

Patients' quality of life during treatment with cytostatic drugs in hematologic cancers

Jakość życia pacjentów w trakcie leczenia lekami cytostatycznymi w chorobach nowotworowych krwi

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ABSTRACT

INTRODUCTION: Cancer and its treatment with cytostatic drugs entails a number of negative experiences, emotions and side effects. Taking care of an oncological patient reveals a strong dependence between the quality of life and the patient's abilities and capabilities to meet their individual needs.

OBJECTIVE: Evaluation of the quality of life and assessment of the influence of cancer treatment with cytostatic drugs on the quality of life of patients with blood cancers.

MATERIAL AND METHODS: The study was conducted among 50 patients from the Department of Hematology, Blood Cancer and Bone Marrow Transplantation. In order to examine the quality of life of people in the course of treatment with cytostatic drugs in hematological cancers, a diagnostic survey method was implemented with the use of the author's self-designed questionnaire and the EORTIC QLQ-C30 questionnaire in the Polish version.

RESULTS: Analysis of the results of the study material reveals that:

- almost all the respondents suffered side effects of cytostatic medication;
- half of the respondents could not define their quality of life as good or bad;
- regardless of gender, the respondents function best in the cognitive aspect.

CONCLUSIONS: The illness and its treatment had a greater negative impact on the sexual life in men than in women.

1. Women evaluated the quality of life significantly worse in terms of physical functioning, whereas men evaluated significantly worse the quality of life in terms of symptoms such as pain, shortness of breath and constipation.
2. Fatigue, as a symptom of the disease, was the most common ailment mentioned by the respondents.
3. Demographic factors, i.e. age, marital status, professional activity, education level and place of residence correlated with the selected domains of life quality.
4. The overall assessment of patients' quality of life was reduced on average by 50%.

KEY WORDS

quality of life, cancer patients, chemotherapy

Received: 08.03.2016

Revised: 01.04.2016

Accepted: 03.05.2016

Published online: 06.09.2016

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STRESZCZENIE

WSTĘP: Choroba nowotworowa i leczenie za pomocą leków cytostatycznych niesie ze sobą szereg negatywnych doznań, emocji oraz skutków ubocznych. W opiece nad pacjentem onkologicznym jakość życia pozostaje w silnej zależności ze zdolnościami i możliwościami chorego do zaspokajania jego indywidualnych potrzeb.

CEL: Celem pracy była ocena jakości życia oraz ocena wpływu leczenia lekami cytostatycznymi na jakość życia chorych na nowotwory krwi.

MATERIAŁ I METODY: Badania zostały przeprowadzone wśród 50 pacjentów Kliniki Hematologii, Nowotworów Krwi i Transplantacji Szpiku. W celu zbadania jakości życia osób w trakcie leczenia lekami cytostatycznymi w chorobach nowotworowych krwi posłużono się metodą sondażu diagnostycznego, z wykorzystaniem kwestionariusza ankiety własnego autorstwa oraz kwestionariusza EORTIC QLQ-C30 w wersji polskiej.

WYNIKI: Z analizy materiału badawczego wynika iż:

- u prawie wszystkich badanych wystąpiły skutki uboczne przyjmowania leków cytostatycznych;
- połowa badanych oceniła jakość swojego życia ani dobrze, ani źle;
- bez względu na płeć ankietowane osoby najlepiej funkcjonują w aspekcie poznawczym.

WNIOSKI:

1. Choroba i leczenie wywarły większy negatywny wpływ na życie intymne mężczyzn niż kobiet.
2. Kobiety istotnie niżej oceniły jakości życia w aspekcie funkcjonowania fizycznego, natomiast mężczyźni istotnie gorzej ocenili jakości życia w skali objawów takich, jak ból, duszność oraz zaparcia.
3. Zmęczenie, jako objaw choroby, było najczęściej zgłaszaną dolegliwością wśród ankietowanych.
4. Czynniki demograficzne, tj. wiek, stan cywilny, aktywność zawodowa, poziom wykształcenia oraz miejsce zamieszkania, korelowały z wybranymi domenami jakości życia.
5. Ogólna ocena jakości życia pacjentów była obniżona średnio o 50%.

SŁOWA KLUCZOWE

jakość życia, pacjenci onkologiczni, chemioterapia

INTRODUCTION

Treatment with cytostatic drugs has the main objective of systemic treatment of cancer. Until the turn of the 1950 s and 60 s, cytostatics were used in accordance with the plan of antibiotic therapy, i.e. separately, maintaining a constant level of drug concentration in plasma. However, this method did not bring the expected therapeutic effects and was highly toxic. Only after understanding the kinetics of growth of healthy and cancerous tissues, monotherapy was replaced with polychemotherapy or combination therapy – meaning the use of pharmaceuticals in the form of cyclic multidrug regimens. Polychemotherapy is still used in hospitals and has greatly improved the effectiveness of treatment of neoplastic diseases and reduced toxicity [1].

Cytotoxic drugs strongly affect all the dividing cells of the human body, unfortunately they affect not only cancerous blood cells, but also other properly developing cells, e.g. in the gastrointestinal tract [2]. Due to the toxicity of cytostatic drugs, patients can expect a variety of side effects starting from acute (immediate), and early to late ones. However, the vast majority of these complications disappear quickly without

damaging the body greatly, but there are also those that may pose a threat to the patient's life. The problems faced by patients undergoing treatment with cytostatic drugs are e.g. diarrhea, constipation, leucopenia, alopecia and mucositis of the mouth. In the worst case, it may also lead to heart, kidney or liver failure, and fertility problems. However, the most difficult side effect of this therapy to eliminate is fear and anxiety.

Regardless of the kind of side effects we may mention, they are still problematic for the patient and may cause deterioration in the quality of life.

Taking care of an oncological patient reveals a strong dependence between the quality of life and the patient's abilities and capabilities to meet their individual needs. A nurse should have a high level of qualifications and competencies to meet the needs of the patient and thus improve their quality of life [3]. There are many high-precision measurement tools to assess the quality of life. The selection of appropriate tools depends on the purpose of our evaluation and the general condition of the patient. It is vital to have the patient make their own assessment of their quality of life. We need to remember that this evaluation will always be subjective.

The aim of the study is to assess the quality of life and the influence of cancer treatment with cytostatic drugs on the quality of life of patients with blood cancers.

MATERIAL AND METHODS

The study was conducted among 50 patients of the Department and Clinic of Hematology, Blood Neoplasms, and Bone Marrow Transplantation. Participation of the respondents in the survey was anonymous and voluntary. The surveyed persons filled out a questionnaire on their own or with the help of a family member or a person conducting the tests, due to the patient's poor health condition.

In order to examine the quality of life of people with hematologic cancers in the course of treatment with cytostatic drugs, the method of diagnostic survey was used, taking advantage of research tools which are questionnaire forms. The study used two questionnaire forms: the author's self-designed questionnaire and the EORTC QLQ-C30 questionnaire in the Polish version.

The EORTC QLQ-C30 questionnaire is designed for the subjective assessment of quality of life, the impact of the disease on the patient's functioning in different areas of life and the impact of disease symptoms on the quality of life.

The questionnaire consists of 30 questions that allow one to assess:

- Global health status/QoL (QL2)
- Physical functioning (PF2)
- Role functioning (RF2)
- Emotional functioning (EF)
- Cognitive functioning (CF)
- Social functioning (SF)
- Unpleasant symptoms such as:
 - Fatigue (FA)
 - Nausea and vomiting (NV)
 - Pain (PA)
 - Dyspnea (DY)
 - Insomnia (SL)
 - Appetite loss (AP)

- Constipation (CO)
- Diarrhea (DI)
- Financial difficulty (FI)

Each response was assigned a score between 0 and 100 points, wherein, the score scale for functioning achieving 100 points means a high level of functioning and a score of 0 means a low level, while when it comes to the symptoms scale scoring system, 100 points means severe worsening of symptoms, and 0 points for no symptoms.

The statistical analysis of these studies used the measure of location (arithmetic mean) and measure of dispersion (standard deviation).

To calculate the statistical significance, which was adopted at the level of < 0.05 , T-Student and MannWhitney tests were used for quantitative data and in the case of qualitative data calculations, the chi-square and Fisher's exact test were used. Data analysis was performed using the statistical software integrated package and analytical one, Statistica 9.0. The study was approved by the Bioethics Committee of the Medical University in Wrocław.

RESULTS

27 women (54%) and 23 men (46% participated in the survey). The average age of all the respondents was 47.5 years. The youngest person was an 18-year-old woman and the oldest an 80-year-old woman. The average age of women was 51.8, and 42.4 for men. Among the respondents, the largest group consisted of people living in towns with less than 50,000 residents (34%), being married (66%), with secondary education (54%), who are not active professionally (82%), for whom the main source of income is a retirement pension (56%). Detailed data are presented in Table I.

Table I. Characteristics of study population
Tabela I. Charakterystyka badanej populacji

Variable	Total n = 50	Female n = 27	Male n = 23	Ratio K vs. M
1	2	3	4	5
Age				$P^a = 0.056$
mean \pm SD	47.5 \pm 16.7	51.8 \pm 17.9	42.4 \pm 13.9	
Marital status:				$P^b = 0.045$
married	33 (66%)	18 (66.7%)	15 (65.2%)	
single	13 (26%)	5 (18.5%)	8 (34.8%)	
widow/widower	4 (8%)	4 (14.8%)	0 (0.0%)	

cont. tab. I

	1	2	3	4	5
Education:					P ^b = 0.802
elementary		3 (6%)	1 (3.7%)	2 (8.7%)	
vocational		11 (22%)	7 (25.9%)	4 (17.4%)	
secondary		27 (54%)	14 (51.9%)	13 (56.5%)	
higher		9 (18%)	5 (18.5%)	4 (17.4%)	
Professionally active:					P ^c = 0.321
yes		9 (18%)	6 (22.2%)	3 (13.0%)	
no		41 (82%)	21 (77.8%)	20 (87.0%)	
Income source:					P ^b = 0.345
pension		28 (56%)	15 (71.4%)	13 (65.0%)	
student		7 (14%)	2 (9.5%)	5 (25.0%)	
unemployed		6 (12%)	4 (19.1%)	2 (10.0%)	
Place of residence:					P = 0.314
city > 100 000		9 (18%)	7 (25.9%)	2 (8.7%)	
city > 50 000		14 (28%)	7 (25.9%)	7 (30.4%)	
town < 50 000		17 (34%)	7 (25.9%)	10 (43.5%)	
village		10 (20%)	6 (22.2%)	4 (17.4%)	

^a Student's t-test; ^b chi-square test; ^c Fisher's exact test;

The most common blood cancer in the surveyed patients was acute myeloid leukemia – 34% of respondents. The next most frequent types of cancer were lymphoma (30%) and multiple myeloma (20%). Multiple myeloma occurs more often in women, and acute myeloid leukemia and lymphoma in men ($p < 0.05$). These differences were statistically significant.

In the study group, every fourth respondent had been suffering from cancer for 3 months, while 38% of respondents from 4 to 12 months or over a year.

The respondents most often decided to see a doctor on their own initiative (66%). Among the symptoms that urged them to visit the doctor in the first place, the respondents mentioned pain in the lymph nodes and bone pain (26%), general weakness, and swelling and enlargement in the area of the neck (18% of respondents). Then, every tenth patient received poor blood test results (morphology) as the reason to seek medical advice. Women were more likely to visit a doctor because of pain than men ($p < 0.05$). This difference was statistically significant. The vast majority of respondents (92%) is aware of their disease. However, 2/3 of the respondents did not know the names of the cytostatic drugs they were administered. Almost half of the surveyed go each month to the hospital for chemotherapy cycles. The mean number of chemotherapy cycles among the respondents was 4.

Nearly one in two respondents evaluated their health condition as bad at the time of the survey. Almost one third of respondents said that in the last week their health condition had deteriorated, while 36% of the

respondents stated that their health condition had improved.

Nearly all respondents experienced side effects of cytostatic medication. The most often mentioned were nausea or vomiting and hair loss – occurring in almost two thirds of respondents, and constipation (60%). Nearly half of those (46%) had an allergic reaction. One in three respondents (34%) mentioned inflammation in the mouth, and one in five – diarrhea as a side effect.

Among the most common emotions associated with their disease, the respondents indicated: depression and anxiety (50%), fear and anxiety (46%) and a sense of injustice (28%). 3 patients (6%) 2 women and 1 man admitted having suicidal thoughts. Depression was the case in 1 patient (woman). 12 people (24%) accepted living with their disease.

The disease had a substantial influence on the lives of more than 1/3 of respondents. In 44% of respondents, the disease had an impact on their lives, but they try to cope with it. Two persons (4%), due to illness, had to give up work or school/hobby.

The majority of the study group (92%) say that their families are thoroughly informed about the condition of their health and have knowledge about the disease. Almost half of the respondents (46%) said that their relationship and contact with family members have not changed since the diagnosis. In contrast, one-third (34%) say that since the diagnosis, family has become more emotional and caring.

Cancer did not affect sexual life in the case of 40% of the respondents, including 63% females and 13% males. However, in 28% of respondents, the disease has led to complete avoidance of contact in the sphere of intimacy. Men more than women suffered the consequences of the disease and it has a significant impact on intimate contact resulting in limiting or complete avoidance of intimacy ($p < 0.05$). This difference is statistically significant.

Only in 2% of respondents has the disease had a significant impact on social relations, i.e. stopping social contacts. The vast majority (70%) of patients reduced their contacts with friends and acquaintances. Only in 28% of respondents, nothing has changed in social relations.

The vast majority of patients (90%) had to reduce their physical activity, only one in every ten patients reported no effect on physical activity as even before the disease they were not physically active.

50% of respondents received the information about the possibility to take advantage of counseling during their stay in the hospital. Among those patients, only one in five people used this option. They took advantage of this opportunity to benefit from help of a psychologist mostly because they needed to talk about the disease to someone from outside their circle of family and friends. Today, only 1 person from the 50 respondents still visits a psychologist.

After diagnosis of the disease, 38% of respondents had to give up work, and the same number of respondents were not active professionally before the disease. Due to illness, more than 70% of respondents had to change their life plans.

When asked how they would evaluate the quality of life with cancer, the respondents gave the following answers:

- 6% of patients rated their quality of life as very good
- 30% rated it as good
- neither good nor bad – 50% of respondents
- poor quality of life in 14% of patients.

Based on the analysis of the research, the material obtained through EORTIC QLQ-C30 questionnaires the following results were obtained.

Evaluation of quality of life based on gender

Gender did not affect the overall assessment of the health condition and quality of life, however, it influenced the life quality indicators especially physical functioning. Women assessed physical functioning at the time of the disease and cytostatic treatment much worse than men. Gender had no significant effect either on functioning in social life and work, emotional functioning, nor cognitive or social. Both women and men functioned best in the cognitive aspect of life whereas in the aspect of functioning in

social roles and work, emotional and social, the quality of life of both females and males was described as significantly reduced. The overall assessment of quality of life was low in both women and men. Detailed data are presented in Table II.

Table II. Evaluation of quality of life (mean \pm SD) of women and men using EORTC QLQ-C30 questionnaire – global health status/QoL and functioning scales

Tabela II. Ocena jakości życia (średnia \pm SD) kobiet i mężczyzn kwestionariuszem EORTC QLQ-C30 – ogólna jakość zdrowia i skale funkcjonowania

Variable	Female n = 27	Male n = 23	F vs. M p
Global health status/QoL (QL2)	36.1 \pm 19.9	42.8 \pm 12.9	0.176
Functional scales:			
Physical functioning PF2	61.0 \pm 23.9	73.9 \pm 17.5	0.037
Role functioning RF2	35.2 \pm 32.5	32.6 \pm 32.4	0.781
Emotional functioning EF	47.1 \pm 26.8	56.9 \pm 25.7	0.232
Cognitive functioning CF	78.4 \pm 28.8	89.9 \pm 19.3	0.111
Social functioning SF	40.1 \pm 30.0	40.6 \pm 32.5	0.959

The results revealed that gender had no effect on the assessment of the quality of life regarding the following symptoms: fatigue, nausea and vomiting, sleep disorders, anorexia, diarrhea, and financial situation. It was proven that gender was significant in the symptoms scale referring to pain, shortness of breath and constipation. Symptoms such as pain, shortness of breath and constipation significantly reduced the assessment of the quality of life of men ($p < 0.05$). However, fatigue, sleep disorders, anorexia, constipation, and financial situation were very severe symptoms, regardless of gender, which decreased the quality of life. Detailed data are presented in Table III.

Table III. Evaluation of quality of life (mean \pm SD) of women and men using EORTC QLQ-C30 questionnaire symptom scales

Tabela III. Ocena jakości życia (średnia \pm SD) kobiet i mężczyzn kwestionariuszem EORTC QLQ-C30 – skale objawów

Variable	Female n = 27	Male n = 23	F vs. M p
Symptom scale:			
fatigue FA	62.1 \pm 24.9	50.7 \pm 18.6	0.077
nausea and vomiting NV	31.5 \pm 27.9	33.3 \pm 26.6	0.812
pain PA	37.0 \pm 35.3	18.1 \pm 24.6	0.036
dyspnea DY	24.1 \pm 32.1	4.3 \pm 14.4	0.009
insomnia SL	48.1 \pm 40.6	47.8 \pm 28.1	0.975
appetite loss AP	46.9 \pm 34.9	34.8 \pm 35.5	0.230
constipation CO	45.7 \pm 37.2	24.6 \pm 35.1	0.046
diarrhoea DI	14.8 \pm 30.4	19.6 \pm 32.8	0.598
financial difficulty FI	43.2 \pm 29.0	37.7 \pm 25.2	0.479

Evaluation of quality of life of patients depending on age

The patients were divided into two groups – those < 50 years old and persons > 50 years old. Each group consisted of 25 people.

Age had no impact on the general assessment of health and quality of life. In contrast, studies have shown a relationship between physical functioning and age. The respondents < 50 years old evaluated the quality of life on the physical functioning scale better than those > 50 years old.

Age had no impact on functioning in social roles and work, emotional functioning nor cognitive or social. However, without taking into account the significance of age, the patients functioned best in cognitive terms. Nevertheless, in terms of functioning in social roles and work, emotional and social, assessment of the quality of life was low. The overall assessment of

quality of life was low in both age groups. Detailed data are presented in Table IV.

The results showed no relationship between age and quality of life assessment in the symptom scales: fatigue, pain, shortness of breath, sleep disturbances, lack of appetite, and financial situation. However, there is a correlation between age and the assessment of the quality of life in the scales of symptoms such as nausea and vomiting, constipation, and diarrhea. Nausea or vomiting, and diarrhea significantly decreased the assessment of quality of life in patients < 50 years old. Constipation decreased the assessment of the quality of life in patients > 50 years old. Nonetheless, not taking into account the age factor, the symptoms which strongly increased in the course of time were fatigue, nausea and vomiting, sleep disorders, anorexia, financial situation. Detailed data are presented in Table V.

Table IV. Evaluation of quality of life (mean \pm SD) using EORTC QLQ-C30 questionnaire in different age groups – global health status/QoL functional scales

Tabela IV. Ocena jakości życia (średnia \pm SD) w grupach wiekowych kwestionariuszem EORTC QLQ-C30 – ogólna jakość zdrowia i skale funkcjonowania

Variable	Age < 50 n = 25	Age \pm 50 lat n = 25	< 50 vs. \geq 50 p
Global health status/QoL (QL2)	38.0 \pm 13.8	40.3 \pm 20.2	0.636
Functional scales:			
Physical functioning PF2	73.3 \pm 16.9	60.5 \pm 24.9	0.038
Role functioning RF2	29.3 \pm 28.2	38.7 \pm 35.6	0.309
Emotional functioning EF	45.3 \pm 22.4	58.7 \pm 28.8	0.074
Cognitive functioning CF	82.7 \pm 27.4	84.7 \pm 23.5	0.783
Social functioning SF	37.3 \pm 33.1	43.3 \pm 28.9	0.498

Table V. Evaluation of quality of life (mean \pm SD) using EORTC QLQ-C30 questionnaire in different age groups – symptom scales

Tabela V. Ocena jakości życia (średnia \pm SD) w grupach wiekowych kwestionariuszem EORTC QLQ-C30 – skale objawów

Variable	Age < 50 lat n = 25	Age \pm 50 lat n = 25	< 50 vs. \geq 50 p
Symptom scale:			
fatigue FA	57.3 \pm 20.5	56.4 \pm 25.2	0.892
nausea and vomiting NV	40.0 \pm 28.5	24.7 \pm 23.6	0.044
pain PA	20.0 \pm 28.5	36.7 \pm 33.7	0.065
dyspnea DY	10.0 \pm 20.4	20.0 \pm 32.3	0.197
insomnia SL	42.7 \pm 29.7	53.3 \pm 39.7	0.287
appetite loss AP	38.7 \pm 34.3	44.0 \pm 36.9	0.599
constipation CO	20.0 \pm 33.3	52.0 \pm 34.8	0.002
diarrhea DI	28.0 \pm 35.6	6.0 \pm 22.0	0.011
financial difficulty FI	38.7 \pm 29.9	42.7 \pm 24.6	0.608

Evaluation of quality of life of patients according to socio-demographic data

The conclusions from the analysis of the research material show that marital status has an impact on the assessment of the quality of life regarding marital status, namely, widows/widowers evaluated their quality of life the lowest due to the occurrence of constipation.

Education had an impact on the assessment of the quality of life when it came to the financial situation. The lowest points in this aspect of quality of life were given by people with a vocational education and those with secondary education.

Professionally active people assess the overall quality of health much lower than persons who are not profes-

sionally active. Persons who are retired assessed very low the quality of life on the scale of symptoms such as constipation. The student evaluated the quality of life as low on the scale of symptoms such as diarrhea. The unemployed assessed the quality of life as low associated with the occurrence of diarrhea and their financial situation.

People living in a city of < 50 000 inhabitants evaluate their quality of life lower in the area of physical functioning than other persons participating in the survey. In contrast, people living in a city of > 100 000 inhabitants claimed a low quality of life is associated with pain. The duration of the illness (up to 3 months) had a negative impact on the score on the symptoms scale connected with diarrhea. Detailed data are presented in Table VI, VII, VIII and IX.

Table VI. Comparison of socio-demographic data and disease duration with the domains of life quality
Tabela VI. Porównanie danych socjodemograficznych i czasu trwania choroby z domenami jakości życia

Variable	QL2	PF2	RF2	EF
1	2	3	4	5
Marital status:				
married (n = 33)	40.2 ± 18.0	64.6 ± 24.0	35.4 ± 32.5	55.6 ± 28.4
single (n = 13)	35.9 ± 16.1	73.8 ± 18.1	25.6 ± 28.6	48.7 ± 22.5
widow/widower (n = 4)	41.7 ± 16.7	63.3 ± 12.8	50.0 ± 40.8	33.3 ± 11.8
p	0.726	0.426	0.388	0.252
Education:				
elementary (n = 3)	44.4 ± 9.6	55.6 ± 21.4	11.1 ± 19.2	50.6 ± 29.6
vocational (n = 11)	37.9 ± 13.1	73.9 ± 12.5	31.8 ± 28.3	56.5 ± 24.2
secondary (n = 27)	36.1 ± 18.6	66.2 ± 20.6	35.2 ± 33.1	66.7 ± 8.3
higher (n = 9)	48.1 ± 17.6	64.4 ± 34.0	40.7 ± 37.4	47.7 ± 23.6
p	0.308	0.572	0.584	0.685
Professionally active:				
yes (n = 9)	36.4 ± 16.8	67.0 ± 19.0	32.9 ± 30.4	50.6 ± 26.8
no (n = 41)	51.9 ± 13.0	66.7 ± 34.0	38.9 ± 40.8	58.3 ± 25.3
p	0.013	0.968	0.619	0.433
Income source:				
pension (n = 28)	37.8 ± 17.0	64.3 ± 19.4	36.3 ± 30.8	53.9 ± 27.5
student (n = 6)	27.8 ± 13.6	64.4 ± 19.6	11.1 ± 17.2	41.7 ± 23.6
unemployed (n = 7)	38.1 ± 1.0	80.0 ± 12.8	38.1 ± 32.9	45.2 ± 27.6
p	0.410	0.139	0.163	0.517
Place of residence:				
city > 100 000 (n = 9)	31.5 ± 13.0	60.0 ± 24.9	27.8 ± 30.0	39.8 ± 30.8
city > 50 000 (n = 14)	39.9 ± 21.0	80.0 ± 9.8	42.9 ± 33.1	52.4 ± 23.4
town < 50 000 (n = 17)	41.7 ± 17.7	59.6 ± 26.8	24.5 ± 32.9	56.9 ± 26.1
village (n = 10)	40.8 ± 13.9	67.3 ± 15.9	43.3 ± 29.6	54.2 ± 27.6
p	0.530	0.047	0.298	0.477

cont. tab. VI

	1	2	3	4	5
Duration of disease:					
3 months (n = 12)		43.1 ± 16.6	78.3 ± 19.3	30.6 ± 36.8	51.4 ± 26.1
4–12 months (n = 19)		36.8 ± 17.9	62.8 ± 24.9	30.7 ± 29.0	45.6 ± 27.1
over a year (n = 19)		39.0 ± 17.4	63.9 ± 18.9	39.5 ± 33.0	58.8 ± 25.7
p		0.627	0.118	0.650	0.313

Table VII. Comparison of socio-demographic data and disease duration with the domains of life quality (cont.)
Tabela VII. Porównanie danych socjodemograficznych i czasu trwania choroby z domenami jakości życia (cd.)

Variable	CF	SF	FA	NV
Marital status:				
married (n = 33)	81.3 ± 27.2	41.9 ± 30.9	57.2 ± 24.2	28.3 ± 29.9
single (n = 13)	87.2 ± 22.7	37.2 ± 34.1	57.3 ± 20.2	43.6 ± 17.4
widow/widower (n = 4)	91.7 ± 16.7	37.5 ± 25.0	52.8 ± 22.9	29.2 ± 21.0
p	0.636	0.884	0.934	0.221
Education:				
elementary (n = 3)	77.8 ± 19.2	55.6 ± 38.5	81.5 ± 17.0	27.8 ± 25.5
vocational (n = 11)	97.0 ± 10.1	31.8 ± 27.3	51.5 ± 15.9	37.9 ± 22.5
secondary (n = 27)	79.6 ± 30.1	38.9 ± 31.4	54.7 ± 23.7	33.3 ± 32.0
higher (n = 9)	81.5 ± 21.2	50.0 ± 32.3	61.7 ± 25.5	24.1 ± 14.7
p	0.271	0.486	0.190	0.712
Professionally active:				
yes (n = 9)	83.3 ± 26.4	39.0 ± 30.4	56.9 ± 21.8	33.3 ± 28.4
no (n = 41)	85.2 ± 21.2	46.3 ± 34.1	56.8 ± 28.0	27.8 ± 20.4
p	0.845	0.528	0.989	0.582
Income source:				
pension (n = 28)	79.8 ± 29.2	40.5 ± 27.4	56.0 ± 23.3	29.2 ± 28.2
student (n = 6)	86.1 ± 22.2	36.1 ± 35.6	68.5 ± 21.6	44.4 ± 20.2
unemployed (n = 7)	95.2 ± 12.6	35.7 ± 41.3	50.8 ± 12.6	40.5 ± 34.5
p	0.376	0.908	0.325	0.384
Place of residence:				
city > 100 000 (n = 9)	79.6 ± 23.2	33.3 ± 28.9	66.7 ± 20.8	31.5 ± 25.6
city > 50 000 (n = 14)	96.4 ± 7.1	42.9 ± 30.5	47.6 ± 12.7	40.5 ± 29.0
town < 50 000 (n = 17)	80.4 ± 26.5	39.2 ± 36.3	60.1 ± 28.1	29.4 ± 23.2
village (n = 10)	75.0 ± 36.2	45.0 ± 26.1	55.6 ± 23.4	26.7 ± 32.6
p	0.153	0.856	0.227	0.603
Duration of disease:				
3 months (n = 12)	88.9 ± 17.9	43.1 ± 40.5	53.7 ± 21.6	37.5 ± 24.7
4–12 months (n = 19)	85.1 ± 22.8	36.8 ± 23.9	54.4 ± 23.1	28.9 ± 27.1
over a year (n = 19)	78.9 ± 31.3	42.1 ± 31.6	61.4 ± 23.5	32.5 ± 29.1
p	0.550	0.825	0.554	0.700

Table VIII. Comparison of socio-demographic data and disease duration with the domains of life quality (cont.)
Tabela VIII. Porównanie danych socjodemograficznych i czasu trwania choroby z domenami jakości życia (cd.)

Variable	PA	DY	SL	AP
Marital status:				
married (n = 33)	32.8 ± 33.7	19.7 ± 30.5	48.5 ± 35.4	43.3 ± 35.8
single (n = 13)	16.7 ± 28.9	7.7 ± 18.8	46.2 ± 34.8	41.0 ± 36.4
widow/widower (n = 4)	29.2 ± 21.0	0.0 ± 0.0	50.0 ± 43.0	25.0 ± 31.9
p	0.310	0.211	0.974	0.625
Education:				
elementary (n = 3)	55.6 ± 25.5	0.0 ± 0.0	33.3 ± 33.3	44.4 ± 50.9
vocational (n = 11)	15.2 ± 18.9	4.5 ± 15.1	36.4 ± 34.8	18.2 ± 22.9
secondary (n = 27)	29.6 ± 33.4	22.2 ± 32.0	50.6 ± 36.2	50.6 ± 37.4
higher (n = 9)	31.5 ± 38.6	11.1 ± 22.0	59.3 ± 32.4	40.7 ± 27.8
p	0.247	0.203	0.433	0.081
Professionally active:				
yes (n = 9)	28.9 ± 30.3	14.6 ± 27.9	48.0 ± 35.0	43.9 ± 36.8
no (n = 41)	25.9 ± 40.9	16.7 ± 25.0	48.1 ± 37.7	29.6 ± 26.1
p	0.806	0.842	0.989	0.277
Income source:				
pension (n = 28)	33.9 ± 29.9	19.6 ± 31.4	48.8 ± 37.9	45.2 ± 38.7
student (n = 6)	30.6 ± 38.6	8.3 ± 20.4	50.0 ± 35.0	44.4 ± 45.5
unemployed (n = 7)	7.1 ± 13.1	0.0 ± 0.0	42.9 ± 25.2	38.1 ± 23.0
p	0.109	0.213	0.915	0.904
Place of residence:				
city > 100 000 (n = 9)	38.9 ± 40.0	22.2 ± 26.3	63.0 ± 35.1	51.9 ± 29.4
city > 50 000 (n = 14)	8.3 ± 12.7	14.3 ± 36.3	50.0 ± 36.4	35.7 ± 33.2
town < 50 000 (n = 17)	38.2 ± 33.2	8.8 ± 19.6	47.1 ± 37.4	43.1 ± 40.4
village (n = 10)	30.0 ± 32.2	20.0 ± 25.8	33.3 ± 27.2	36.7 ± 36.7
p	0.038	0.615	0.336	0.725
Duration of disease:				
3 months (n = 12)	15.3 ± 31.3	4.2 ± 14.4	47.2 ± 30.0	36.1 ± 36.1
4–12 months (n = 19)	28.1 ± 26.1	21.1 ± 34.6	47.4 ± 39.0	40.4 ± 39.4
over a year (n = 19)	36.8 ± 36.3	15.8 ± 23.9	49.1 ± 35.8	45.6 ± 31.8
p	0.190	0.243	0.985	0.765

Table IX. Comparison of socio-demographic data and disease duration with the domains of life quality (cont.)
Tabela IX. Porównanie danych socjodemograficznych i czasu trwania choroby z domenami jakości życia (cd.)

Variable	CO	DI	FI
1	2	3	4
Marital status:			
married (n = 33)	37.4 ± 35.1	18.2 ± 30.2	43.4 ± 27.0
single (n = 13)	17.9 ± 32.2	19.2 ± 38.4	33.3 ± 30.4
widow/widower (n = 4)	83.3 ± 33.3	0.0 ± 0.0	41.7 ± 16.7
p	0.006	0.534	0.533

	1	2	3	4
Education:				
elementary (n = 3)		88.9 ± 19.2	16.7 ± 28.9	11.1 ± 19.2
vocational (n = 11)		39.4 ± 44.3	4.5 ± 15.1	51.5 ± 22.9
secondary (n = 27)		32.1 ± 32.7	16.7 ± 31.0	44.4 ± 27.7
higher (n = 9)		25.9 ± 36.4	33.3 ± 43.3	25.9 ± 22.2
p		0.066	0.245	0.032
Professionally active:				
yes (n = 9)		39.0 ± 37.2	17.1 ± 32.8	43.1 ± 27.1
no (n = 41)		22.2 ± 37.3	16.7 ± 25.0	29.6 ± 26.1
p		0.226	0.972	0.181
Income source:				
retirement pension (n = 28)		47.6 ± 36.8	8.9 ± 23.8	47.6 ± 26.3
student (n = 6)		38.9 ± 39.0	25.0 ± 41.8	16.7 ± 18.3
unemployed (n = 7)		4.8 ± 12.6	42.9 ± 45.0	47.6 ± 26.2
p		0.020	0.036	0.031
Place of residence:				
city > 100 000 (n = 9)		37.0 ± 35.1	33.3 ± 43.3	37.0 ± 20.0
city > 50 000 (n = 14)		21.4 ± 33.6	17.9 ± 31.7	38.1 ± 34.2
town < 50 000 (n = 17)		49.0 ± 39.3	14.7 ± 29.4	39.2 ± 21.2
village (n = 10)		33.3 ± 38.5	5.0 ± 15.8	50.0 ± 32.4
p		0.240	0.264	0.692
Duration of disease:				
3 months (n = 12)		19.4 ± 33.2	37.5 ± 37.7	27.8 ± 23.9
4–12 months (n = 19)		42.1 ± 33.0	10.5 ± 26.8	45.6 ± 27.7
over a year (n = 19)		40.4 ± 42.4	10.5 ± 26.8	43.9 ± 27.3
p		0.214	0.030	0.167

DISCUSSION

Hematologic cancer to a varying extent worsens the quality of life of those who have it, leading to disturbances in physical, emotional, cognitive or social functioning [4,5,6].

The treatment of cancer with cytostatic drugs is connected with pain and suffering, both physical and mental, as it can cause many unpleasant side effects that destroy the body, affecting its functioning and appearance. All this leads to the impaired self-esteem of the sick person.

The research by Pinto et al. shows that half of the patients during treatment with chemotherapeutic agents evaluate their health as 'neither good nor bad' [7].

Acute myeloid leukemia and lymphomas are more common for males. This is confirmed by the results of this study [8,9,10,11,12]. However, analysis of the

study material shows that multiple myeloma is more frequent in women, which is not reflected in the literature [12,13].

The symptoms which most frequently induce patients to visit a doctor are: general weakness, fever, bone pain and joint pain, skin lesions – in leukemia, swelling and enlargement of the lymph nodes and weight loss in the case of lymphoma, and multiple myeloma is mainly characterized by bone pain, general weakness [8,14,15]. Our study confirmed the data from the literature.

According to the study by Zielinska-Więczkowska et al., the majority of patients go to the doctor on their own initiative [16]. Our results correspond with the results obtained by the above-mentioned authors. The side effects of cytostatic therapy can be a serious problem for the patient. Krasuska et al. on the basis of their study indicated that the most common complications of cytostatic treatment reported by the patient are nausea (73% of respondents), fatigue (70%), feeling of

weakness (67%), hair loss (54%) and constipation (33% of respondents) [17]. Our findings show some similarity. Most respondents mentioned major side effects such as nausea and vomiting, and hair loss (62% of respondents), and constipation (60%). Nonetheless, every second respondent also reported allergic reactions, which was not reported by Krasuska et al. [17].

Once the diagnosis is made, the patient becomes more aware of his condition, which entails concerns and a sense of insecurity [18]. Among the emotions that occur in patients after diagnosis, those of fright, fear, anxiety and sadness prevail [18,19,20,21]. Our study shows that after the diagnosis, in nearly half of the respondents depression and anxiety occur. According to Grabińska et al. 69% of the respondents after their diagnosis experienced similar emotional symptoms [18].

Despite the occurrence of psychological symptoms in the surveyed group of people, only 10% of them asked for the help of a psychologist. In the study conducted by Grabińska et al. and Russjan et al. the percentage of people who sought psychological help was similar [18,22]. The psychosomatic effects of cytostatic treatment disrupt close, sexual relationships with a partner. Accordingly, a negative consequence is also lower sexual desire. This may be due to changes in appearance, worry about health, family, finances, or the occurrence of adverse effects of cytostatic therapy, as well as hormonal disorders. The limitations in the area of intimate contacts can also have a source in fear and anxiety on the part of the sexual partner [12,23]. Our study shows that the disease and its treatment led to a reduction in contact in 32% of the respondents or total avoidance of intimate contact in 28% of patients.

The researches by Zielinska-Więczkowska et al. show that chemotherapy most often impacted the cognitive aspect of life [16]. According to Andrade et al., haematological patients during chemotherapy rate the quality of their lives the lowest in terms of emotional functioning, whereas patients treated hematologically in Malaysia, and in Denmark evaluated their functioning in social roles the lowest [4,5,6]. The functioning of patients in terms of physical, emotional, social, and cognitive aspects, in social roles and work was reduced by an average of 20–50% [4,5,6,16]. Studies by the above mentioned authors have shown that cancer and related treatment reduce the quality of life in each of its aspects [4,5,6,16]. Similar findings were observed in this study.

Our study showed that fatigue is the most frequently identified problem among hematological patients. This is confirmed by the results of other authors [4,5,6,16,24].

According to de Walden-Gałuszko, the duration of the illness had a substantial impact on certain categories

of quality of life, and with time the disease significantly decreased the overall quality of life [25]. Our study showed that the duration of the disease had an impact on the intensity of one of the symptoms – diarrhea (people suffering from cancer up to three months had more severe effects). However, the general quality of life was assessed as low regardless of the duration of the disease.

Heydarnejad et al. and Dehkordi et al. showed that age, gender, marital status and professional activity do not affect the assessment of the quality of life in patients undergoing chemotherapy [26,27]. Our study did not confirm the absence of a relationship, because:

- widows/widowers functioned worse as a result of the occurrence of constipation people with a vocational education and a secondary education assessed their quality of life as worse in terms of the financial situation than those with a primary education and higher education
- professionally active people assess the overall health condition worse than persons who are not active.
- those who are retired assessed their quality of life very low in terms of symptoms such as constipation
- students evaluated the quality of life as low in terms of symptoms such as diarrhea
- the unemployed assessed the quality of life as low and it was associated with the occurrence of diarrhea and their financial situation
- people living in a city of < 50 000 residents assessed the quality of life lower in the area of physical functioning
- people living in a city of > 100 000 inhabitants found the quality of life bad which was associated with pain.

CONCLUSIONS

1. Disease and treatment had a greater negative impact on sexual life in men than in women.
2. Women found the quality of life significantly lower in terms of physical functioning than men, whereas men assessed the quality of life as significantly worse in terms of symptoms such as pain, shortness of breath and constipation.
3. Fatigue as a symptom of the disease was the most common problem for the respondents.
4. Demographic factors, i.e. age, marital status, professional activity, education level and place of residence correlated with selected aspects of life quality.
5. The overall assessment of the quality of life of patients was reduced by an average of 50%.

Author's contribution

Study design – J. Rosińczuk

Data collection – K. Lech

Data interpretation – K. Lech, A. Kołtuniuk

Manuscript preparation – A. Kołtuniuk, J. Rosińczuk

Literature research – A. Kołtuniuk, J. Rosińczuk

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