

Original Research Article

Quality of life for cancer chemotherapy patients at PZAGA Mahajanga hospital

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ABSTRACT

Background: Cancer chemotherapy is often associated with adverse effects that may be responsible for impaired quality of life. Our aim was to describe the quality of life of patients undergoing cancer chemotherapy at PZAGA Hospital in Mahajanga.

Methods: This was a prospective descriptive study conducted between November 1, 2019 and October 31, 2020, including patients who had received chemotherapy. The European Organization for Research and Treatment of Cancer Quality of Life Questionnaire-C30 (EORTC QLQ-C30) was used.

Results: Forty-six patients agreed to participate in the study. The mean age of the patients was 48.02 ± 14.16 years, with a sex ratio of 0.24. The mean global health status score was 70.83 ± 22.69 . For the functional scales, mean scores were 82.90 ± 21.35 (physical functioning), 76.45 ± 33.62 (role functioning), 78.08 ± 19.27 (emotional functioning), 84.06 ± 16.08 (cognitive functioning), and 95.29 ± 10.34 (social functioning). For the symptom scales, mean scores were 21.15 ± 22.15 (fatigue), 11.23 ± 23.32 (nausea and vomiting), 20.29 ± 26.27 (pain), 4.35 ± 13.35 (dyspnea), 19.57 ± 31.09 (insomnia), 15.22 ± 26.95 (appetite loss), 13.04 ± 27.65 (constipation), and 2.17 ± 10.89 (diarrhea). For financial difficulties, the mean score was 42.03 ± 32.53 .

Conclusions: The overall quality of life of the patients was good. The disparity in the scores obtained calls for a search for the most vulnerable groups in order to adapt the management.

Keywords: Cancer, Cancer chemotherapy, EORTC QLQ-C30, Quality of life

INTRODUCTION

Cancer chemotherapy is one of the mainstays of cancer treatment. In the curative setting, it either shrinks the tumor before surgery (neoadjuvant chemotherapy) or reduces the risk of recurrence (adjuvant chemotherapy). In the palliative setting, it stabilizes the tumor, relieves symptoms and improves physical conditions.¹ Chemotherapy is often associated with side effects that

increase physical and psychological distress, thereby altering patients' quality of life (QoL). Beyond survival, QoL is an important measure of treatment effectiveness. Ineffective chemotherapy or chemotherapy that is associated with a number of adverse effects can significantly impair QoL.^{2,3}

According to the World Health Organization, QoL is "an individual's perception of his or her place in existence, in the context of the culture and value system in which he or

she lives, in relation to his or her goals, expectations, norms, and concerns".⁴ It is a multidimensional concept whose measurement is subjective and requires standardized instruments. In oncology, QoL has become increasingly important in research.⁵ Valid and reliable questionnaires have been developed to assess QoL. On the one hand, knowing patients' QoL helps to improve their symptoms, well-being and life expectancy, and to better manage treatment toxicities. On the other hand, QoL is an important factor in therapeutic decisions in metastatic cancer.⁶

Cancer is a major public health problem in Madagascar. According to the Global Cancer Observatory (GLOBOCAN) report for 2020, cervical cancer (18.2%), breast cancer (15.2%), and prostate cancer (9.9%) are the most common cancers.⁷ The administration of chemotherapy is a routine activity in cancer departments in Madagascar. It can be assumed that patients who benefit from chemotherapy are not spared from side effects that can have a negative impact on their QoL. To our knowledge, few studies on QoL in oncology have been reported in the Malagasy literature.⁸

The aim of the present study was to describe the QoL of cancer patients treated with cancer chemotherapy at the Oncology Department in Mahajanga.

METHODS

Study characteristics and population

This was a prospective descriptive study conducted between November 1, 2019 and October 31, 2020 (12 months). It involved patients followed at the Oncology Department of the Professeur Zafisaona Gabriel University Hospital in Mahajanga, Madagascar. Patients with any type or stage of cancer were included. Patients who had not received chemotherapy for their cancer and patients who refused to participate or were unsuitable for the study were excluded. Finally, patients with cancer who had received at least one course of chemotherapy and who were fit and willing to participate in the study were selected.

Assessment tool and data collection

Data were collected using a pre-designed questionnaire either at the patient's bedside or in a consultation room. The European Organization for Research and Treatment of Cancer Core Quality of Life Questionnaire (EORTC QLQ-C30) version 3.0 was used.⁹ The EORTC QLQ-C30 is a cancer-specific questionnaire consisting of 30 items grouped into several scales: a global health scale, five functional scales (physical, social, cognitive, emotional, and role functioning), eight symptom scales (fatigue, pain, nausea and vomiting, dyspnea, appetite loss, insomnia, constipation, and diarrhea), and a financial difficulties

scale. Scores on each subscale range from 0 to 100. A high score on the overall health and functional scales represents a better quality of life. A high score on the symptom and financial hardship scales represents poor QoL.

Statistical analysis

The collected data were entered into a database using Microsoft Excel® 2013. The Statistical Package for Social Studies SPSS® version 20 was used for analysis.

Ethical considerations

Ethical approval for this study was obtained from the University of Mahajanga. The study complied with the principles of the Declaration of Helsinki.

Informed consent

Written informed consent was obtained from all subjects before the study. Each patient was informed of the objectives of the study, the use of the data for scientific purposes, and the expected duration of participation. For patients under 18 years of age, the study was explained to the parents or guardians and their consent was required. Confidentiality of the information collected was maintained.

RESULTS

During the study period, 178 patients were followed for cancer. One hundred thirty-two patients had never received chemotherapy or refused to participate in the study. A total of 46 patients were included. The clinical characteristics of these patients are shown in Table 1.

Table 1: Patient clinical characteristics.

Variables		Number (n=46)	Percentage (%)
Gender	Male	9	19.57
	Female	37	80.43
Cancer	Breast	16	34.78
	Cervix	12	26.09
	Hematologic cancer	10	21.74
	Prostate	3	6.52
	Bladder	2	4.35
	Other	3	6.52

The sex ratio was 0.24. The mean age of the patients was 48.02±14.16 years, with a median of 50 years and extremes of 14 and 74 years. Sixteen patients (34.78%) were diagnosed with breast cancer. Table 2 shows mean QLQ-C30 scores by gender. Table 3 shows the mean scores by type of cancer diagnosed.

Table 2: EORTC QLQ-C30 mean scores by gender.

Score scales	Male		Female		Total	
	Mean	(SD)	Mean	(SD)	Mean	(SD)
Global health status/quality of life						
Global health status	64.81	(24.22)	72.3	(22.4)	70.83	(22.69)
Functional scales						
Physical functioning	77.78	(24.49)	84.14	(20.69)	82.90	(21.35)
Role functioning	83.33	(33.33)	74.77	(33.93)	76.45	(33.62)
Emotional functioning	74.07	(19.74)	79.05	(19.31)	78.08	(19.27)
Cognitive functioning	85.19	(10.02)	83.78	(17.34)	84.06	(16.08)
Social functioning	98.15	(5.56)	94.59	(11.15)	95.29	(10.34)
Symptom scales						
Fatigue	19.75	(16.46)	27.03	(37.46)	25.60	(34.34)
Nausea and vomiting	25.93	(40.92)	7.66	(15.51)	11.23	(23.32)
Pain	20.37	(21.7)	20.27	(27.54)	20.29	(26.27)
Dyspnea	11.11	(23.57)	2.7	(9.22)	4.35	(13.35)
Insomnia	14.81	(29.4)	20.72	(31.77)	19.57	(31.09)
Appetite loss	18.52	(29.4)	14.41	(26.69)	15.22	(26.95)
Constipation	11.11	(23.57)	13.51	(28.82)	13.04	(27.65)
Diarrhea	3.7	(11.11)	1.8	(10.92)	2.17	(10.89)
Financial difficulties	37.04	(30.93)	43.24	(33.21)	42.03	(32.53)

SD: standard deviation

Table 3: EORTC QLQ-C30 mean scores by type of cancer.

Score scales	Breast cancer		Cervical cancer		Hematological cancer		Prostate cancer		Bladder cancer	
	Mean	(SD)	Mean	(SD)	Mean	(SD)	Mean	(SD)	Mean	(SD)
Global health status/quality of life										
Global health status	70.31	(21.72)	73.61	(21.57)	73.33	(25.40)	66.67	(28.87)	50	(47.14)
Functional scales										
Physical functioning	80.42	(25.24)	93.33	(8.53)	83.33	(21.14)	66.67	(33.33)	60	(9.43)
Role functioning	65.63	(37.25)	93.06	(11.14)	71.67	(40.86)	55.56	(50.92)	91.67	(11.79)
Emotional functioning	80.21	(17.71)	79.86	(23.96)	74.17	(18.61)	66.67	(30.05)	79.17	(5.89)
Cognitive functioning	84.38	(17.71)	87.50	(14.43)	83.33	(15.71)	77.78	(9.62)	100	0
Social functioning	92.71	(14.87)	95.83	(7.54)	96.67	(7.03)	94.44	(9.62)	100	0
Symptom scales										
Fatigue	38.89	(49.02)	16.67	(22.47)	18.89	(22.86)	18.52	(16.97)	38.89	(7.86)
Nausea and vomiting	10.42	(20.97)	4.17	(10.36)	5	(8.05)	50	(50)	41.67	(58.93)
Pain	27.08	(35.42)	18.06	(21.86)	16.67	(17.57)	27.78	(25.46)	16.67	(23.57)
Dyspnea	4.17	(11.39)	0	0	3.33	(10.54)	11.11	(19.25)	33.33	(47.14)
Insomnia	27.08	(40.77)	11.11	(21.71)	16.67	(23.57)	22.22	(38.49)	33.33	(47.14)
Appetite loss	22.92	(35.94)	5.56	(12.97)	6.67	(14.05)	33.33	(33.33)	33.33	(47.14)
Constipation	10.42	(23.47)	11.11	(21.71)	20	(42.16)	33.33	(33.33)	0	0
Diarrhea	0	0	0	0	6.67	(21.08)	0	0	16.67	(23.57)
Financial difficulties	45.83	(36.26)	25	(28.87)	60	(26.29)	44.44	(19.25)	0	0

SD: standard deviation

DISCUSSION

Global health status/quality of life

The mean global health status score was 70.83. This score is generally higher than those reported by other authors. Randriamanovontsoa et al. found a mean score of 57.1 in a study of QoL in Malagasy patients with non-metastatic

breast cancer published in 2020.⁸ In Ethiopia, Abegaz et al and Wondie et al reported a score of 52 in 2018 and 54 in 2020, respectively.^{10,11} The global health status of the patients in our study seems to be better than that reported by these authors. Moreover, the mean score we found is similar to the best results in the literature, including those observed in Saudi Arabia in 2019 (score=67.4) and Indonesia in 2023 (score=68.05).^{12,13}

Women had a higher score than men (72.3 vs. 64.81). In the study by Wondie et al, the mean score was higher in women (56.3 vs. 51.9 in men).¹¹ El Mokhallalati et al. reported a similar result (60.30 vs. 56.37 in men) in Palestine in 2022.¹⁴ Derogar et al reported a lower score for women (74.9 vs. 77.2 for men) in a Swedish study.¹⁵ Given the disparity in results, further research is needed to confirm or refute a possible association between gender and global health status.

Functional scales

For physical activity, the mean score was 82.9. In the previous Malagasy study, this score was 77.3.⁸ The score found in our study is higher than those observed in Ethiopia (score=53), Saudi Arabia (score=50.28) and Palestine (score=58.78).^{11,14,16} On the other hand, it is not different from European data, including the 2017 study by Hinz et al in Germany, with a score of 70.6.¹⁷ Patients' QoL with regard to physical activity is good. Regular exercise should be recommended to patients undergoing cancer chemotherapy and maintained as long as it is not limited by comorbidities and side effects. In particular, it has a positive effect on psychological barriers and prevents social isolation.¹⁸

Regarding role functioning, the mean score was 76.45. This result is similar to that reported by Randriamanovontsoa et al (score=75.8) and overall higher than other studies.^{8,12,17} This result reflects a good functional QoL for the patients. Functional domain includes work and leisure activities. Increasing cancer symptoms may affect patients' ability to perform these roles. This domain may also be affected by cognitive decline and misunderstanding by employers.¹⁹

During chemotherapy, the occurrence of emotional disturbances such as some degree of anxiety, fear and depression is considered a normal phenomenon. However, high levels of anxiety are negatively correlated with QoL. Participants in our study had a mean emotional functioning score of 78.08. This result is consistent with data observed in China and Europe.^{15,20,21} African studies have reported scores below 70.^{10,11,22} Our result reflects good QoL in this domain.

The cognitive function score was high in our study and in previous studies.^{8,15,21,23} Although the adverse effects of chemotherapy on cognitive function have been recognized, complaints are often subjective. Objective assessments do not always show impairment, and when they do, it is usually mild.²⁴

In our study, the highest score was attributed to social functioning (score=95.2). Chemotherapy can lead to social isolation and changes in patients' personality and self-esteem. In the literature, social functioning QoL is often the worst among functional scales.^{17,20,22} The results of our study are characterized by better QoL in social functioning. This could be explained by good

psychological and social support from the patient's family, relatives and friends. Social support is a reliable resource to help patients cope with anxiety and uncertainty.²⁵

Symptom scales

For fatigue, the mean score was 25.6. In Ethiopia, the mean score was 47.4 in 2018 and 52.5 in 2020.^{10,11} In Asian studies, scores were 42.5 in Saudi Arabia, 50.70 in Palestine, and 34 in China.^{12,14,20} In the European literature, reported scores are generally above 40.^{17,21} Our results indicate a good QoL for the patients. In addition to chemotherapy, malnutrition and anemia may predispose to fatigue.

For nausea and vomiting, the mean score was 11.23. This value is not far from the previous Malagasy study (score=18.8) and German studies (score=11.2).^{8,17} In other studies, the results are variable, but the values observed are generally higher than ours.^{11,13,20} This finding leads us to conclude that chemotherapy-induced nausea and vomiting may have little impact on patients' QoL. The occurrence of symptoms may be influenced by age, gender, toxic habits, anxiety, history of nausea and vomiting, and the type of chemotherapy used.²⁶

Pain is one of the most feared side effects by patients. It is often nociceptive, but can also be neuropathic or mixed.²⁷ In our study, the mean score was 20.29. In the study by Derogar et al. in Sweden and Finck et al. in Colombia, the scores were 18.9 and 17.9, respectively, which is comparable to ours.^{15,23} On the other hand, our score is much lower than that of other studies.^{8,12,16,17,20} This result indicates an adequate QoL in relation to pain. This could reflect either a high pain tolerance or a "negligible" intensity of pain experienced by patients.

For dyspnea, the mean score was 4.35. This value is comparable to those reported in Indonesia (score=7.24) and Colombia (score=9).^{13,23} Higher scores were observed in other studies such as Ethiopia (score=27.6), Sweden (score=16.3), Germany (score=26.6) and China (score=17.2).^{11,15,17,20} Our study is notable for its low dyspnea score, suggesting good respiratory QoL in patients.

In our study, the mean score for insomnia was 19.57. This result is not different from that reported by Derogar et al (score=17.5).¹⁵ In the African literature, mean scores are generally above 30.^{10,11,22} In the Asian literature they are generally above 25.^{12,14,16} In other European studies, scores are generally higher than those found in our study.^{17,21} This score is therefore lower than in most studies and indicates a good quality of life in terms of sleep.

For appetite loss, the mean score was 15.22. In the literature, scores are generally higher.^{8,20} Loss of appetite can be explained by the cancer itself and is exacerbated by chemotherapy. It can lead to physical weakness and weight loss, thereby reducing QoL and survival.¹⁶ Appropriate

dietary and nutritional management is essential throughout cancer treatment.

For constipation, the score was 13.04, which is similar to the previous Malagasy study (score=13.9).⁸ The score is comparable to several studies such as those conducted in Germany (score=14.8), Indonesia (score=16.26), Palestine (score=16.71) and Colombia (score=17.9).^{13,14,17,23} The score is lower than that reported in Ethiopia (score=30.9) and Saudi Arabia (score=35.83), but higher than that reported in Sweden (score=5.4).^{11,15,16} These observations illustrate the heterogeneity of results. The incidence of constipation depends on the type of chemotherapy. It may be promoted by a depressive syndrome or by treatments such as opioids and psychotropic drugs.²⁸

Diarrhea is one of the most worrisome side effects because of its impact on QoL. Its incidence depends on the dose and the chemotherapy molecule used. In our study, the mean score was 2.17. In the literature, mean scores vary from 8 to 44 in Africa and from 7 to 47 in Asia.^{8,10-13,16,20,22} In Western countries they are much higher than in our study.^{15,17,21} Our study is characterized by a lower diarrhea score than those reported in the literature. This may indicate that diarrhea has little impact on patients' QoL.

Financial difficulties

In the assessment of financial difficulties, the mean score was 42.03. In the study by Randriamanovontsoa et al, the score was 39.7. In Ethiopia, the score was 69.6 in 2018 and 67.1 in 2020.^{10,11} In Tunisia, the score was 71 in 2019.²² In developed countries, the score as 4.4 in Sweden, 6.2 in Australia, 27.9 in Germany, and 34.6 in China.^{15,17,20,29} Cancer is a challenge in low-income countries due to difficult access to care and treatment and limited logistics to maintain QoL.³⁰

This study has limitations. Because the number of participants was very limited, it was not possible to perform a subgroup analysis to identify the determinants of QoL. This will be the subject of another larger study. Nevertheless, the present study was the first to assess the QoL of patients undergoing cancer chemotherapy for all cancer sites in Madagascar. It provides new information on the knowledge of QoL in oncology in the literature.

CONCLUSION

Patients had good QoL in terms of global health status. For the functional scales, QoL was excellent in the social domain. For the symptomatic scales, the results were characterized by a lower impact of diarrhea, dyspnea and insomnia on QoL, in contrast to the literature. In terms of financial difficulties, QoL was poor. At the end of the study, good psychological support from healthcare professionals and social and emotional support from relatives are necessary during chemotherapy. Routine assessment of symptoms and QoL can help guide treatment and follow-up of cancer patients.

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