

Examination Methods of Life Quality in Cancer Patients of the Head and Neck

Ivan Gerdzhikov

Department of Prosthetic dentistry, Faculty of Dental Medicine, Medical University of Sofia

Abstract: ***Introduction:** Oncological diseases in the area of the head and neck cause numerous functional disorders and changes in appearance, that make the quality of life worse. **Objective:** The purpose of this research is to follow up and analyze the methods, used to examination and evaluation of quality of life in patients with cancer of the head and neck. **Discussion:** Treatment and rehabilitation of cancer patients in maxillo-facial area is complicated and long process. This requires examination and assessment of their general physical and mental health. The main methods and tools for evaluation life quality in these patients are the surveys. **Conclusion:** The application of specific methods for examination the quality of life in patients with cancer of the head and neck allows an objective assessment of their condition, which supports the treatment and rehabilitation.*

Keywords: quality of life, cancer of head and neck, maxillofacial defects, maxillary resection, obturator

1. Introduction

In recent years, the term “quality of life” entered widely in medicine as a tool to assess the outcome of and the degree of satisfaction with the treatment. This is what a number of authors [1, 2, 3], establishing a connection between the quality of life of patients and their health, find. The quality of life is a major motive in choosing the method of treatment; for 78 % of the doctors it is as important as the survival of the patient [4].

World Health Organization (WHO) defines “quality of life” as “an individual's perception in the context of his cultural and value systems in relation to his objectives, expectations and standards” [5]. Different criteria for evaluation are used for its study and analysis, with the possibility to track the physical, mental and social well-being of the individual, refracted through his subjective perceptions [6, 7].

Physical well-being includes good health, and generally, physical activity, prevention of pain and diseases, and the ability to independently perform activities related to the personal and social needs of the individual [5].

Mental aspects of quality of life related to mental health, various states of stress, positive and negative emotional states, sometimes influenced by health status and ability to assess oneself [5].

Social wellbeing is the most diverse and difficult to measure because it involves activity in private life and family, friendship and interpersonal relationships, career development, entertainment, leisure, social environment and life in it and material opportunities to maintain health [5].

According to Felce et Perry [8] quality of life is multidimensional and can be defined by five major categories - physical and social well-being, emotional well-being, ability to develop and find fulfilment and be active in any way. Moreover, no standards for quality of life should be introduced without taking into account individual characteristics and condition of the patient.

2. Objective

The purpose of this research is to follow up and analyze the methods, used to examination and evaluation of quality of life in patients with cancer of the head and neck.

3. Literature Survey

The injuries in maxillofacial area lead to serious aesthetic changes, psychological problems and functional disorders, associated with difficulties in chewing, swallowing, speaking and breathing [9, 10]. According to Lin et Wang [11] solving of these problems is possible only after examination of patient's individual needs. For this reason, different types of surveys are applied for assessment the quality of life [12, 13, 14, 15, 16]. Most of them use established and proven questionnaires, some of which relevant to healthy people (17, 18). One, commonly used is SF-36 [19], which is recommended from the International Centre for Investigation the Quality of Life (ICIQL), as a universal method of examination of health, physically and mental well-being. It is also used for analysis of the achieved treatment results [17, 20]. The survey contains 36 questions for following up different parameters of quality of life, separated into 8 groups. Modifications with variety of questions from SF-8 to SF-56 are also used. Its structure allows transformation and assessment of obtained results by scale from 0 to 100. According to this scale, a higher value corresponds with better quality of life [18]

McGill [21] examines the physical and mental state of patients and their sense of well-being and emotional support by a questionnaire, which contains 16 questions. In this research the pain takes a special place, which, according to the author, is a defining factor for the quality of life through every stage of the treatment. The results are evaluated on a scale from 1 to 10.

The questionnaire of University of Washington (UWQOL) is often used. It contains 15 questions for evaluation the general physical condition of the patients and their problems in the last 7 days [22]. The results are evaluated on scale from 0 to 100.

Volume 6 Issue 2, February 2017

www.ijsr.net

Licensed Under Creative Commons Attribution CC BY

Some authors [4, 23, 24, 25, 26] claim, that life quality examination of cancer patients on the head and neck, requires the application of specific surveys. Such a character has the questionnaire HN-QOL, which contains 20 questions for analysis the pain, feeding, communication and the emotional state of the treated patients [27]. Its usage allows a comprehensive study of the quality of life in patients with cancer of the head and neck [28]. The version HNRQ is used when the treatment includes radiotherapy [29].

The functional state of the patients takes a specific place in some research [24, 30, 31, 32]. The scale for functional assessment of cancer treatment (FACT-G) is very preferred. This scale follows up the changes in patients' physical, social, emotional and functional state during the treatment [30]. The version FACT-HN gives an objective assessment of the life quality of cancer patients on the head and neck [24]. A similar method for assessment the functional state uses the International Classification of Functioning, Disability and Health (ICF), established by International Health Organization in 2001 [32]. This classification evaluates 112 parameters for cancer of the head and neck, which are 8% of the whole IFC classification. The assessment may vary from 0 (no damage) to 4 (total damaged). The analysis of the results revealed the leading role of 33 parameters. This is the reason why some authors claim, that this survey is unreliable [33].

The scale, for assessment the functional state of patients PSS-HN [31], allows examination of the speaking, diet and feeding in public places, which gives important information for the general health condition and the quality of life [24]. Makareevich [34] uses a questionnaire of 36 questions to examine the physical and mental state, social contacts, masticatory function, speaking and aesthetic of patients with obturators. The assessment of the results is on scale from 0 to 100, as the higher value corresponds to better quality of life. Some authors [35] describe a similar method for assessment life quality in patients with maxillary resection, using a „System Control Card“ (SCC-8). A simple table with 20 questions allows an objective evaluation of the level of satisfaction in patients after treatment [36].

According to Jacobson [37], voice damage is a factor with major influence of life quality. The author has established voice handicap index (VHI) to follow up its change after treatment or illness. VHI assess the functional, physical and emotional influence of the voice on life quality. For optimizing the research, Rosen et al. [38] introduced the survey of 10 questions (VHI-10).

The European Organization for Research and Treatment of Cancer (EORTC) has developed and implemented an integrated modular approach for evaluation life quality [39]. Several versions of the basic questionnaire (EORTC QLQ-C30), with functional and symptomatic scales from 0 to 100, are used for assessment of the general status [40]. Higher values in the functional scale and general health scale express better life quality, but these ones in the symptomatic scale indicates for more serious damages. The module EORTC QLQ-HN35 has been developed for the cases of cancer of the head and neck. It has 35 questions, grouped in seven scales, for evaluation of pain, swallowing, sensory,

speaking, feeding, social and sexual communication of the patients [41]. It is assumed, that its application provides more reliability and validity than EORTC QLQ-C30 [42]. These two questionnaires are also applied with success in patients with conducted radiotherapy and chemotherapy [43].

The desire for quick an easy research of life quality leads to constantly creation of new methods of examination [44]. Silveira et al. [45] developed a software version for research of life quality in cancer patients of the head and neck, which provides access to huge data base and easy statistic analysis. The submitted results are similar to the classic survey, but 53% of the patients prefer the software version.

Many authors [39, 46, 47] consider that an objective evaluation is possible only through usage of reliable and valid surveys. Sometimes this is in correlation with the usage of several questionnaires, for providing a reliability and universality of the study [23, 24, 25, 34]. In such a research, Chaukar et al. [23] established that the usage of EORTC QLQ-C30 and HN-QOL provides an objective assessment of physical and mental health of cancer patients on the head and neck, and List et al. [24] proved the efficiency of FACT-HN and PSS-HN. Usui [48] claims, that only simultaneous application of surveys and objective research methods ensures reliability of the study.

4. Discussion

Increasing the number of cancer patients in maxillofacial area and life span after treatment are the reasons for development of various methods of research and evaluation of life quality. Most of them use subjective assessment of patients for their physical and mental condition and problems, occurred after treatment [12, 13, 15, 16]. Applied surveys contain different amounts of information and evaluation indicators. Some of them are mainly used in healthy people and are seen as a universal tool for examination and evaluation of health [18, 19]. Other methods [17] follow up mostly the changes in general health condition in patients after treatment. The obtained data in this type of studies have found no specific changes in the quality of life of patients with cancer of the head and neck. This requires the creation and development of specific questionnaires for assessment and analysis of various indicators of quality of life [49]. Many authors [39, 40, 41, 42, 43] consider, that this provides objectivity and universality of the studies. This approach is the reason for the creation and development of large surveys with many similar issues, which confuses patients. The variety of so many examination methods is also a reason to reveal different and sometimes conflicting data. To solve this problem some authors [35, 36] recommend the use of short and simple questionnaires, which facilitates the patients and reveals the level of satisfaction from both- health condition and the treatment. This thesis, however, is not accepted by other authors [23, 24, 25], who believe that the best results occur only in researches with several questionnaires. Some of them [48] claim, that authenticity of the research is only possible through simultaneous application of surveys and objective methods of examination. The received results are contradictory, as some authors [3] claim that the subjective

assessment of some parameters of life quality corresponds to the objective clinical research. Other authors [50] do not establish such a correlation.

5. Conclusions

Rehabilitation of patients with cancer of the head and neck is a complicated multistep process associated with overcoming many difficulties and problems. The main difficulties come from affecting all elements of orofacial complex in different levels, which makes chewing, feeding, speaking and breathing difficult. Damaged or lost function and changed appearance make patients' quality of life worse. The problems are individual in each patient, because of the different volume and localization of the defect. This requires an objective assessment of the general condition of the patient, as well as his specific needs and demands. The examination and analysis of the problems requires the development of specific methods for evaluation of quality of life, to support the rehabilitation of these patients.

References

- [1] Quality of life assessment in clinical trials. Ed. Spilker B. New York, 1990, 24.
- [2] Quality of life assessment in clinical trials. Ed. Staquet M. J. Oxford University Press: Oxford, New York, Tokyo, 1998, 360.
- [3] Rieger JM, Wolfaardt JF, Jha N, Seikaly H. Maxillary obturators: the relationship between patient satisfaction and speech outcome. *Head Neck*. 2003 Nov;25(11):895-903.
- [4] Demez PH, Moreau PR. Perception of head and neck cancer quality of life within the medical world: a multicultural study. *Head Neck*. 2009 Aug;31(8):1056-67. doi: 10.1002/hed.21069.
- [5] The World Health Organization Quality of Life assessment (WHOQOL): position paper from the World Health Organization. *Soc Sci Med*. 1995 Nov;41(10):1403-9.
- [6] Bowling A. *Measuring Disease: a review of disease-specific quality of life measurement scales*. Buckingham: Open University Press, 1996, 208.
- [7] Bowling A. *Measuring Disease: a review of disease-specific quality of life measurement scales-2nd edition*. Open University Press, Philadelphia, 1997, 160.
- [8] Felce D, Perry J. Quality of life: its definition and measurement. *Res Dev Disabil*. 1995 Jan-Feb;16(1):51-74.
- [9] Depprich R, Naujoks C, Lind D, Ommerborn M, Meyer U, Kübler NR, Handschel J. Evaluation of the quality of life of patients with maxillofacial defects after prosthodontic therapy with obturator prostheses. *Int J Oral Maxillofac Surg*. 2011 Jan;40(1):71-9. doi: 10.1016/j.ijom.2010.09.019. Epub 2010 Oct 25.
- [10] Lethaus B, Lie N, de Beer F, Kessler P, de Baat C, Verdonck HW. Surgical and prosthetic reconsiderations in patients with maxillectomy. *J Oral Rehabil*. 2010 Feb;37(2):138-42. doi: 10.1111/j.1365-2842.2009.02031.x. Epub 2009 Nov 30.
- [11] Lin FH, Wang TC. Prosthodontic rehabilitation for edentulous patients with palatal defect: report of two cases. *J Formos Med Assoc*. 2011 Feb;110(2):120-4. doi: 10.1016/S0929-6646(11)60019-3.
- [12] Hertrampf K, Wenz HJ, Lehmann KM, Lorenz W, Koller M. Quality of life of patients with maxillofacial defects after treatment for malignancy. *Int J Prosthodont*. 2004 Nov-Dec;17(6):657-65.
- [13] Irish J, Sandhu N, Simpson C, Wood R, Gilbert R, Gullane P, Brown D, Goldstein D, Devins G, Barker E. Quality of life in patients with maxillectomy prostheses. *Head Neck*. 2009 Jun;31(6):813-21. doi: 10.1002/hed.21042.
- [14] Kumar P, Alvi HA, Rao J, Singh BP, Jurel SK, Kumar L, Aggarwal H. Assessment of the quality of life in maxillectomy patients: A longitudinal study. *J Adv Prosthodont*. 2013 Feb;5(1):29-35. doi: 10.4047/jap.2013.5.1.29. Epub 2013 Feb 28.
- [15] Rogers SN, Lowe D, McNally D, Brown JS, Vaughan ED. Health-related quality of life after maxillectomy: a comparison between prosthetic obturation and free flap. *J Oral Maxillofac Surg*. 2003 Feb;61(2):174-81.
- [16] Schwarz R, Hinz A. Reference data for the quality of life questionnaire EORTC QLQ-C30 in the general German population. *Eur J Cancer*. 2001 Jul;37(11):1345-51.
- [17] Newnham EA, Harwood KE, Page AC. Evaluating the clinical significance of responses by psychiatric inpatients to the mental health subscales of the SF-36. *J Affect Disord*. 2007 Feb;98(1-2):91-7. Epub 2006 Aug 10.
- [18] Ware JE, Snow K, Kosinski M et al. *SF-36 health survey: Manual and Interpretation Guide*. Boston, 1993, 143.
- [19] McHorney CA, Ware JE Jr, Lu JF, Sherbourne CD. The MOS 36-item Short-Form Health Survey (SF-36): III. Tests of data quality, scaling assumptions, and reliability across diverse patient groups. *Med Care*. 1994 Jan;32(1):40-66.
- [20] Ware JE Jr, Gandek B. Methods for testing data quality, scaling assumptions, and reliability: the IQOLA Project approach. *International Quality of Life Assessment*. *J Clin Epidemiol*. 1998 Nov;51(11):945-52.
- [21] Cohen SR, Mount BM, Strobel MG, Bui F. The McGill Quality of Life Questionnaire: a measure of quality of life appropriate for people with advanced disease. A preliminary study of validity and acceptability. *Palliat Med*. 1995 Jul;9(3):207-19.
- [22] Rogers SN, Lowe D, Brown JS, Vaughan ED. The University of Washington head and neck cancer measure as a predictor of outcome following primary surgery for oral cancer. *Head Neck*. 1999 Aug;21(5):394-401.
- [23] Chaukar DA, Walvekar RR, Das AK, Deshpande MS, Pai PS, Chaturvedi P, Kakade A, D'Cruz AK. Quality of life in head and neck cancer survivors: a cross-sectional survey. *Am J Otolaryngol*. 2009 May-Jun;30(3):176-80. doi: 10.1016/j.amjoto.2008.05.001. Epub 2008 Oct 1.
- [24] List MA, D'Antonio LL, Cella DF, Siston A, Mumby P, Haraf D, Vokes E. The Performance Status Scale for Head and Neck Cancer Patients and the Functional Assessment of Cancer Therapy-Head and Neck Scale. A

- study of utility and validity. *Cancer*. 1996 Jun 1;77(11):2294-301.
- [25] Tschiesner U, Linseisen E, Baumann S, Siedek V, Stelter K, Berghaus A, Cieza A. Assessment of functioning in patients with head and neck cancer according to the International Classification of Functioning, Disability, and Health (ICF): a multicenter study. *Laryngoscope*. 2009 May;119(5):915-23. doi: 10.1002/lary.20211.
- [26] Vartanian JG, Kowalski LP. Acceptance of major surgical procedures and quality of life among long-term survivors of advanced head and neck cancer. *Arch Otolaryngol Head Neck Surg*. 2009 Apr;135(4):376-9. doi: 10.1001/archoto.2009.5.
- [27] Terrell JE, Nanavati KA, Esclamado RM, Bishop JK, Bradford CR, Wolf GT. Head and neck cancer-specific quality of life: instrument validation. *Arch Otolaryngol Head Neck Surg*. 1997 Oct;123(10):1125-32.
- [28] Terrell JE, Nanavati K, Esclamado RM, Bradford CR, Wolf GT. Health impact of head and neck cancer. *Otolaryngol Head Neck Surg*. 1999 Jun;120(6):852-9.
- [29] Browman GP, Levine MN, Hodson DI, Sathya J, Russell R, Skingley P, Cripps C, Eapen L, Girard A. The Head and Neck Radiotherapy Questionnaire: a morbidity/quality-of-life instrument for clinical trials of radiation therapy in locally advanced head and neck cancer. *J Clin Oncol*. 1993 May;11(5):863-72.
- [30] Cella DF, Tulsky DS, Gray G, Sarafian B, Linn E, Bonomi A, Silberman M, Yellen SB, Winicour P, Brannon J, et al. The Functional Assessment of Cancer Therapy scale: development and validation of the general measure. *J Clin Oncol*. 1993 Mar;11(3):570-9.
- [31] List MA, Ritter-Sterr C, Lansky SB. A performance status scale for head and neck cancer patients. *Cancer*. 1990 Aug 1;66(3):564-9.
- [32] Tschiesner U, Rogers S, Dietz A, Yueh B, Cieza A. Development of ICF core sets for head and neck cancer. *Head Neck*. 2010 Feb;32(2):210-20. doi: 10.1002/hed.21172.
- [33] Kirschnack M, Sabariego C, Singer S, Tschiesner U. Assessment of functional outcomes in patients with head and neck cancer according to the International Classification of Functioning, Disability and Health Core Sets from the perspective of the multi-professional team: results of 4 Delphi surveys. *Head Neck*. 2014 Jul;36(7):954-68. doi: 10.1002/hed.23399. Epub 2013 Sep 18.
- [34] Makarevich AA. Quality of life in patients with maxillofacial injuries resulting from cancer. Dissertation for Ph D. Moscow, 2009.
- [35] Gerdzhikov I, Dimova M. Study of quality of life in patients with post-resection prostheses of the upper jaw. [Article in Bulgarian]. "Social Medicine" 2015, 4, 26-27.
- [36] Gerdzhikov I. Quality of life in patients with maxillary postoperative defects - analysis and optimization. Dissertation for Ph D. 2015, Sof., FDM, MU- Sofia.
- [37] Jacobson B. et all. The voice handicap index (VHI): development and validation. *J Speech-Lang Path*. 1997-(6);66-70.
- [38] Rosen CA, Lee AS, Osborne J, Zullo T, Murry T. Development and validation of the voice handicap index-10. *Laryngoscope*. 2004 Sep;114(9):1549-56.
- [39] Aaronson NK, Ahmedzai S, Bergman B, Bullinger M, Cull A, Duez NJ, Filiberti A, Flechtner H, Fleishman SB, de Haes JC, et al. The European Organization for Research and Treatment of Cancer QLQ-C30: a quality-of-life instrument for use in international clinical trials in oncology. *J Natl Cancer Inst*. 1993 Mar 3;85(5):365-76.
- [40] Arraras JI, Arias F, Tejedor M, Pruja E, Marcos M, Martínez E, Valerdi J. The EORTC QLQ-C30 (version 3.0) Quality of Life questionnaire: validation study for Spain with head and neck cancer patients. *Psychooncology*. 2002 May-Jun;11(3):249-56.
- [41] Bjordal K, Hammerlid E, Ahlner-Elmqvist M, de Graeff A, Boysen M, Evensen JF, Biörklund A, de Leeuw JR, Fayers PM, Jannert M, Westin T, Kaasa S. Quality of life in head and neck cancer patients: validation of the European Organization for Research and Treatment of Cancer Quality of Life Questionnaire-H&N35. *J Clin Oncol*. 1999 Mar;17(3):1008-19.
- [42] Sherman AC, Simonton S, Adams DC, Vural E, Owens B, Hanna E. Assessing quality of life in patients with head and neck cancer: cross-validation of the European Organization for Research and Treatment of Cancer (EORTC) Quality of Life Head and Neck module (QLQ-H&N35). *Arch Otolaryngol Head Neck Surg*. 2000 Apr;126(4):459-67.
- [43] Wan Leung S, Lee TF, Chien CY, Chao PJ, Tsai WL, Fang FM. Health-related quality of life in 640 head and neck cancer survivors after radiotherapy using EORTC QLQ-C30 and QLQ-H&N35 questionnaires. *BMC Cancer*. 2011 Apr 12;11:128. doi: 10.1186/1471-2407-11-128.
- [44] Sprangers MA, Cull A, Groenvold M, Bjordal K, Blazeby J, Aaronson NK. The European Organization for Research and Treatment of Cancer approach to developing questionnaire modules: an update and overview. EORTC Quality of Life Study Group. *Qual Life Res*. 1998 May;7(4):291-300.
- [45] Silveira A, Gonçalves J, Sequeira T, Ribeiro C, Lopes C, Monteiro E, Pimentel FL. Computer-based quality-of-life monitoring in head and neck cancer patients: a validation model using the EORTC-QLQ C30 and EORTC- H&N35 Portuguese PC-software version. [Article in Portuguese] *Acta Med Port*. 2011 Dec;24 Suppl 2:347-54. Epub 2011 Dec 31.
- [46] Morton RP, Izzard ME. Quality-of-life outcomes in head and neck cancer patients. *World J Surg*. 2003 Jul;27(7):884-9.
- [47] Ringash J, Bezjak A. A structured review of quality of life instruments for head and neck cancer patients. *Head Neck*. 2001 Mar;23(3):201-13.
- [48] Usui H. Evaluation of maxillary prosthesis for better QOL. [Article in Japanese]. *Nihon Jibiinkoka Gakkai Kaiho*. 1994 Sep;97(9):1643-56.
- [49] Hahn TR, Krüskemper G. The impact of radiotherapy on quality of life -- a survey of 1411 patients with oral cancer.[Article in German] *Mund Kiefer Gesichtschir*. 2007 Apr;11(2):99-106.
- [50] Bohle G 3rd, Rieger J, Huryn J, Verbel D, Hwang F, Zlotolow I. Efficacy of speech aid prostheses for acquired defects of the soft palate and velopharyngeal inadequacy--clinical assessments and cephalometric

analysis: a Memorial Sloan-Kettering Study. Head Neck. 2005 Mar;27(3):195-207.

Author Profile



Dr Ivan Dimitrov Gerdzhikov, PhD is in Department of Prosthetic Dental Medicine, Faculty of Dental Medicine, Medical University of Sofia. 1994. Graduation of higher education Master's degree, Faculty of Dental Medicine, Medical University of Sofia, Bulgaria. 1996. Full-time assistant professor at the Department of Prosthetic dental medicine, Faculty of Dental Medicine of Sofia. 1999. Specialist in Prosthetic Dentistry. 1997-2001. Lecturer on maxillofacial prosthetic treatment, Medical College "Y. Filaretova", Sofia. 2005. Specialist in General Dentistry. 2009. Appointed on the position of Chief Assistant Professor. 2015. Defended dissertation "Quality of life in patients with maxillary postoperative defects - analysis and optimization" and acquiring Educational and qualification degree PhD. More than 40 participation in national and foreign congresses and scientific forums in the field of prosthetic dental medicine.

