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CLINICAL RESEARCH

Effects of sociodemographic, treatment variables, and medical characteristics on quality of life of patients with maxillectomy restored with obturator prostheses

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Facing a cancer diagnosis and associated treatment can be life altering, causing fear and uncertainty. Cancer survivors deal with physical and physiological treatment effects, risk of a second primary, comorbid conditions, and financial and family issues.[1] Head and neck cancer survivors in particular may be at risk for increased emotional distress,[2] as the life-saving surgical intervention often results in significant functional disabilities. Speech impairment, mastication-swallowing difficulties, and facial disfigurement can lead to psychosocial dysfunction and impaired quality of life.[3,4] Maxillectomy is an ablative surgical procedure that involves removal of a part or all of the maxilla,[5,6] resulting in pronounced discontinuity defects that significantly affect function and esthetics and have a profound effect on quality of life.

ABSTRACT

Statement of problem. Restoration of maxillary defects resulting from tumor ablative surgery presents a difficult challenge, with both functional and esthetic issues. Whether rehabilitation with an obturator prosthesis could significantly contribute to improved quality of life in patients with maxillary resection has been scarcely studied, with relatively small study samples.

Purpose. The purpose of this survey study was to assess the overall functioning of the obturator prosthesis and the effect of specific sociodemographic, medical, and treatment variables on obturator functioning and quality of life in patients with maxillectomy.

Material and methods. Global quality of life (QOL) and satisfaction with the obturator prosthesis of 57 patients who underwent maxillectomy and prosthetic rehabilitation at the National and Kapodistrian University of Athens were assessed using 3 questionnaires: European Organization for Research and Treatment of Cancer (EORTC) Quality of Life Questionnaire C30 (QLQ-C30), the EORTC QLQ-HN35, and the obturator functioning scale. The data were analyzed using the Kruskal-Wallis 1-way ANOVA on ranks, hierarchical multiple regression analysis, and the Spearman rank order correlation (α=.05).

Results. Satisfactory functioning of the obturator prosthesis was the most significant predictor of improved QOL (P<.05). QOL was significantly related to additional treatments (P<.05), the size of the primary tumor (P<.05), and the size of the maxillectomy defect (P<.05). The most significant predictors of good obturator functioning were additional treatments (P<.01), age at the time of surgery (P<.05), presence of mandibular teeth (P<.05), and previous maxillary removable prosthetic experience (P<.05). Obturator functioning scale appearance and insertion subscales (r=0.47, P<.01), followed by speech (r=0.42, P<.01), were significantly related to better QOL.

Conclusions. A well-functioning obturator prosthesis was the most significant determinant for improved QOL in patients with maxillary resection. Age at the time of surgery, adjuvant treatments, presence of mandibular teeth, and previous maxillary removable prosthetic experience were the most significant predictors for better obturator functioning, whereas the size of the maxillectomy defect had a significant effect on QOL but did not influence the functional outcome. (J Prosthet Dent 2017;■:■-■)

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Clinical Implications

Optimizing the function of the obturator prosthesis is of utmost importance for improved quality of life in patients with maxillectomy. The clinician could identify patients who are likely to develop poor QOL postoperatively, choose the appropriate means of rehabilitation, and provide sufficient preoperative consultation, adequate postoperative psychological support, speech therapy, pain management, and prosthodontic follow-up care.

Although the advent of microvascular free tissue transfer offered more reconstructive options, the obturator prosthesis remains the most common rehabilitative approach that can restore most patients to a normal or nearly normal level of function.[7] Obturator prostheses can recontour the oral cavity, minimize or eliminate resection-related oral disabilities, and generally assist patients to develop a nearly normal appearance and a positive self-image, restoring their quality of life (QOL).

Aristotle (384 to 322 BCE) stated that quality of life is determined by its activities.[8] According to the World Health Organization, quality of life is "an individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards, and concerns."[9] To date, a number of studies with relatively small samples have been conducted to assess patient-perceived QOL in those with resections confined to the maxilla by using obturator prostheses.[10-14] The purpose of this study was to investigate the necessary functional and psychosocial adjustments required by patients with maxillary resection restored with obturator prostheses to accommodate their functional and esthetic disabilities, using a larger sample size. The null hypothesis was that patients with maxillectomy restored by using an obturator prosthesis as tested with a self-reported QOL would be similar to that before the resection. In addition, specific sociodemographic, medical, and treatment characteristics would have no effect on obturator functioning and QOL after resection.

MATERIAL AND METHODS

The medical records of patients who underwent maxillectomy performed by an oral and maxillofacial surgeon at NKUA Evaggelismos General Hospital followed by rehabilitation with an obturator prosthesis fabricated by a maxillofacial prosthodontist at the Graduate Prosthodontics Clinic at NKUA, School of Dentistry, between January 1, 2006, and December 31, 2014, were reviewed for this retrospective, cross-sectional study. In order to have a homogenous sample, 7 specific exclusion criteria were followed: head and neck surgery prior to 2006; orbital exenteration; resection of head and neck structures other than hard palate; reconstructive surgery to repair the defect; placement of osseointegrated implants; palatal defect closed by granulation tissue; and local recurrence. Of the 171 potentially eligible participants, 66 participants (38.6%) were eligible for this study, 52 participants (30.4%) carried disease, 10 participants (5.8%) were not located, 2 participants (1.2%) had mental disorders, and 41 participants (24%) met only some of the exclusion criteria. Eligible participants were invited to participate in this study during a clinic visit or by mail. The study sample consisted of 57 participants (86.4%) of the 66 eligible participants, as 9 (13.6%) declined. All participants signed an informed consent according to the general recommendations of the Declaration of Helsinki, and the study was approved by the NKUA institutional review board and ethics committee (IRB #268/11-19-15).

In order to assess obturator functioning and QOL, participants were interviewed (in the clinic or over the phone) between December 2015 and March 2016 by a single trained research interviewer, using selected measurements that were mailed to them before the scheduled interview. The interview took place at least 1 year after the surgery.

The measurements selected for the evaluation of the patients' QOL were the European Organization for Research and Treatment of Cancer core questionnaire (EORTC QLQ-C30), the head and neck cancer module (QLQ-HN35), and the obturator functioning scale (OFS). QLQ-C30 included 5 functional scales, 3 symptom scales, a global health status/QOL scale, and 6 single items. All the scales and single-item measurement scores ranged from 0 to 100, and a high-scale score represented a higher response level.[15,16] The head and neck cancer module consisted of 35 questions assessing the symptoms and side effects of treatment, social function, and body image and sexuality.[17,18] For all items and scales, high scores indicated more problems.[16] The scoring approaches for the QLQ-C30 and QLQ-HN35 are identical in principle to that for the symptom scales and single items of the QLQ-C30.[15,16]

Both of the questionnaires were translated and validated in Greek.[18-20] The OFS was developed at Memorial Sloan Kettering Cancer Center to assess eating ability, speech, and cosmetic satisfaction with the obturator prosthesis.[21] The scale consists of 15 questions, and a 5-point Likert scale was used to rate the items with higher scores, reflecting greater difficulty with the prosthesis. One more item, "trouble with hearing," was added to the scale to assess issues emerging from patients' comments.[10] In addition to the speech and eating subscales, 5 items were added to the appearance subscale for better interpretation of the results. The inserted subscale corresponded to the first item on the questionnaire. The

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