

Quality of life in lung cancer patients due to treatment

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ABSTRACT

Lung cancer is the second most common cancer in men and women. Survival has not significantly improved despite new therapeutic possibilities. Therefore, in patients with end-stage disease, the primary goal is to preserve the quality of life as long as possible.

The study included patients divided into four groups depending on the treatment: treated with chemotherapy, radiotherapy, a combination of chemotherapy and radiotherapy and patients treated with symptomatic therapy. Each group consists of 30 subjects. We measured quality of life using a questionnaire of the European Association for the Study and Treatment of Cancer in addition of no.13 for lung cancer (EORTC QLQ C30 + LC13), which is validated and translated in the native language and includes 43 questions.

Patients who are on symptomatic therapy have the worst quality of life, and all aspects of normal functioning are the most disturbed when compared to patients treated with other therapeutic modalities. Quality of life is best for patients who are treated with chemotherapy. Any modality of treatment, especially chemotherapy, is superior to the use of only symptomatic treatment.

Key words: lung cancer, quality of life, chemotherapy

INTRODUCTION

According to the Center for Disease Control and Prevention (CDC), lung cancer is the second most common cancer in men

(78.2%) (the first being prostate cancer and the third colorectal cancer). In women, lung cancer is also the second most common cancer (54.1%) (the first being breast cancer and the third colorectal cancer). (1) At the time of verification of the disease, 57% had distant metastases and their 5-year survival rate was 3.9%; Only 15% of patients have localized disease with a 5-year survival of 53.5%; in 22% of patients the disease is extended to regional lymph nodes with a 5-year survival of 26.1%. (2-4)

Survival was not significantly improved despite new therapeutic possibilities. Therefore, in patients with end-stage disease, the primary goal is to preserve the quality of life as long as possible. (5)

The concept of quality of life (QoL) has become an important subject of research in various disciplines of medicine, especially in oncology, and is an integral part of the evaluation of rehabilitation and therapeutic procedures.

Quality of life is a multidimensional concept, which includes the following aspects:

- Physical/physical aspect: It is influenced by the disease itself and by the therapy, or by the influence of comorbidities, especially in the older population, when they have a significant role in the quality of life;

- Psychological/emotional aspect: Refers to anxiety and depression, caused by the same disease or therapy, and can be linked to family relations;

- Social aspect: It refers to the ability to work, communication difficulties and financial problems. (6,7)

The primary goal in the treatment of any cancer is to improve the quality of life of the patient, to cure the cancer when possible, as well as alleviating or eliminating the

symptoms that are most pronounced in the patient for an extended period. Avoidance of iatrogenic damage and adverse effects of treatment is imperative for physicians. Every physician should routinely assess the quality of life before starting cancer treatment, since quality of life represents an essential component in the disease's management and decisions regarding further treatment. Unfortunately, only a small number of physicians still assess the quality of life. A formal assessment of the quality of life is now mandatory in most clinical trials, but there is still scepticism because of credibility.

MATERIALS AND METHODS

Research was prospective. The study included patients hospitalized at the Lung Clinic of the University Hospital Banja Luka, divided into four groups depending on the treatment: treated with chemotherapy, radiotherapy, a combination of chemotherapy and radiotherapy, and patients treated with symptomatic therapy. Each group consists of 30 subjects. At the time of completing the questionnaire, for each patient an ECOG performance status scale is determined.

To test the quality of life a questionnaire of the European Association for the Study and Treatment of Cancer was used in addition to No.13 for lung cancer (EORTC QLQ C30 + LC13), that was validated and translated into the native language and included 43 questions. The questionnaire was completed by patients independently, with their prior written consent.

EORTC QLQ C30 + LC13 is one of the most commonly used questionnaires to examine the quality of life. This questionnaire has several versions, but the most used version 3.0. It was validated and translated into 81 languages, and is used in over 3,000 studies worldwide. It is also adapted for many different cancers: breast, lung, head and neck, esophagus, ovaries, stomach, cervix, and multiple myeloma. (8-10)

RESULTS

A unique database in Microsoft Excel was created, and data were analysed using descriptive statistics. A median test, Kruskal-Wallis's test and Pearson correlation test were used.

All patients completed the questionnaire, and in addition we collected the following parameters: age, gender, histologic type of tumor, stage of disease and performance status. From a total of 120 patients, 98 were male (81.7%) and 22 females (18.3%). The age of the patients was 22 to 83 years (mean value was 61.83 + 8.94 years). From a total of 120 patients, 26 (21.7%) were with small cell lung cancer (SCLC), 8 with limited disease (6.7%) and 18 with extended disease (15%). From a total of 120 patients, 94 (78.3%) were with non-small cell lung cancer; 2 (1.7%) in stage I, 7 (5.8%) in stage II, 30 (25%) were in stage III, and 55 (45.8%) in stage IV of the disease. From a total of 94 patients with non-small cell carcinoma, 44 (36.7%) were squamous cell carcinoma, 42 (35%) with adenocarcinoma and 8 (6.7%) non small cell carcinoma not

otherwise specified. We measured performance status using ECOG scale; ECOG-0 had 7 (5.8%) patients; ECOG-1 41 (34.2%), ECOG-2 49 (40.8%), ECOG-3 21 (17.5%), ECOG-4 2 (1.7%) patients.

All aspects of functioning were most preserved in patients who received chemotherapy (physical, role, emotional, social functioning and overall quality of life), and were most disturbed in patients who received only symptomatic therapy. The exception is cognitive functioning which was most preserved in patients on radiotherapy and most disturbed in patients on symptomatic therapy. There is statistical significance only for role functioning (p value 0.009), social functioning (p 0.015) and overall quality of life (p 0.03)

Table 1. Symptoms due to treatment

Symptoms	Treatment modality in which the functioning is the most preserved	Treatment modality in which the functioning is the most disturbed	Statistical significance
Fatigue	chemotherapy	symptomatic therapy	0.044
Nausea and vomiting	chemotherapy	symptomatic therapy	-
Pain	chemotherapy	radiotherapy	-
Dyspnoea	symptomatic therapy	chemotherapy	-
Insomnia	symptomatic therapy	chemotherapy	-
Appetite loss	symptomatic therapy	chemotherapy	0.032
Constipation	symptomatic therapy	chemotherapy+ radiotherapy	-
Diarrhoea	symptomatic therapy	chemotherapy	-
Financial difficulties	symptomatic therapy and chemotherapy + radiotherapy	radiotherapy	-

Table 2. LC 13 symptoms due to treatment

Symptoms from LC 13	Treatment modality in which the functioning is the most preserved	Treatment modality in which the functioning is the most disturbed	Statistical significance
Dyspnoea	symptomatic therapy	radiotherapy	-
Coughing	chemotherapy+ radiotherapy	chemotherapy	-
Haemoptysis	chemotherapy+ radiotherapy	symptomatic therapy	-
Sore mouth	radiotherapy	chemotherapy	-
Dysphagia	radiotherapy	chemotherapy	-
Peripheral neuropathy	symptomatic therapy	chemotherapy+ radiotherapy	-
Alopecia	chemotherapy	radiotherapy	-
Pain in chest	radiotherapy	chemotherapy+ radiotherapy	-
Pain in arm or shoulder	radiotherapy	chemotherapy	-
Pain in other parts	symptomatic therapy	radiotherapy	-

DISCUSSION

The incidence of lung cancer is increasing all over the world. Survival was not significantly improved despite new therapeutic possibilities. Monitoring the quality of life should be integrated into the daily work of oncologists, and quality of life should be one of the primary goals in treating cancer patients, and not only survival and response to treatment.

In this study most patients were elderly (the average age 61.83 + 8.94 years), the youngest patient was 22-years-old and the oldest patient in this study was 83-years-old.

Considering histological types, dominating was non-small cell lung cancer (NSCLC) with 78.3%, of which the most dominating is squamous cell carcinoma (36.7%), followed by adenocarcinoma (35%), and NSCLC NOS (6.7%). According to the literature, also dominates the non-small cell lung cancer, squamous cell carcinomas and in the interval 11-45%, and 18-68% is represented adenocarcinoma and small cell lung cancer NOS only 0.9%. According to some data, the most common is adenocarcinoma, while according to others squamous cell carcinoma is the most prevalent, which varies according to geographical areas.

The majority of patients in this research were at stage III and IV of non-small cell lung cancer, while most patients with small cell lung cancer had extended disease. Therefore, 85.8% of the patients in this study are in an advanced stage of the disease.

For each patient the performance status

was determined (degree of (in)ability to perform daily activities) according to the ECOG scale. The largest number of patients were functional (80.8% of respondents had ECOG 0, 1 and 2). We analysed the correlation between performance and the status of certain aspects of functioning, and found a negative correlation between the performance status of the patient's functioning and the quality of life – lower values in the ECOG performance status scale / better performance status correlate with better functioning and quality of life. The highest degree of correlation with physical functioning and this correlation is large, as well as with role and social functioning; emotional functioning and overall quality of life in a lesser correlation (medium level), but the correlation is less pronounced when it comes to cognitive functioning and this correlation is small. Patients who are on symptomatic therapy have the worst quality of life, and all aspects of normal functioning are most disturbed when compared to patients treated with other therapeutic modalities. Quality of life is best for patients who are treated with chemotherapy in all aspects except for the cognitive functioning. Any modality of treatment, especially chemotherapy, is superior to the use of only symptomatic treatment. Most studies were designed to monitor and compare the quality of life before and after specific treatment modalities, while a slightly smaller number of studies, as was this study, were designed to evaluate the quality of life during the treatment.

In this study, during the application of chemotherapy, quality of life was improved

including physical, business, social and emotional functioning. Chemotherapy reduced numerous symptoms (dyspnea, insomnia, loss of appetite, diarrhoea, dysphagia, haemoptysis, burning lips and tongue), but also some symptoms deteriorated (nausea, vomiting, fatigue, hair loss). Some complaints/symptoms during the administration of chemotherapy are actually side effects of chemotherapy and some are the result of the underlying disease; while in some cases they overlap. (11-22) Radiotherapy works differently on certain aspects of quality of life as well as the individual symptoms. In this study, radiation therapy reduced pain and coughing; and it was observed that hair loss was less pronounced in this group of patients. It was noted that radiation therapy had a beneficial effect on dyspnoea, but that chemotherapy was still superior. Radiotherapy deteriorated nausea and vomiting, and it decreased appetite in this group of patients, but less than in patients treated with chemotherapy. During the application of radiotherapy it was observed that physical, economic and social functioning were most impaired. The benefits from radiotherapy could be seen weeks and months after the end of treatment only after the completion of applications, mostly due to the palliation of symptoms and improving quality of life. (23-24)

Combined chemotherapy and radiotherapy was superior in the reduction of some symptoms such as chest pain and paraesthesia when compared to other modalities. Symptomatic therapy was not superior to other treatment modalities.

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