Difficulties in Communication and Selected Psychological Areas (e. g. Tension, Concerns, Irritation, Depression) Related to Patients with Tumors Disease of the Larynx and Salivary Glands

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ABSTRACT
Aim: Assessment of communication and selected psychological areas (e. g. tension, concerns, irritation, depression) related to the dispensarized patients with malignant laryngeal and salivary glands tumors using standardized questionnaires assessing quality of life.

Background: The head and neck malignant tumors rank sixth in frequency among malignant tumors worldwide. The question of treatment and follow-up care is very current especially in terms of the risk of mutilating surgical procedures and their impact on quality of life.

Methods: In the research actively dispensarized patients of ENT clinic with malignant tumors of the larynx and salivary glands were included. 113 respondents took part in the research, which was conducted from January to December 2011. Standardized (EQRTC QLQ-30, EQRTC QLQ-H&N35) and non-standardized questionnaires assessing quality of life and medical records were used for data collection. Statistical methods such as double selection Wilcoxon test and analysis of dispersion were used.

Results: There was a statistically significant difference in communication between patients with tracheostomy cannula and without it. Stage of the illness according to TNM classification did not influence selected psychological areas of the respondents with cancer of the larynx and salivary glands.

Conclusions: The seriousness of the difficulties of the dispensarized patients depends on localization and size of the tumor, therapeutic strategy, age of the patient, polymorbidity and other factors. Permanent tracheostomy cannula has an impact on communication of the respondents with laryngeal tumors. In our set of respondents, stage of the disease according to the TNM classification had not an impact on selected areas of psychological state (e. g. tension, concerns, irritation, depression).

KEY WORDS
Tumors of the larynx and salivary glands, communication, selected psychological areas (e. g. tension, concerns, irritation, depression), standardized questionnaire (EQRTC QLQ-30, EQRTC QLQ-H&N35)

INTRODUCTION
Malignant tumors of the head and neck is on the sixth place in frequency among malignant tumors worldwide. (Humphris, Ozakinci, 2008, p. 223–240) The question of treatment and aftercare is important in terms of risk mutilating treatment procedures. In our investigation we observed changes and difficulties in communication and psychological areas (stress, fears, irritability, deprivation) in patients with cancer of the larynx and salivary glands using standardized quality of life questionnaires elaborated by the European Organization for Research and Treatment of Cancer (EORTC) Quality of Life Core Questionnaire (QLQ-C30) version 3.0. and EORTC Quality of Life Head and Neck Module (QLQ-H&N35). In 2007, the authors Čiháková, Čelakovský published first works in the Czech Republic, which dealt with quality of life in patients with tracheostomy, there was used the SEIQoL (Schedule for the Evaluation of Individual Quality of Life). Abroad, there are numerous research studies that evaluate quality of life patients with head and neck cancer e. g. Buckwalter, et al. (2007) or in patients after total laryngectomy focusing on the problems with communication for example, the authors Braz, Ribas (2005).
Dispensary controls form an important part of treatment and aftercare, where besides the health assessment, risk of recurrence and patient education degree it is possible to rate the quality of life. All actively monitored patients that were involved in our research, were invited for controls to a specialized oncology counseling the first five years after treatment. The risk of recurrence is highest in the first two years after completion of treatment, therefore, the frequency of checks is highest, once in 3 months and the next three years, each six months. The following checks are after one year. (Mejzlík, Valentová, Škvŕňáková, 2008, p. 21) Psychological and social difficulties experienced by patients affect their quality of life and also have an impact on the treatment and management problems associated with medical treatment. (Praško et al., 2010; Nezu et al., 2004)

The most important changes for the patient include undoubtedly loss of voice, impaired verbal communication and sometimes permanent tracheostoma. (Praško et al., 2010; Nezu et al., 2004)

**OBJECTIVE OF WORK**

The main objective of our research was to explore and assess communication and mental problems (stress, fears, irritability, deprivation) in patients with cancer of the larynx and salivary glands using standardized quality of life questionnaires. The communication presents only some of the objectives of the research.

The first objective was to determine whether trouble with talking with other people were the same among patients with cancer of the larynx with and without a permanent tracheostomy. This objective was limited to respondents with laryngeal cancer.

Another objective was to assess the effect of stage of disease according to the International TNM classification of Diseases on selected areas of the psyche (stress, fears, irritability, deprivation) among our respondents. Respondents with cancer of the larynx and salivary glands were included in the evaluation.

**SUBJECTS AND METHODS**

Data collection follows the approval of the research by the ethics committee of medical equipment. This was a deliberate selection of respondents. Actively monitored patients, with malignant tumors of the larynx and salivary glands, from ENT clinic participated in research, therefore patients who were invited to controls to a specialized oncology counseling in regular intervals in accordance with standards of counseling. Inclusion of the respondents in the survey was voluntary, on the basis of oral and written consent. All respondents signed informed consent to participate in the research study, where they got the information about the aim and process of the research and the protection of personal data. Data collection took place from January to December 2011. A total of 124 respondents were interviewed. The survey was completed by 113 respondents, namely 101 (89%) men and 12 (11%) women. 11 respondents were discarded because of recurrent disease, ill-health or death. None of the respondents refused to participate in research. The group consisted of respondents with cancer of the larynx in number of 104 (92%), 31 of this group were patients with permanent tracheostomy. Group II. consisted of respondents with cancer of the salivary glands in number of 9 (8 %). The average age was 66.5 years for men and 66.6 years for women. Scattering age of respondents was 36 to 89 years. Respondents were coded according to the localization of tumors, according to the International Classification of Diseases, further by sex and year of birth. (ICD-10, 2009)

In our sample of respondents was apparent the unequal distribution of the maximum degree of educational attainment compared to the general population of the Czech Republic, when from a total population the basic education have 17.4%, apprenticed 32.8%, secondary 30.9% and tertiary 12.4%. (CSO, 2011) Basic education in our group had 18 (16%) respondents, more than a half of the 61 (54%) was apprenticed, 26 (23%) of respondents reached secondary education and 8 (7%) tertiary. Marital status of respondents - single 5 (5%), married / married 79 (70%), divorced 15 (12%) and widowed 14 (12%). For data collection the standardized questionnaires assessing the quality of life were used – the QLQ-C30 questionnaire can be used in all patients with cancer, the QLQ-H&N35 dealt with identifying the specific difficulties in patients with cancer of the head and neck.

QLQ-C30 included 30 questions, concerning the somatic, psychological and social difficulties, with possible answers (not at all, a little, etc.). The last two questions were focused on assessing the overall health and quality of life. Respondents recorded their answer on the axis using verbal and numerical expression. (Bártlova, Sadilek and Tóthová, 2005)

QLQ-H&N35 followed the previous questionnaire with 35 questions, with the same possible answers. The final 5 questions were dichotomous with optional answer yes/no. (Bártlova, Sadilek and Tóthová, 2005)

Given the scope of the data obtained from standardized questionnaires (30 and 35 questions) we focused on two main segments in this communication:
communication problems and mental area (stress, fears, irritability, deprivation). These problems were most associated with the topic. Information from standardized questionnaires were accompanied by a non-standardized questionnaire (19 questions), where we examined the basic identification data, alcohol consumption, smoking, family and social background, etc. We obtained further information from medical records (tumor location, length of dispensarization, permanent tracheostomy, practice of communication, nerve paralysis of VII., XI., XII., nutritional status, information about treatment). Respondents completed the questionnaire at each follow-up inspection. Data was entered and processed in the Microsoft Office Excel 2007. Although it was standardized questionnaire, we did not find a standardized method of evaluating the original nor the Czech version. Standardized questionnaire answers were assigned to numeric values by key: not at all = 1, a little = 2, quite = 3, very much = 4. All questions were evaluated and expressed in absolute and relative frequencies. Due to the nature of the statistical data, where the answers of patients had the character of verbal assessment which was subsequently converted into numerical form, a general nonparametric test methodology was chosen for testing the first partial objective, specifically two-sided Wilcoxon test, through which it was possible to assess whether communication problems were the same among patients with cancer of the larynx and permanent tracheostomy and without it. To test the second partial objective, we used analysis of variance, which enabled us to evaluate whether among our group of respondents the clinical stage of cancer (TNM) had impact on mental area (stress, fears, irritability, deprivation). We chose the stage of cancer according to TNM classification as a factor in the statistics, this was given by the number of stages of the disease according to TNM classification. We also dealt with the issue of whether there was a financial burden to our respondents.

RESULTS

The statistical data processing, verifying the first partial objective, responses were used in total of 104 respondents, i.e., all the respondents with cancer of the larynx (Group I.). Patients with cancer of the salivary glands (Group II.) were not included, because none of these respondents was patient with tracheostomy and data could be distorted by the fact that difficulties in communication were different compared to patients with cancer of the larynx. Based on the survey question in the wording: „Did speaking to other people make you difficulties?“ sub-objective 1 was established. In the specific case one set was formed by the responses of patients without tracheostomy and second set were responses from patients with permanent tracheostomy. The procedure of verification goals was as follows. Numerical values were assigned to the subjective evaluation of the question according to key in the methodology. During the investigation it was found whether asked patient with cancer of the larynx was without cannula (1 selection) or with a cannula (choice of 2). In our case it was found that calculated value $U_2 = 556$ is smaller than the critical value $W(0.05)(73;31) = 858$. This means that difference in mean values among answers of patients without tracheostomy and with cannula was statistically significant. Using the nonparametric Wilcoxon test we therefore demonstrated that between both groups of our patients there were statistically significant differences at significance level $\alpha = 0.05$. Patients with tracheostomy answered so that their trouble talking to other people were statistically significantly greater than in patients without tracheostomy. (Chráška, 2007; Pytela, 2003, p. 41)

Graph 1 shows the distribution of our sample of respondents according to disease stage pursuant to the international TNM classification. Stage I was represented most often: 54 (47.8%) respondents. The least stage 0, only 3 respondents (2.7%). In stage II there were 14 (12.4%), in stage III 22 (19.5%) of respondents and 20 (17.6%) in stage IV.

When testing partial objective 2, we used the distribution of respondents according to the TNM stages of the disease.

In a standardized questionnaire, the questions were focused on area of somatic, psychological and social difficulties. For the purposes of our investiga-
tion were selected questions 21–24, which dealt with psychic areas: „Did you feel the tension during the last week? Did you feel the fears last week? Did you feel irritation last week? Did you feel depressed last week?“

We thought that the stage of the disease according to TNM has an impact on the psyche of respondents (stress, fears, irritability, deprivation) defined in questions 21–24.

For testing objective 2 the analysis of variance (ie. ANOVA) was chosen for individual questions. Selected factor was the stage of cancer according to the TNM classification. The observed phenomenon were then answers for individual questions 21–24. Testing was performed at a significance level α = 0.05. The total number of respondents defines the number of elements in the selection of N = 113, all the respondents of our research. The number of levels of factor was determined by the number of stages of the disease according to TNM classification, therefore I–IV (Note: levels 4a and 4b were taken as one level). Degrees of freedom of factor and residual R were calculated:

\[ v_A = I - 1 = 5 - 1 = 4 \]
\[ v_R = n - I = 113 - 5 = 108 \]

Subsequently was found the corresponding critical value of Fisher-Snedecor distribution \( F(1-\alpha)(v_A, v_R) = F_{0.95}(4.108) = 2.456 \).

Table 1 then shows the output data from the analysis of variance ANOVA. From the results it was evident that calculated value of the test criterion \( F \) were in all four issues always smaller than the corresponding critical value of Fisher-Snedecor distribution \( F_{0.95}(4.108) \).

Statistical evaluation of answers for individual questions thus fulfilled the criterion of the absence of factor in the analysis of individual questions. The influence of factor (stage of disease according to TNM) on answers to the questions 21, 22, 23, 24 was then statistically insignificant. We can say that stage of the disease according to the TNM classification had no effect on selected areas of the psyche (stress, fears, irritability, deprivation) among our group of respondents as described in questions 21–24.

In our respondents, we discussed the socio-economic impact by the question: „Did the physical condition or your treatment cause you financial trouble?“. It did not cause financial difficulties to 83 (73.7%) respondents, to 18 (15.9%) a little and to 9 (8%) quite a lot. Physical condition or treatment caused to three (2.7%) men financial difficulties very much, age of the respondents was 58, 64 and 71 years.

**DISCUSSION**

Tumors in head and neck and subsequent treatments may lead to impaired verbal communication or its complete loss. (Práško et al., 2010) The social role of the patient and position in society may change, which may generate additional burden which must be dealt with. In the social sphere, the respondents had difficulties especially with communication.

A large group of respondents in our study were the patients with cancer of the larynx (group I.) in total 104 (92%) respondents. Many of them passed a radical operation (total laryngectomy) and lost the ability of verbal communication. We compared our results with the research study from Nalbadian et al. (2001), who observed the communication difficulties in 56 respondents after total laryngectomy, in Thessaloniki, Greece. In their study, 32 (57%) patients reported communication problems with other people, 31 (56%) patients with phone calls and with family 16 (29%). In our survey, 50 (48.1%) respondents in group I. had trouble to communicate with other people, 58 (55.8%) respondents in group I. with phone calls and 4 (3.8%) respondents in group I. with family. A smaller representation of difficulties in respondents from group I. in communicating with others (by 8.9%) compared with study from Nalbadian et al., could be caused by the different composition of the respondents. In study from Nalbadian et al. there were included only patients after total laryngectomy, whereas in our sample there were in addition to patients after total laryngectomy included also respondents after partial laryngectomy. Difficulties in communication by telephone were the same for both studies.

<table>
<thead>
<tr>
<th>Question</th>
<th>Total variability ( S_T )</th>
<th>Explained variability ( S_A )</th>
<th>Residual variability ( S_R )</th>
<th>Test criterion ( F )</th>
<th>Critical value ( F_{0.95}(4.108) )</th>
<th>Influence of factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>21.</td>
<td>34.53</td>
<td>1.082</td>
<td>33.45</td>
<td>0.873</td>
<td>2.456</td>
<td>Insignificant</td>
</tr>
<tr>
<td>22.</td>
<td>37.08</td>
<td>1.503</td>
<td>35.58</td>
<td>1.141</td>
<td>2.456</td>
<td>Insignificant</td>
</tr>
<tr>
<td>23.</td>
<td>47.45</td>
<td>2.026</td>
<td>45.43</td>
<td>1.204</td>
<td>2.456</td>
<td>Insignificant</td>
</tr>
<tr>
<td>24.</td>
<td>47.54</td>
<td>1.846</td>
<td>45.69</td>
<td>1.091</td>
<td>2.456</td>
<td>Insignificant</td>
</tr>
</tbody>
</table>
Braz, Ribas (2005) described in their study, which took place in Santos, Brazil, the voice problems in all 14 respondents after total laryngectomy.

In our research 31 patients had a tracheostomy. We predicted that group I. (Patients with cancer of the larynx and with a permanent tracheostomy) have greater difficulty in communicating than patients without it. This assumption was confirmed. Difficulties in communication which the patients experienced, could affect their quality of life and also might affect treatment and coping with the problems associated with medical treatment. As stated in the study by Čiháková, Čelakovský (2007), who dealt with the quality of life of patients with tracheostomy, tracheostomy significantly affects the social sphere of life of patients. The sick loses voice after the operation and its further integration into society, even with the existence of alternative mechanisms of voice, is rather difficult and problematic. Their sample consisted of 31 persons after tracheostomy treated at the ENT Clinic in Hradec Králové. They chose the questionnaire method SEIQoL to assess quality of life. As the life with a tracheostomy was significant handicap for each operated person, they assumed that all patients will be significantly affected by impaired quality of life after the operation. In their sample, worsening of quality of life happened to women in 24%, men in 19%. (Čiháková, Čelakovský, 2007, p. 16)

We assumed that tumor stage according to the TNM classification of diseases, will affect the psychic areas (stress, fears, irritability, deprivation). The size of the tumor, metastasis, etc. are crucial for therapy and range of performance, which may have a significant impact on quality of life including the area of psyche. These assumptions were not confirmed. The result can be explained by the fact that representation of patients with tumor classification according to the TNM IV was only in 20 (17.6%) respondents of the total number of 113. Unfortunately it is not possible to compare our results with other research study, because we did not find any published result, that evaluate the impact of disease stage according to the TNM on the psyche of the patient.

CONCLUSION
The aim of the investigation was to evaluate the communication and psychological area (stress, fears, irritability, deprivation) of monitored patients with malignant tumors of the larynx and salivary glands using standardized questionnaires on quality of life. The results have confirmed that patients with cancer of the larynx and permanent tracheostomy have worsened communication with other people compared to the patients with cannula. Therefore it is appropriate to devote maximum attention to the preparation of the patient to communication changes already in the preoperative period and inform him about the possibilities of compensation (phoniatric care). We compared the results in difficulties in communication of foreign research studies. In comparison to study from Braz, Ribas (2005) and Nalbadian et al. (2001), we reached similar conclusions. We assumed that tumor stage according to the TNM classification of diseases, will affect the psychic areas (stress, fears, irritability, deprivation). These assumptions were not confirmed. Testing objective 2, we found that psychic areas (stress, fears, irritability, deprivation) are not related to the stage of the disease according to TNM classification. There is no doubt that not every person with diagnosed cancer disease in the larynx and salivary glands met with the full range of problems. The extent and severity of problems, restrictions etc. depends on the location and size of the tumor, therapeutic strategy, age of the patient, polymorbidity and other factors.

The disease causes economic burden due to a temporary decrease in income or long-term limitation of work, but also participation in the payment of medical supplies, increased requirements for food, follow-up checking etc. As in our group of respondents there were mainly respondents in retirement, their treatment did not cause them financial difficulties.

The results of our investigation and possible outcomes of similarly focused studies can be used to describe the problems and to propose recommendations for the care of these patients. In addition to assessing the overall therapeutic effect the standardized quality of life questionnaires should be part of comprehensive care for patients in the oncology clinic within the dispensary care.

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