Aim of the study: To evaluate the intensity of dejection and self-assessment of quality of life in patients with lung cancer from the start of palliative care until death.

Material and methods: The study included 63 patients with lung cancer from the start of care until death in palliative medicine centers in Bydgoszcz in 2012–2013. The visual-analogue scale constituting part of the ESAS scale was used to assess dejection, while question number 30 of the EORTC QLQ-C30 was used for self-assessment of quality of life.

Results: "Moderate" and "very" intense dejection initially occurred in 19 (30%) and 24 (38%), and in the 2nd assessment in as many as 23 (36%) and 30 (48%) patients. Average quality of life deteriorated in this respect by 0.09 in the two-step scale (p = 0.005). Increase in the intensity of "moderate" dejection occurred between the 1st and 3rd assessment. Initially it occurred in 2 (9%) patients and in 14 (66%) during the 3rd assessment. In contrast, the levels of "very" severe dejection did not change significantly between the 1st and the 3rd assessment. The average quality of life deteriorated by 0.23 points (p = = 0.004). A significant relationship was found only between analgesic treatment and quality of life (p < 0.0005). Other factors such as age, time from diagnosis to start of treatment, place of residence, sex, or financial condition did not affect the quality of life.

Conclusions: Self-assessment of the quality of life worsens with time. The intensity of dejection does not change in the last 3 weeks of life. In multivariate analysis, among the selected variables such as age, sex, place of residence, time from diagnosis to start of palliative care, financial condition, and type of painkillers used, only the latter has an impact on self-assessed quality of life.

Key words: lung cancer, quality of life, palliative care.

Dejection and self-assessment of quality of life in patients with lung cancer subjected to palliative care

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Introduction

Lung cancer accounts for 12% of all cancer cases, and has the highest annual rate of mortality in men and women. It is diagnosed at an advanced stage in about 50% of cases. The general aim is to cure or prolong life without symptoms of the disease [1]. Many patients die with pain and other distressing symptoms such as symptoms of depression, for example, that are not properly controlled. The fear response to cancer significantly reduces the quality of life in persons under 65 years of age in an advanced stage of the disease, while in older people the main problems are related to physical functioning [2]. Evaluation of the quality of life provides information on the symptoms of the disease, adverse effects of therapy but also on assessment of the psychological, social and spiritual dimensions. Systematically performed assessment of quality of life (QoL) in patients with advanced lung cancer can contribute to more accurate clinical assessment of patients and, consequently, more effective symptomatic treatment.

To evaluate intensity of dejection and self-assessment of quality of life in patients with lung cancer from the start of palliative care until death.

Material and methods

The study was prospective and included patients with lung cancer from the start of palliative care until death in palliative medicine centers in Bydgoszcz in 2012–2013. Initially 228 patients meeting the inclusion criteria were enrolled in the study, of whom 63 persons finally remained in the study (21 women and 42 men). The remaining 76 persons did not complete questionnaires because of difficult or no contact with them, 4 questionnaires were filled only once and 85 people refused to participate. Age of patients was 33–91 years (median 66). Patients were initially treated at home (by a home care team), outpatient palliative clinic or hospice. Overall 147 questionnaires were completed.

The study included patients with lung cancer starting palliative treatment during a period no later than 7 days with similar socioeconomic conditions, in full contact and preserved cognitive function. Patients with other tumors occurring simultaneously with the presence of CNS metastases, treated with pharmacological antidepressants and those who did not consent to the study were excluded.

The visual-analogue scale constituting part of the ESAS scale (a scale of the intensity of symptoms) was used to assess dejection, while question number 30 of the EORTC QLQ-C30 (version 3) was used for self-assessment of the quality of life. The intensity of perceptible dejection was estimated by patients on a scale from 0 (no dejection) to 10 (worst possible dejection). It was assumed that the assessment at the level of 1–3 indicates mild, 4–6 moderate, and 7–10 very strong dejection. A linear transformation of ESAS

ratings on a scale from 0 (best) to 10 (worst) to a standard scale of 0–1 assessing the level of dejection was done. Comparison between the intensity of dejection and self-assessment of quality of life was made on the basis of questionnaires collected at three intervals – first, second and third assessment at intervals of 3 weeks. Sixty-three people took part in the 1st and 2nd assessment and only 21 people in the 3rd one. In order to determine the factors that may affect self-assessment of the quality of life, obtained results were analyzed depending on the following variables: age, sex, place of residence, time from diagnosis to starting palliative care, financial situation and type of painkillers used. Univariate and multivariate analysis were performed using Statistica software.

Parametric and non-parametric tests of significance were used in order to verify hypotheses. Pearson linear correlation coefficients were also calculated to identify possible relationships between measurable characteristics. A parametric test was used for the two structural indicators and a non-parametric test of independence, chi-square, in order to determine the correlation between the non-measurable and quality indicators. The χ^2 test with Yates' correction was used in case of small number of one of the classes. Student's t test was also used for dependent groups and to evaluate the significance of correlation coefficients.

A significance level of $p = 0.05$ was adopted for statistical analysis. When $p < 0.05$ the difference or relationship was considered as statistically significant, in other cases as not significant (NS).

All patients were informed about the purpose, procedure, conditions and implementation of the survey and about the possibility to opt out of it at any stage. The study obtained permission from the Bioethics Committee operating at the L. Rydygier Medical College in Bydgoszcz.

Results

Patient characteristics

The median time from diagnosis until palliative care was 10 months while palliative care alone was 4 weeks.
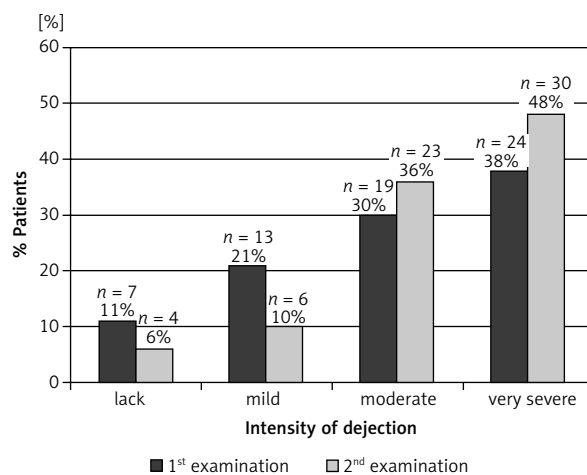
Intensity of dejection and self-assessment of quality of life

Increase in the intensity of "moderate" and "very" severe dejection was noted between the 1st and 2nd examination. Initially it occurred in 19 (30%) and 24 (38%) patients, respectively, and as many as 23 (36%) and 30 (48%) patients in the 2nd examination (Fig. 1). In this respect the average quality of life deteriorated by 0.09 in the two-step scale ($p = 0.005$). An increase in the intensity of "moderate" dejection was observed between the 1st and 3rd examination. It occurred initially in 2 (9%) patients and in 14 (66%) during the third examination. The level of "very" severe dejection did not change significantly between the 1st and the 3rd examination (Fig. 2). The average quality of life deteriorated by 0.23 points ($p = 0.004$).

Assessment of the relationship between selected factors: age, sex, place of residence, time from diagnosis to starting palliative care, financial condition, type of painkillers used, and self-assessment of the quality of life. Patients assessed their quality of life for all factors according to the scale from 1 (very poor) to 7 (excellent). None of the patients rated their QoL as "excellent", so the scale has been limited from 1 (very bad self-assessment) to 6 (good).

No correlative dependence was found between age and self-assessed quality of life (Fig. 3). There was also no relationship between self-assessed quality of life and sex, place of residence, time of diagnosis, and the financial condition (Table 2). NSAIDs were taken by 29 (46%), weak opioids by 13 (20.7%) and strong opioids by 21 (33.3%) patients. In the entire group NSAIDs and weak opioids were taken by 42 patients (66.6%), of whom 23 persons (54.8%) felt their quality of life as poor (Tables 3, 4). Poor quality of life was reported by 18 (85.7%) patients taking strong opioids ($p = 0.03$) (Table 4).

The impact of some factors such as age, sex, place of residence, the time of diagnosis, the financial condition and taking painkillers (NSAIDs, weak opioids, strong opioids) on the self-assessment of the quality of life was estimated in multivariate analysis. A significant correlation was found only between analgesic treatment and quality of life ($p < 0.0005$). Other factors such as age, time from
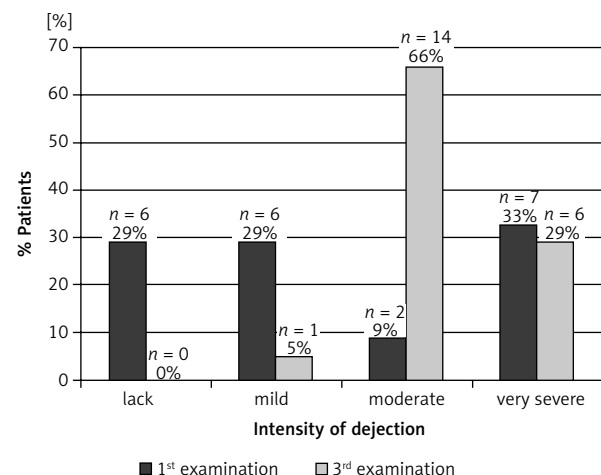

Fig. 1. Intensity of dejection during 1st and 2nd examination ($n = 63$)

Fig. 2. Intensity of dejection during 1st and 3rd examination ($n = 21$)

diagnosis to treatment, place of residence, sex, and financial condition did not affect the self-assessment results.

Discussion

"Very" intense depression occurs in 9–53% of patients with lung cancer, causing enormous suffering, and can even lead to suicidal thoughts [3]. The symptoms of anxiety and depression are common in patients with lung cancer and may have an impact on quality of life and survival [4–6]. In patients in an advanced stage of cancer, physicians should use proven effective therapies for reducing depression which include tricyclic antidepressants, selective serotonin reuptake inhibitors and psychosocial interventions [7].

Assessment of the intensity of dejection and self-assessment of the quality of life were the basis of the study. There was an increase in "moderate" and "very" severe dejection between the 1st and 2nd assessment procedure. While "moderate" dejection intensified between the 1st and 3rd assessment, the level of "very" severe dejection did not change significantly. This may be related to the fact that in the study where the assessment was made two times dejection was not initially felt by 1 of 10 patients while in three-fold assessment dejection was not initially felt by every 3 patients, and hence there was no "very" intense dejection. In another study including patients with newly diagnosed lung cancer depression was assessed at diagnosis and after 12 weeks. It was observed that in patients enrolled in the early palliative care the level of depression is lower in the second assessment compared to the first one but it is not associated with an improvement in survival rate [8].

Lung cancer often occurs in older people who have co-morbidities. Awareness of the poor prognosis and deteriorating physical functioning are factors that can cause dejection. Although there are effective methods of treatment of these symptoms in patients not suffering from cancer, there is no certainty as to which treatments could be effective for cancer patients. More intensive care is often more appropriate in reducing depressive symptoms than standard care. Treatment of patients with lung cancer with symptoms of depression can be based on the standard treatment although doctors should be aware that the effectiveness and potential side effects of drugs are not known in this group of patients [9]. In a study of patients with advanced lung cancer the occurrence of symptoms of depression and anxiety in the preliminary assessment is reported by every third person. Depression and anxiety affect the quality of life, and they are more common in women and men with low material status [4]. However, in our study "very" severe dejection was initially experienced by more men than women, every five women and one third of men. During the 2nd assessment this type of dejection was felt by almost half of women and more than half of men. The median overall survival time in patients with symptoms of depression is several months and is shorter by 50% than in patients without this symptom [4]. According to other authors over a dozen percent of patients with lung cancer have diagnosed depression. The diagnosis is
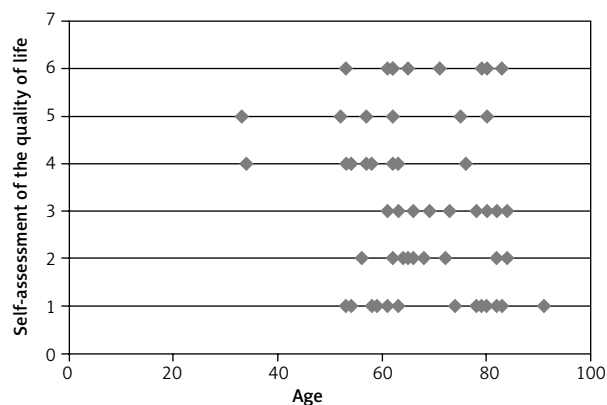

Fig. 3. Age and self-assessment of quality of life (correlation coefficient –0.196, p = 0.12)

Table 1. Patient characteristics

Parameter		Number of patients (%)
Sex	male	42 (67)
	female	21 (33)
Age	below 45 years	2 (3)
	46–55 years	6 (9)
	56–65 years	22 (35)
	66–75 years	12 (19)
	76–85 years	20 (32)
	above 86 years	1 (2)
Monthly income per family member	below 800 PLN	1 (2)
	800–1200 PLN	39 (62)
	above 800 PLN	23 (36)
Time from diagnosis to start of palliative care	one year or less	34 (54)
	2 years	24 (38)
	3 years	3 (5)
	4 years and more	2 (3)
Duration of palliative care	3 weeks	42 (67)
	6 weeks	21 (33)

associated with increased mortality among all patients, except patients in an advanced stage of cancer, where the survival rate is very low [6].

Multivariate analysis was the final phase of our study. The influence of selected variables such as age, sex, place of residence, time from diagnosis until palliative care, financial condition and use of painkillers (NSAIDs, weak opioids, strong opioids) on the self-assessment of the quality of life of patients was estimated. A significant correlation was found only between analgesic treatment and quality of life. Other factors had no effect. In the study group, more than half of patients took NSAIDs and weak opioids, and nearly half of them rated their quality of life as good. However, in the group of patients receiving strong opioids the majority of patients had a poor self-assessment of the quality of life. The poor self-assessment of the quality of life associated with the intake of opioids may be due to side effects of painkillers, mainly constipation. It is estimated that constipation occurs in about half of patients with cancer. This number increased in the incurable pa-

Table 2. Selected factors and self-assessment of quality of life

Selected factor		Quality of life self-assessment scale						p
		1	2	3	4	5	6	
		Number of patients						
Sex	female	5	4	4	2	2	4	0.93
	male	11	9	8	6	4	4	
Place of residence	city	15	12	10	6	6	8	0.46
	village	1	1	2	2	0	0	
Time of diagnosis	≤ a year ago	7	7	7	6	3	4	0.73
	> 1 year	9	6	5	2	3	4	
Financial condition	< 1200 PLN	8	10	8	6	2	6	0.35
	≥ 1200 PLN	8	3	4	2	4	2	

Table 3. Analgesic medications and self-assessment of quality of life ($n = 63$)

Analgesic medications	Quality of life self-assessment scale						Total	p
	1	2	3	4	5	6		
	Number of patients							
NSAID	3	4	6	6	3	7	29	0.03
Weak opioids	3	5	2	0	2	1	13	
Strong opioids	10	4	4	2	1	0	21	
Total	16	13	12	8	6	8	63	

Table 4. Analgesic medications and bad or better quality of life ($n = 63$)

	Quality of life		Total	p
	1,2,3 (bad)	4,5,6 (good)		
NSAID and weak opioids	23 (54.8%)	19 (45.2%)	42	0.03
Strong opioids	18 (85.7%)	3 (14.3%)	21	
Total	41	22	63	

tients and those taking opioids. Constipation may be the most common side effect associated with the intake of these drugs [10, 11]. Assessing pain in palliative care in patients with lung cancer, it is observed that the most frequently administered drugs in this group of patients are strong opioids, and constipation is observed in half of them [12]. It is difficult to rule out the influence of the other symptoms of advanced cancer on the deteriorating self-assessed quality of life.

Palliative care is an important component of cancer treatment. Its introduction improves the quality of life, relieves coexisting symptoms, and reduces the use of futile intensive care. Surveys of the quality of life and self-assessment of this quality provide valuable information from patients about the symptoms of the disease but also evaluate the emotional, public and social dimensions. Results can bring new insights into palliative care of patients with lung cancer in order to reduce the problems and side effects, which can improve their quality of life. Research conducted on a larger number of patients, which can be difficult to do in practice, will allow us to determine the mental state, especially in terms of dejection and self-as-

sessment of the quality of life, more accurately in the last period of an incurable disease that gets worse for obvious reasons. Our research shows that factors not directly related to advanced lung cancer have no effect on quality of life. In addition, probably a short period of palliative care of these patients can affect the dynamically deteriorating mental and physical condition.

In conclusions:

1. Self-assessment of the quality of life worsens with time.
2. The intensity of dejection did not change in the last 3 weeks of life.
3. In multivariate analysis among the selected variables such as age, sex, place of residence, time from diagnosis to starting palliative care, financial condition, and type of painkillers used, only the latter has an impact on self-assessed quality of life.
4. Duration of palliative care in patients with advanced lung cancer is short: 4 weeks.

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