

Literature Review of Oropharyngeal Cancer Patients Assessed with EORTC QLQ-30 EORTC H&N-35[#]

Alina Diaconescu*, Jvalant Parekh, Valeriu Buza

Sandwell and West Birmingham Hospitals Trust, United kingdom

***Corresponding author:**

Alina Diaconescu, MD
Sandwell and West Birmingham
Hospitals Trust, United kingdom
E-mail: dralinadiaconescu@gmail.com

ABSTRACT

Background: Oropharyngeal cancer is the most common type of head and neck cancers, with a 5-years survival of 64.7%. In the last 40 years risk factors and etiology changed, from the incidence associated mostly with tobacco and alcohol to HPV infection in 70% of the cases. Treatments that are standard of care for OPSCC include chemotherapy, radiotherapy or combination of surgery and radiotherapy have a high chronic treatment-related toxicity and functional loss. These therapies have significant impact on the quality of life (QOL) of survivors of oropharyngeal squamous cell carcinoma (OPSCC).

Objectives: The objective of this study is to review literature on 1-year evolution of quality of life of patients treated for OPSCC with standard of care.

Methods: A comprehensive search of the literature of treated OPSCC patients assessed with EORTC QLQ-30 EORTC H&N-35 at pre-treatment 12-month post treatment.

Results: The first study showed that standard of care treatment produces chronic side effects, such as xerostomia, poor oral and dental health, dysphagia, feeding tube dependency in, and other fibrotic changes likely caused by radiotherapy or combination of surgery and radiotherapy.

Conclusions: Standard of care treatment produces chronic side effects, such as xerostomia, poor oral and dental health, dysphagia, feeding tube dependency in, and other fibrotic changes.

Key words: oropharyngeal cancer, EORTC QLQ-30 EORTC H&N-35, OPSCC, QOL

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INTRODUCTION

In 2017 the American Cancer Society reported 49670 new cases of and 9700 deaths from head and neck cancers, respectively, with a 5-year overall survival of 64.7% (1-3). While the proportion of oropharyngeal squamous cell carcinoma was approximately 20% of Head and Neck cancers in 1980s in the US, it currently represents 70% (4,5). The current standard of care for advanced stages (III and IV) OPSCC- including HPV related OPSCC- includes high doses of chemotherapy (usually cisplatin based) and radiotherapy. The current standard of care treatment for patients with locally advanced OPSCC is known to be highly toxic, and these approaches leave survivors with significant and lifelong morbidity (6-11).

The short-term and long-term sequelae of OPSCC treatment are known to

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impact survivors' quality of life. These include loss of salivary function, dry mouth, sticky saliva, dental loss, poor oral health, dysphagia, feeding tube dependency, neck muscle dystonia, fibrotic loss of lower cranial nerve function, pharyngeal and laryngeal stenosis, soft tissue necrosis, chronic mucosal ulcerations, chronic feeding tube dependency, muscle atrophy, and osteo-radionecrosis. Social, economic, and emotional factors are permanently changed after cancer is successfully cured. Even minimal damage to swallowing, talking, eating and respiration diminish quality of life of the patients.

Quality of life questionnaires evaluate multiple dimensions of life that are of importance to patients. One of the most used questionnaires in more than 3000 studies since 1993, European Organisation for Research and Treatment of Cancer (EORTC) Quality of Life Questionnaire (QLQ-C30) is also available in 130 languages.

It has 30 questions in 15 subscales relevant to people with cancer: five distinct aspects of functioning (physical, role, emotional, cognitive, social), eight symptoms (fatigue, nausea/vomiting, pain, dyspnoea, insomnia, appetite loss, constipation, diarrhoea), financial difficulties, and global health/quality of life.

Therefore, the current review was undertaken to provide a summary of the 1-year evolution of quality of life of patients treated for oropharyngeal cancer. The review focuses on the studies that used the EORTC QLQ30 and H&N35 to assess quality of life at diagnosis and at 12-month post-treatment, to understand how the current standard of care treatment for OPSCC impacts patients in the year following treatment.

MATERIALS AND METHODS

Search strategy

With the help of a librarian, we performed an extensive literature search through Medline and Cochrane database for studies from 1999 to December 2019. We used the following terms "oropharynx", "oropharyngeal", "cancer", "neoplasm", "tumour", "quality of life" with databased- specific coding and combinations. Mesh headings were used in different combinations. Inclusion criteria were analytical studies (case-control, cross-sectional, cohort, randomized control trials, qualitative studies, systematic reviews, and meta-analyses) that used the EORTC assessment tool at diagnosis and 12 months after treatment in OPSCC patients. Articles published in English were included with no intention of searching unpublished literature. Additional limits were set for rejecting results that involved animals or children. HPV status could not be used as a search criterion because there was no clear separation in any study.

RESULTS

In total, 206 papers were identified. After reviewing initially the titles followed by the abstracts of these papers, only four met the inclusion criteria. We extracted the following data from the four studies: author and year of publication, country, sample size, age, sex, cancer stage, treatment, and quality of life at diagnosis and 12-months post-treatment.

As described in *table 1*, 186 patients from three countries were included in this review. Mean age ranged between 57 and 64 in 3 studies; in the fourth study, 69% of patients were under 65 years of age. All

Table 1 - Summary of QoL in OPSCC patients using the EORTC

Author (year)	Country	N=186	Age (mean)	Male (%)	Stage (AJCC-7)	Treatment
Petruson et al. (2005)(12,13)	Sweden	60	57	78%	I+II-13% III+IV-87%	Surgery + Radiotherapy 2. Chemoradiotherapy 48 Radiotherapy - 10
Nordgren et al. (2005)(14)	Sweden	49	58	72%	I+II- 25% III+IV-75%	Surgery and radiotherapy - 14 Chemoradiotherapy 17 Radiotherapy - 18
Oates et al. (2008)(15,16)	Australia	27	64	71%	I+II-33% III+IV-67%	Surgery and radiotherapy 10 Surgery - 2 Chemoradiotherapy - 13 Radiotherapy - 2
Al-Mamgani et al. (2013)(17)	The Netherlands	60	<65=69% >65=31%	69%	I+II-33 III+IV-27	Surgery and radiotherapy - 37% Chemoradiotherapy - 30% Radiotherapy-33%

studies had more male than female patients. Treatment included surgery alone, surgery followed by radiotherapy, surgery and chemoradiotherapy or radiotherapy alone. Only one study described the presence of a PEG at 12-month time-point. There was no information on the HPV status of the tumour.

Table 2 shows the EORTC QLQ-C 30 values at diagnosis, and 12-months post-treatment of the four included studies as well as those of the general male population aged 50–59.

The Global quality of life improved in all the studies from diagnosis to 12-month post-treatment

General population scores were comparable to scores at diagnosis of patients in all four studies.

Some studies reported degradation of quality of life in different scales. At 12 months, post-treatment Nordgren et al (14) reported deterioration in social functioning, an increase in appetite loss, senses problems, social eating problems, sexuality problems, as well as remarkable worsening of problems with

Table 2 - EORTC Quality of life scores in the four studies in the literature review and in the general male population

Study	PETRUSON (9)		NORDGREN (11)		OATES (11)		AL-MAMGANI (12)		General male population 50-59 *(20)	
N	60	36	37	27	27	27			186	186
	At Diag.	12-month	At Diag.	12-month	At Diag.	12-month	At Diag.	12-month		
EORTC QLQ-C30										
FUNCTIONING SCALES										
Physical	N/A	N/A	81	81	N/A	N/A	87.1	83.4	93	
Role	N/A	N/A	80	74	N/A	N/A	81.8	82	88.5	
Emotional	N/A	N/A	73	81	N/A	N/A	71	80.8	84.2	
Cognitive	N/A	N/A	88	80	N/A	N/A	87.8	86.4	91.3	
Social	N/A	N/A	88	80	N/A	N/A	87.3	88.5	91.2	
Global quality of life	61	69	65	72	64	59	72.1	74	76	
SYMPTOM SCALES										
Fatigue	N/A	N/A	29	23	24	37	22.4	25	17.2	
Nausea/vomiting	N/A	N/A	5	7	N/A	N/A	3.2	4.9	2.3	
Pain	31	19	28	19	N/A	N/A	21.6	14.1	16.7	
SINGLE ITEMS										
Dyspnea	N/A	N/A	20	19	N/A	N/A	10.8	12.5	10.5	
Sleep disturbances	N/A	N/A	32	14	N/A	N/A	25.6	15.4	14.2	
Appetite loss	N/A	N/A	19	26	N/A	N/A	13	17.3	3.3	
Constipation	N/A	N/A	15	10	N/A	N/A	7.1	7.3	3.3	
Diarrhoea	N/A	N/A	7	2	N/A	N/A	5.1	5.8	5.7	
Financial difficulties	N/A	N/A	14	9	N/A	N/A	10.7	15	6.5	
EORTC QLQ-H&N35										
SYMPTOM SCALES										
Pain H&N	38	29	31	24	42	27	21.4	23.3		
Swallowing	25	26	23	22	28	17	31.1	23.6		
Senses	N/A	N/A	11	28	N/A	N/A	11.2	19.6		
Speech	16	17	12	10	18	8	13.5	10.7		
Social eating	N/A	N/A	17	26	N/A	N/A	13.9	16.6		
Social contact	N/A	N/A	8	9	N/A	N/A	4.7	5.7		
Sexuality	N/A	N/A	10	30	43	60	21.8	24.6		
SINGLE ITEMS										
Problems with teeth	15	32	7	14	N/A	N/A	15.6	22.4		
Problems opening mouth	N/A	N/A	21	20	N/A	N/A	16.1	24.6		
Dry mouth	26	76	23	75	24	61	21.8	48.4		
Sticky saliva	N/A	N/A	27	15	N/A	N/A	16.7	41.8		
Coughing	N/A	N/A	28	14	N/A	N/A	19.4	23.3		
Feeling ill	N/A	N/A	24	14	N/A	N/A	12.4	13.2		

teeth and dry mouth compared to diagnosis. Petruson et al (12) reported an increase in problems with teeth and dry mouth at 12-month post-treatment compared to diagnosis. Al-Mamgani et al (17) reported worse scores in appetite, pain related to head and neck, senses problems, social eating, sexuality, and remarkable worsening in problems with teeth, problems opening the mouth, dry mouth and sticky saliva. Oates (13) reported increases in fatigue and dry mouth at 12-month post-treatment compared with values at diagnosis.

Oates et al was the only study that determined the presence of a PEG at 12 months, which was reported in 25% of patients.

DISCUSSION AND CONCLUSIONS

In summary, this brief literature review showed that patients with OPSCC treated with standard of care- that includes surgery followed by RT/CRT, or chemotherapy and radiotherapy in different combinations- have a QoL at 12-month post-treatment that is lower compared with pre-treatment one. Most problems were related to long term side effects of radiotherapy, such as xerostomia, sticky saliva, trismus and problems with teeth. Patients also reported lower role, functioning scores, and a possible cause for that is the presence of a PEG that impedes oral diet in all daily life situations. To date, and likely deterioration in other scales. For now, there are no data in the literature to assess the impact of HPV positivity on the quality of life of OPSCC patients following treatment as these studies included all OPC irrespective of HPV status. However, the treatment is the major determinant of the QoL and that being the same irrespective of HPV status, these results likely apply to HPV positive OPC. Given the prevalence of HPV positive oropharyngeal cancer, likely most patients in these studies were HPV positive OPC.

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Conflict of interest

The authors declare no conflicts of interests.

Ethical approval

Ethical approval was not needed for this retrospective study.

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