

Quality of Life Assessment in Head and Neck Cancer Patients undergoing Modern Radiotherapy Techniques: Evaluating and correlating Dosimetry and Toxicity findings

P.Kiafi¹, M.A. Kouri¹, G. Patatoukas¹, O.Nicolatou-Galitis², M. Chalkia¹, A. Kougioumtzopoulou¹, N. Kollaros¹, V.Kouloulis¹, K.Platoni¹.

¹ 2nd Department of Radiology, Medical School, Attikon University Hospital, National and Kapodistrian University of Athens, 11527 Athens, Greece

² Oral Oncology Unit, Clinic of Hospital Dentistry, Dental School, National and Kapodistrian University of Athens, 154 51, Athens, Greece

Background: Head and Neck Cancer is the seventh most common cancer globally. The disease and the side effects associated with treatment for the malignancy have a significant negative impact on patients' quality of life, affecting their physical and mental health. It is therefore imperative to investigate how radiotherapy affects the quality of life of these patients.

Materials & Methods: The research was conducted in the Radiotherapy Unit of the Radiology Laboratory of the U.G.H. "ATTIKON", during the period from February 2021 to August 2022. Data collection was performed using the standardized weighted questionnaires EORTC-QLQ-C30 and EORTC QLQ H&N 35 in three stages. The sample size was 84 patients, of whom 75 completed all three stages of the questionnaires.

Results: After comparing the EORTC C30 and HN35 indicators, a statistically significant difference between the longitudinal assessments of the indicators ($p < 0.0005$) was observed. Pairwise comparisons highlight a difference between the 2nd measurement and the 1st and 3rd measurements ($p < 0.0005$) respectively, while there is no difference between the 1st and 3rd measurement ($p = 0.442$). Significant correlations were found between toxicity levels and dosimetric parameters in OAR, such as parotid glands and oral cavity. Thus, highlighting the specific questionnaires for evaluating patients' quality of life as a reliable tool for assessing toxicity.

Conclusion: By assessing and correlating the dosimetric data, the related side effects of radiotherapy and quality of life assessment of head and neck cancer patients undergoing modern radiotherapy techniques can lead to improved treatments in terms of side effects. Optimized treatment protocols are mandatory for patients' high quality of life.

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(N=75) Time=2		Toxicity	
		SCC	p-value
Spearman's	Physical	-0.195	0.094
	Global Health	-0.176	0.130
	Appetite Loss	0.160	0.170
	Pain	0.454	<0.0005
	Swallowing	0.281	0.015
	Senses Problems	0.042	0.721
	Dry Mouth	0.264	0.022
	Sticky Saliva	0.174	0.136
	Weight Loss	0.004	0.970

Table 1: Correlation of Toxicity Levels – Symptoms at the end of the Radiation Therapy

SCC : Spearman's correlation coefficient

(N=75) Time=3		Toxicity	
		SCC	p-value
Spearman's rho	Physical	-0.040	0.730
	Global Health	-0.137	0.240
	Appetite Loss	0.298	0.009
	Pain	0.220	0.058
	Swallowing	0.183	0.117
	Senses Problems	0.090	0.444
	Dry Mouth	0.240	0.038
	Sticky Saliva	0.129	0.271
	Weight Loss	0.111	0.344

Table 2: Correlation of Toxicity Levels- Symptoms 3 months after Radiation Therapy

SCC : Spearman's correlation coefficient