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Literature Abstract

Symptoms as an index of biologic behavior in head and neck cancer

The purpose of this clinical retrospective chart review is to demonstrate the impact of head and neck cancer–related symptoms on survival and to create a clinically relevant staging system for predicting survival on the basis of cancer symptoms. Subjects included in the study were 1,010 patients (72% male, median age: 62 years, mean survival: 62 months) who were treated at the same institution with complete survival information and had a biopsy-proven squamous cell carcinoma of the oral cavity, oropharynx, larynx, and hypopharnx from January 1980 to December 1991. Survival information was assessed through the patients' medical charts, Barnes Hospital Oncology Data Service, and the Equifax National Death Search (Arlington, VA). Full 5-year follow-up information was collected for the duration of survival, follow-up, and up to recurrence or new primary. The following information was collected: demographic information, risk factors, medical history/comorbidity, symptom type (48) and duration, TNM classification, results of laboratory and radiographic studies, pathologic description of biopsy, and details of initial and subsequent therapy. The primary outcome was survival. Univariate analysis was used to describe the relationship between the baseline classification variables and the outcome. A Cox proportional hazards model based on survival duration was used for multivariate analysis. The symptom variables that remained in the multivariate model at a significance level of $P < .01$ were used to create a symptom-severity staging system. Twenty-three of the 28 symptom variables were selected for entry into a Cox proportional hazards model on the basis of survival duration by univariate analysis. Dysphagia, otalgia, neck lump, and weight loss were identified as independent predictors of survival duration ($P < .01$). A symptom-severity staging system was based on the four symptoms that were identified as independent predictors of survival duration.

Pugliano FA, Piccirillo JF, Zequeira MR, Fredrickson JM, Perez CA, Simpson JR. *Otolaryngol Head Neck Surg* 1999;120:380–386. **References:** 19. **Reprints:** Dr Jay F. Piccirillo, Department of Otolaryngology, Washington University School of Medicine, 517 South Euclid Ave, Box 8115, St Louis, Missouri 63110.—*Alvin G. Wee, UNMC Dept Otolaryngology, Omaha, NE*