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Oral health related quality of life in patients with head and neck tumors undergoing chemo and radiotherapy

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ABSTRACT

Introduction: Oral health is an important aspect of public health which affects people's quality of life. Oral health related quality of life is assessed to evaluate the effect of different diseases on individual's daily life quality. The aim of this study was to examine the oral health related quality of life in patients with head and neck tumors who received radio and chemotherapy.

Materials and Methods: This cross-sectional study was done in 2015 on the fifty patients with head and neck tumors who were referred to Babolsar Shahid Rajae hospital and Sari Emam Khomeyni hospital for radio and chemotherapy, and fifty healthy individuals as control group. In this study our measuring tool was OHIP-14 (Oral Health Impact Profile) questionnaire.

Results: Our findings showed a statistically significant difference in oral health related quality of life between healthy and patients groups ($P< 0.05$). In patients group, among different factors, the disease status (primary or recurrent tumor) could significantly affect the oral health related quality of life.

Conclusion: It seems that disease status (primary or recurrent) is an important factor in decreasing oral health related quality of life in patients with head and neck tumors.

Key words: oral related life quality, head and neck tumor, chemotherapy, radiotherapy.

Introduction

Mouth is mirror of our body and teeth are the main components of mouth. Ignorance to oral hygien, affects oral health and helps microorganisms to enter our body from mouth and endanger our body health [1]. Oral health is an important branch of public health that has a considarable impact on individual's health. Quality of life is concerned with "the degree to which a person enjoys the important possibilities of life".

Oral health-related quality of life (OHRQoL) characterizes a person's perception of how oral health influences an individual's life quality and overall well-being [2]. Mouth and tooth are considered so important in preservation social health that now are recognized as one of the eleven most important issues of twenty-first century [3,4]. According to Dijkers, health-related quality of life is an important component of life quality, which has physical, cognitive, emotional and social aspects. Nowadays, it is understood that it can be modulated directly or indirectly by imbalances in health as diseases, disorders or injuries, being sensitive to the signs, symptoms and treatment effects. So, this construct can be assessed both by general or by specific approaches, such as oral health [5].

World Health Organization (WHO) implies oral health as an essential part of public health during life; it states that poor oral health and untreated oral diseases can have deep effect on quality of life. Carelessness to functions which are related to oral health affects our nutrition, speaking, voice and speech quality. Therefore, attention to this issue is one of the WHO's programs in prevention of chronic oral diseases and improving public health [6]. According to WHO, quality of life definition is people's perception of their position in life regarding their beliefs and culture in which they live, goals, expectations, standards and their priorities [7]. This definition has a wide meaning that is affected from physical and mental health status, independence level, social commiunication and personal beliefs. It has been reported that cancers and their treatments such as surgery, radiotherapy and chemotherapy decrease life quality [8,9]. Oral health status influences on psychological quality of life more than functional aspects. One of the most widely used instrument to assess the "impact on the oral health" is the Oral Health Impact Profile (OHIP) proposed by Slade and Spencer. The OHIP evaluates three conceptual domains (physical, psychological and social) that quantify the individual perception of the impacts generated by oral problems in general health [5]. Improvement of the general health during the second half of the 20th century has increased the mean age of the population. As the number of the elderly increases, coordination and cost-effectiveness of the health policies become more critical [10]. Cancer is a common chronic disease that its overall prevalence has increased from 70 decade until now. In the United States, in 2007 has been estimated that about 1.4 million new cases of cancer would be detected during the next year. The incidence of cancer increases 1 to 2 percent in developed countries and about 5 percent in undeveloped countries annualy [11]. In Iran, cancer is the third cause of death after accidents and cardiovascular diseases, and studies showed that death from lip and oral cancers has increased from 9 % in 1995 to 30 % in 2003 [12]. During the past two decades, psychological status and quality of life were important subjects in clinical research and patients care [13]. Steele et al (2004), used OHIP-14 questionnaire to evaluate the effect of age and tooth loss on OHRQoL. They found that age, education and number of lost teeth were important factors for OHRQoL [10]. In a study by Yamazaki et al (2007) in a Japanese population, the index of OHIP was measured with dentures and psychrometric characteristics. They found that individual's health status can be assessed according to their oral status [14]. Sadri and Bahraminejad (2014) in a study on patients' quality of life, reported that disease severity reduces patients' quality of life especially in women [12]. Considering high prevalence of cancer and therapeutic advances that aims to improve long-term survival of patients, today scientists accept OHRQoL as a predictive facor for oral health care need [12]. Quality of life in patients undergoing chemo and radiotherapy is very important because these patients usually encounter basic limitations in their life, and recognition of factors affecting patients' quality of life can be useful in choosing treatment plans and supportive care [12, 13]. So, this study was designed to evaluate oral health related quality of life in patients with head and neck tumors under radio and chemotherapy.

Material and Methods

This descriptive-analytical study was done in 2015. The study included all patients (fifty patients) afflicted by head and neck tumors who were referred to Shahid Rajaee hospital in Babolsar and Imam Khomeini hospital in Sari, Mazandaran for chemo or radiotherapy, in a duration of 6 months. Patients with psychological, physical and congenital diseases had been excuded from the study. Fifty healthy people were also entered the study as control group. We described our research for all partcipants and got oral consent from all of them. Then, patients' demographic data including age, sex, number of therapeutic sessions, living location were recorded. Then, OHIP-14 prevalence questionnaire was filled for each patient. Validity and Reliability of the questionnaire was examined in previous studies [17]. For illiterate patients, we read the questionnaire and filled the answer sheet for them. The questionnaire has 14 questions with 5 answers that are scored as follow: never=1, rarely=2, sometimes=3, usually=4, mostly=5. This questionnaire covers seven aspects of oral health

related quality of life including functional limitations, physical pain, mental problems, physical disabilities, social problems, psychologic problems and being handicap. All the questions are negative, and higher score shows poorer quality of life. Total score was estimated by multiplying all question's score. OHIP-14 score and number of each group regarding variables were recorded. Independent t-test and One-way ANOVA by SPSS 18 were used to analyse the collected data.

Results

This descriptive-analytical study included one hundred participants consisting fifty healthy people with mean age of 45.76 (range of 25- 75 years) and fifty patients who had head and neck tumors and underwent radio and chemo therapy, with mean age of 45.46 (range of 25-8 years). Forty-three percent were men and fifty-seven percent were women. Thirty percent were from rural areas and seventy percent were living in urban areas. Considering their working status, eight percent were jobless, twenty percent were employees, thirty-four percent were housekeeper, thirty percent were self-employed and eight percent had other jobs. regarding participant' education, twenty-seven percent were illiterate, thirty-four percent were under diploma, thirty-four percent had bachelor degree and five percent had higher degrees.

Considering participants' marital status, 19 percent were single, 77 percent were married, 2 percent were divorced and 2 percent were widowed. Mean OHIP in healthy group was 21.066.12± and in patient group was 72.088.50±. The difference was statistically significant. (P=0.000) Mean OHIP in patients with primary tumors was 45.627.13± and in patients with recurrent tumors was 56.236.78± which shows a lower oral health related life quality in the latter group that was statistically significant (P=0.000). Mean OHIP in groups considering gender, age, living place, education, job, marital status, disease status, treatment plan, chemo and radiotherapy sessions is summarizes in table 1 and 2.

Discussion

There are limited articles in the literature about life quality in patients with head and neck tumors. In the present study, we found a significant poorer quality of life in patients with recurrent tumors in comparison with patients with primary tumors. This may be related to the progress of tumor which destroys tissues and affects body functional systems. Our findings showed a lower life quality related to oral health in patients with head and neck tumors who underwent radio and chemotherapy compared to healthy people. In our study, chemotherapy and radiotherapy had no significant different effect on patients' quality of life which is in contrast to Sadri and Bahraminejad findings [12]. This difference could be related to different sample size and tumors type in their study. In our research, no difference between male and female patients was seen, but Sadri et al. found a lower life quality in women patients [12]. In our study, age and education had no significant effect on OHRQoL. Steele JG et al and Jain M et al in different studies reached different results. [11,18] Browall et al. found a decrease in life quality in patients with breast cancer who underwent chemotherapy which was more evident during first, third and sixth session [19]. In our study, we found no significant difference between number of chemotherapy or radiotherapy sessions or patients' age and OHRQoL. The latter finding is in contrast to Zucoloto et al. findings that showed a worse quality of life with increasing age In Brazilian population [5]. This might be due to different sample size and cultural habits between samples. In another study, done by Castrejón-Pérez RC et al. oral rehabilitation and health education are believed to improve quality of life in elderly population [20].

Nakhjavani et al. in a study on patients with renal failure found that anemia and hemodialysis duration have significant effects on gingiva and life quality [21]. Poor oral hygiene and untreated oral diseases can have a deep effect on our life. Poor oral health can affect nourishing, speech, voice quality and speaking. An important duty of WHO is to prevent chronic diseases and to improve people's health [14]. In a study by Lu HX, amongst pregnant women in Uganda, a significantly strong association was observed between tooth loss and oral health related quality of life. It was found that tooth loss, the endpoint of dental caries and periodontal disease was significantly associated with the extent of negative impacts on dental functioning impairment [22].

In our study, we included referral patients to two major centers for chemo and radiotherapy in mazandaran, in a duration of six month; considering the limitations of this study, we recommend similar studies be done in large states of Iran with large sample size to reach a precise data about our country's patients' life quality.

Table1. Patients' OHIP considering demographic parameters.

OHIP/variable	Status	*Number*	Mean OHIP	SD	P value
Sex	*Male*	*20*	*51.8*	*9.13*	*0.193*
	Female	*30*	*48.6*	*8.20*	
Age	*1- 25 years*	*1*	*30*	*8.71*	*0.364*
	26- 50 years	*31*	*50.03*	*9.12*	
	51- 75 years	*18*	*50.08*	*7.81*	
Location	*City*	*31*	*50.75*	*8.60*	*0.449*
	Village	*19*	*48.76*	*9.01*	
Education	*Illiterate*	*15*	*49.80*	*7.63*	*0.930*
	Under diploma	*19*	*50.68*	*8.65*	
	Master degree	*16*	*49.62*	*10.10*	
	Higher degrees	*0*	---		
Job	*Jobless*	*4*	*47.75*	*2.87*	*0.305*
	Employee	*5*	*49.00*	*11.11*	
	Housekeeper	*20*	*50.05*	*8.19*	
	Business	*17*	*48.88*	*9.29*	
	Other	*4*	*59.00*	*7.48*	
Marital status	*Single*	*6*	*49.50*	*11.87*	*0.356*
	Married	*41*	*50.27*	*8.16*	
	Divorced	*1*	*36.00*	*8.67*	
	Widowed	*2*	*55.00*	*9.89*	

Table 2. Patients' OHIP considering related variables.

OHIP/variable	*Status*	*Number*	*Mean*	*Standard Deviation*	*Significance*
Tumor status	*Primary*	*30*	*45.62*	*7.13*	*0.0000*
	Recurrency	*20*	*56.23*	*6.78*	
Treatment Plan	Surgery	0	--	--	0.138
	Surgery+Radiotherapy	19	47.73	8.13	
	Surgery+Chemotherapy	31	51.51	8.86	
Interval from surgery	*No surgery*	*38*	*48.53*	*8.25*	*0.074*
	6 months	*4*	*53.50*	*6.55*	
	12 months	*1*	*66.00*	*8.34*	
	24 months	*0*	--	--	
	More than 24 months	*7*	*54.28*	*9.58*	
Chemotherapy session	*1- 10*	*17*	*49.23*	*8.51*	*0.110*
	11- 20	*7*	*50.57*	*8.10*	
	21- 30	*7*	*54.28*	*8.69*	
	> 31	*2*	*64.00*	*4.24*	
Radiotherapy session	*1- 10*	*11*	*45.09*	*5.75*	*0.091*
	11- 20	*3*	*45.66*	*11.84*	
	21- 30	*2*	*55.00*	*5.65*	
	> 30	*1*	*62.00*	*7.03*	

Conclusion

It seems that among different factors such as age, sex, education, job, marital status, living location and disease status, the latter (primary or recurrent tumor) is the only important factor in decreasing oral health related quality of life in patients with head and neck tumors. This should be a great concern for supportive treatments for these patients.

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