

## COMPARISON OF QUALITY OF LIFE OF CANCER PATIENTS UNDERGOING CHEMOTHERAPY IN A TERTIARY CARE HOSPITAL, RAWALPINDI

Shamaila Mohsin, Mahmood Ur Rehman, Naila Azam\*, Syed Fawad Mashhadi

Army Medical College, National University of Medical Sciences Rawalpindi Pakistan, \*Armed Forces Post Graduate Medical Institute (AFPGMI) Rawalpindi Pakistan

### ABSTRACT

**Objective:** To compare the Quality of Life (QOL) of cancer patients at different chemotherapy (CT) cycles.

**Study Design:** Cross sectional analytical.

**Place and Duration of Study:** Tertiary Care Hospital, Rawalpindi.

**Material and Methods:** Study was conducted in a Tertiary Care Hospital in Rawalpindi. Non-probability purposive sampling technique was used to select a sample of 50 cancer patients undergoing chemotherapy. The patients were grouped in two on the basis of number of chemotherapy cycles, those having  $\leq 2$  CT cycles and those undergoing  $>2$  CT cycles. After taking informed consent the data was collected using the European Quality of Life Questionnaire (EORTC QLQ-C30) to measure QOL in the patients. Data was entered and analyzed using SPSS version 21. Baseline distinctiveness (demographic and HRQOL) was summarized by descriptive statistics. Mean and standard deviation of individual items in the two scales was calculated in two groups and statistical inference was drawn using Independent T test between the two groups,  $p$  value of  $\leq 0.05$  was considered as significant.

**Results:** The study sample comprised of 31 males and 19 females. Mean age of participants was  $43.88 \pm 12.72$  (Range 18-70) with the most common age group being 41-50 years. There was a male preponderance (63%) and majority 36% were doing house hold work. Among the 50 subjects, 32 % were suffering from lung carcinoma, 26% had genitourinary cancer, 24% had cancer of the oral cavity while 18 % had carcinoma breast. As per the QOL scoring, in the Global Health Scale (GHS) the four items of symptom scale that is fatigue ( $p=0.02$ ), nausea ( $p=0.00$ ), pain ( $p=0.01$ ) and appetite loss (0.03) attained a significant difference. Nevertheless, a significant difference was found between the level of QOL in patients with  $\leq 2$  CT cycles and with  $>2$  cycles ( $p < 0.001$ ). In the functional scale items only role functioning was significant.

**Conclusion:** This study suggests that the quality of life is related to chemotherapy cycles. Although QOL scoring system did not show significant improvement in all areas of our study, but the obtained results indicated a significant association between QOL and number of CT cycles in cancer patients.

**Keywords:** Cancer, Chemotherapy, QOL.

---

This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

---

## INTRODUCTION

The term quality of life (QOL) evaluates the general well-being of individuals and societies. The World Health Organization (WHO) defines QOL as the perception of an individual's life, values, objectives, standards, and interests in the framework of culture<sup>1</sup>. Health Related Quality of life (HRQOL) and its evaluation has become increasingly important in health care especially in field of chronic

diseases such as cancer<sup>2</sup>.

The International Agency for Research on Cancer (IARC), estimates that globally an estimated 14.1 million new cancer cases and 8.2 million cancer-related deaths occurred in 2012, and is projected to rise to 30 million around year 2020. A vast majority almost 70% of these cases will encumber the health care facilities in under-resourced countries<sup>3</sup>. In Pakistan there is no accurate estimation of the percentage of deaths due to cancers at national level, despite it being the third leading non-communicable cause of mortality in 2012. The deaths reported per annum were over 1 lakh with over 148,000

---

**Correspondence:** Dr Shamaila Mohsin, Dept of Community Medicine, AM College Rawalpindi, Pakistan  
Email: sm104177@hotmail.com

Received: 20 May 2015; revised received: 11 Jun 2015; accepted: 23 Jul 2015

new cases identified every year. More than 70% of the cases report for diagnosis and treatment in the advanced stages of the disease, leading to a poor survival and high mortality rate<sup>4</sup>.

Nowadays, Punjab is acknowledged as cancer hub of Pakistan with rising burden of cancer that leads to additional load of non-communicable diseases. According to the cancer registry report of Shaukat Khanum Cancer Hospital in 2015 in which a total of 34,508 patients diagnosed with malignant cancers in a ten year period nearly, 72.95%

is on QOL then quantity of life and where total cure is a remote possibility so there is a need of measurement of QOL which may indicate adaptation to disease and chemotherapy by the patients<sup>9</sup>. There are notable gaps in the literature regarding the cancer treatment's specific psychosocial issues for cancer patients in Pakistan. This study highlights the impact of various cycles of chemotherapy and their impact on patients' QOL.

Therefore the objective of this prospective study was to analyze and compare patient-

**Table-1: Demographic details of cancer patients (n=50).**

Variables	Group	Frequency n (%)
Occupation	Unemployed	7 (14%)
	Professional	14 (28%)
	Household	18 (36%)
	Other	11 (22%)
Age	18-30	7 (14%)
	31-40	10 (20%)
	41-50	20 (40%)
	51-60	10 (20%)
	above 60	3 (6%)
Gender	Male	31 (62%)
	Female	19 (38%)
Type of cancer	Lung cancer	16 (32%)
	Breast cancer	9 (18%)
	Genitourinary cancer	13 (26%)
	Oral cavity cancer	12 (24%)

(25,173) belonged to the province of Punjab<sup>5</sup>.

The goal of cancer treatment is to cure, prolong life when there is no cure then provide palliative care and consequently to maintain or improve patients' QOL<sup>6</sup>. In oncology chemotherapy is used as a front-line therapy, as an adjuvant to surgery or radiotherapy and even in palliative care. However in a large majority of cases, despite initial reduction in tumor size, the vast majority of cancers become unresponsive to chemotherapy<sup>7</sup>. When treatment can not result in cure, it should lead to an improvement of well-being and quality of life<sup>8</sup>. Consequently to maintain or improve patients' QOL represents a main treatment goal in most of the cancer treatments.

Chemotherapy can give rise to acute and long term side effects which in turn can significantly compromise patient's QOL. In this new era of cancer management more emphasis

reported QOL and their physical/psychosocial symptom burden, measured by completion of a validated questionnaire in this heterogeneous cancer cohort patients during their respective chemotherapy sessions.

## MATERIAL AND METHODS

A total of 50 cancer patients were recruited in the present, comparative analysis. By using the WHO sample size calculator with a confidence level of 95%, anticipated population proportion (P) of .85 and absolute precision (d) of 10. The sample size calculated was 50. The time duration was 4 months. This cross sectional study was conducted in the Oncology Department of a tertiary care center in Rawalpindi after taking permission from the Institutional Ethics Committee. A formal informed consent was obtained from all the patients before the start of the study. The inclusion criteria outlined in advance before

recruiting patients for study was the patients diagnosed with cancer and visiting the institution to receive chemotherapy and having

participants was  $43.88 \pm 12.72$  (range 18-70) with the most common age group being 41-50 years. There was a male preponderance (63%).

**Table-2 :Patients EORTC QLQ-C 30 scores in two groups (n=50).**

Components	Mean (SD)		p -value
	Group 1 (n=25)	Group 2 (n=25)	
Global health status scale			
Global health status	6.28 (1.242)	7.92(1.037)	<0.001*
Functional scale			
Physical functioning	13.00(1.154)	13.28(1.10)	0.384
Role functioning	3.84 (1.178)	4.76(1.051)	0.005*
Emotional functioning	8.60 (2.00)	8.92(1.681)	0.543
Cognitive functioning	6.76 (1.011)	6.40(1.224)	0.263
Social functioning	4.08 (1.222)	4.00(1.154)	0.814
Symptoms Scale			
Fatigue	8.96 (1.368)	8.04(1.368)	0.022*
Nausea and vomiting	4.00 (0.957)	3.08(0.759)	0.00*
Pain	5.00 (1.322)	4.20(0.957)	0.018*
Dyspnea	1.76 (0.273)	1.88(0.725)	0.561
Insomnia	2.16 (0.850)	2.00(0.763)	0.487
Appetite loss	2.32 (0.556)	1.92(0.759)	0.039*
Constipation	2.24 (0.663)	1.84(0.746)	0.051
Diarrhea	1.60 (0.577)	1.40(0.50)	0.197
Financial difficulties	3.36 (0.637)	3.50 (.58)	0.360

\* $p < 0.05$  (Independent T-Test)

no history of other chronic disease such as diabetes or heart disease. Sample of 50 patients was selected by using non probability purposive sampling technique. Two groups were made on the basis of chemotherapy cycles in order to assess the comparison of effects of chemotherapy on quality of life. Patients with  $\leq 2$  cycles were stationed in group-1 and those with  $>2$  cycles in group-2. The data collection was performed by administering validated questionnaire EORTC QLQ-C30 in local language (Urdu). Baseline distinctiveness (demographic and HRQOL) was summarized by descriptive statistics. Mean and standard deviation of individual item in the two scales were calculated in the two groups and statistical inference was drawn using Independent T test between the two groups.  $p$  value of  $\leq 0.05$  was considered as significant. Data was entered and analyzed in SPSS version 21.

## RESULTS

All 50 eligible patients participated in the study with response rate of 100%. Mean age of

Out of all the participants 7 (14%) were unemployed, 14 (28%) were professionals, 18 (36%) were doing household work and 11(22%) were either retired armed forces personnel or businessmen as shown in table-1. Out of our 50 subjects, 32 % were suffering from lung carcinoma, 26% had genitourinary cancer, 24% had oral cavity cancer while 18% had carcinoma breast.

Statistically there was no significant association observed between demographic variables such as age ( $p=0.33$ ), gender ( $p=0.54$ ) and employment status ( $p=0.76$ ) with QOL.

According to the findings of the present study in the QOL scoring, in the GHS the four items of symptom scale, that is, fatigue ( $p=0.02$ ), nausea and vomiting ( $p=0.00$ ), pain ( $p=0.01$ ) and appetite loss(.03) attained a significant difference [table-2]. GHS significantly improved in group two as compared to the group one ( $p<0.001$ ), indicating that the patient rated their overall health/QOL improved and better as the chemotherapy session progressed as shown in fig-1 .In the functional scale items only role

functioning was significant ( $p=0.005$ ). Rest physical functioning ( $p=0.38$ ), emotional functioning ( $p=0.54$ ), cognitive  $p=0.26$  and social functioning ( $p=0.81$ ) were not significant.

## DISCUSSION

QOL refers to "well-being," including physical, emotional, mental, social, and behavioral components which is an important issue in cancer research. The present study shows that there was an improvement in QOL as perceived by the patients as their chemotherapy session progressed.

These findings are consistent with the research done globally and several studies<sup>10-12</sup> support our findings on the influence of chemotherapy on QOL among the cancer patients. In a similar study done in India it was found that Global Health Score significantly improved in group three undergoing more than three cycles of chemotherapy as compared to group one, indicating that the patient's overall health improved<sup>10</sup>. In another study done in Tehran a similar result was found. A significant difference was found between the level of QOL in patients with  $\leq 2$  CT cycles and/or with 3-5 cycles ( $p < 0.001$ )<sup>11</sup>.

However, this is not always the case. For example, Bejjak et al., reported that the level of QOL in the patients with lung cancer, the scores on the Health and Functioning subscale were the lowest ( $20.33 \pm 5.59$ )<sup>13</sup>. The difference might be due to different patients' population (sample size or patient age), cancer types, or may be due to wide-ranging toxicity of chemotherapy agents.

According to the findings of the present study, there was no substantial relationship found between demographic variables such as gender, marital status, and employment status with Quality of life which is in accordance with other studies.<sup>10,12,14</sup>

Statistically significant improvement was observed in fatigue, pain, nausea, vomiting and appetite loss parameter between group one and two which was consistent with other researches<sup>10,13,15</sup>. This may be attributed to the subsequent improvement of symptoms that followed the advance stage of chemotherapy

. However, research has indicated increased severity of symptoms such as pain severity<sup>15,16</sup>.

None of the functional scale items turned significant in our study including physical functioning, role functioning, emotional functioning, and cognitive and social functioning. Perhaps they remain stable during the progression of chemotherapy sessions with minor alteration which is in accordance with the research<sup>10</sup>.

One of the limitations of the present study is small number of participants. The other limitation was that the clinical grading and duration of cancer of the patients was not included. Therefore generalization of the findings needs to be done with caution. Nevertheless our study highlighted that Global Health Scale significantly improved in group two as compared to the group one, indicating that the patient rated their overall health/QOL improved and better as the chemotherapy session progressed. QOL may be considered to be the effect of an illness and its treatment as perceived by patients and is modified by factors such as impairments, functional stress, perceptions and social opportunities.

## CONCLUSION

The results of our study concluded that the quality of life is related to chemotherapy cycles. Although QOL scoring system did not show significant improvement in all areas of our study, but a provident diagnosis with a suitable treatment including chemotherapy may attenuate the negative aspects of cancer as a lethal disease and as an early indicator of disease progression could help the physician in daily practice to closely monitor the patients.

## ACKNOWLEDGEMENTS

The authors greatly acknowledge the great efforts and inputs of the students of the 4<sup>th</sup> year MBBS of Army Medical College, Rawalpindi especially Hammad Ishaq, Ahsan Tanveer, Muhammad Zuhaib and Tahir Iqbal.

## CONFLICT OF INTEREST

The authors of this study reported no conflict of interest.

**REFERENCES**

1. Fayers P, Machin D. Quality of life: the assessment, analysis and interpretation of patient-reported outcomes: John Wiley & Sons; 2013.
2. Smith AW, Bellizzi KM, Keegan TH, Zebrack B, Chen VW, Neale AV, et al. Health-related quality of life of adolescent and young adult patients with cancer in the United States: The adolescent and young adult health outcomes and patient experience study. *Journal of clinical oncology*. 2013;JCO. 2012.47. 3173.
3. Cancer IAFRo. Latest World Cancer Statistics Global Cancer Burden Rises to 14.1 Million New Cases in 2012: Marked Increase in Breast Cancers must be Addressed. World Health Organization. 2013(223):1-3.
4. Pakistan: cancer statistics from IARC GlobalCan [database on the Internet]. 2012 [cited 3 April 2015]. Available from: <http://www.cancerindex.org/Pakistan>.
5. Badar F, Mahmood S. Hospital-Based Cancer Profile at the Shaukat Khanum Memorial Cancer Hospital and Research Centre, Lahore, Pakistan. *Journal of the College of Physicians and Surgeons Pakistan*. 2015;25(4):259-63.
6. Davies N. Measuring health-related quality of life in cancer patients. *Nursing Standard*. 2009;23(30):42-9.
7. Skeel RT, Khleif SN. Handbook of cancer chemotherapy: Lippincott Williams & Wilkins; 2011.
8. Weaver KE, Forsythe LP, Reeve BB, Alfano CM, Rodriguez JL, Sabatino SA, et al. Mental and physical health-related quality of life among US cancer survivors: population estimates from the 2010 National Health Interview Survey. *Cancer Epidemiology Biomarkers & Prevention*. 2012; 21(11):2108-17.
9. Petrosyan F, Daw H, Haddad A, Spiro T. Targeted therapy for lung cancer. *Anti-cancer drugs*. 2012; 23(10):1016-21.
10. Singh H, Kaur K, Banipal RPS, Singh S, Bala R. Quality of life in cancer patients undergoing chemotherapy in a tertiary care center in Malwa region of Punjab. *Indian journal of palliative care*. 2014; 20(2):116.
11. Dehkordi A, Heydarnejad MS, Fatehi D. Quality of life in cancer patients undergoing chemotherapy. *Oman medical journal*. 2009; 24(3):204.
12. Aghabarari M, Ahmadi F, Mohammadi E, Hagizadeh E, Varvarani A. Physical, emotional and social dimension of quality of life among breast cancer women under chemotherapy. *Iran J Nurs Res*. 2007; 1(3):55-65.
13. Bezjak A, Lee CW, Ding K, Brundage M, Winton T, Graham B, et al. Quality-of-life outcomes for adjuvant chemotherapy in early-stage Non-small-cell lung cancer: results from a randomized trial, JBR. 10. *Journal of clinical oncology*. 2008;26(31):5052-9.
14. Heydarnejad M, Hassanpour DA, Solati DK. Factors affecting quality of life in cancer patients undergoing chemotherapy. *African health sciences*. 2012;11(2).
15. Lemieux J, Maunsell E, Provencher L. Chemotherapy-induced alopecia and effects on quality of life among women with breast cancer: a literature review. *Psycho-Oncology*. 2008; 17(4):317-28.
16. Tuncay T. Coping and Quality of Life in Turkish Women Living with Ovarian Cancer. *Asian Pacific Journal of Cancer Prevention*. 2014; 15(9): 4005-12.