IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)
e-ISSN: 2279-0853, p-ISSN: 2279-0861.Volume 15, Issue 5 Ver. V (May. 2016), PP 16-20
www.iosrjournals.org

Study on Quality Of Life of Cancer Patients In Relation To Treatment Modality in a Tertiary Health Institute of Jharkhand

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Abstract:
Background: *With the advent of treatment like chemotherapy and radiotherapy, survival rates of many cancers have increased, but patient may experience side effects from the disease itself and/or from treatment for the disease which can eventually hinder patient's quality of life.*
Aim and Objective-*.1) To assess the quality of life among cancer patients in relation to type of treatment (chemo therapy vs. radio therapy) 2) To determine the quality of life in relation to number of chemotherapy cycle.*
Material and methods- *It was a cross sectional, descriptive and hospital based study. Total duration of study was 6 months (march2015-august2015), conducted in Oncology Department of Rajendra Institute of medical sciences (RIMS), Ranchi. A total of 113 cancer patients undergoing treatment were selected as study subjects out of which 64 were undergoing chemotherapy and 49 were undergoing radiotherapy. Participants were interviewed by a validated questionnaire.*
Results- *A total of 113 cancer patients were included in the study, of which 67 (59.3%) were females and 46 (40.7%) were males. None of the participants had above average or significantly high quality of life. 22.1%, 54%, 21.9% had average, below average and significantly poor quality of life respectively. Patients undergoing radiotherapy had a comparatively higher quality of life than patients undergoing chemotherapy (p value <0.05). Among patients undergoing chemotherapy, those who have undergone 3 or more cycle had better quality of life than those with less than 3 cycle (p value-<0.05)*
Conclusion- *Our study showed that majority of cancer patients undergoing treatment had poor quality of life and among them patients undergoing chemotherapy had lower quality of life compared to patients undergoing radio therapy.*

I. Introduction

Cancers are the leading causes of morbidity and mortality worldwide with approximately 14.1 million new cases and 8.2 million cancer related deaths and five-year prevalence of 32.6 million cancers. (1). IARC world cancer report 2014 estimates indicate a substantive increase to 19.3 million new cancer cases by 2025[(2)]. Globally most common cancers diagnosed in 2012 were lung, breast and colorectum and most common causes of cancer death were cancers lung, liver and stomach[(3)].On the Indian scene, 1.1 million new cancer cases were estimated, indicating India as a single country contributing to 7.8% of the global cancer burden; mortality figures were 682830, contributing to 8.33% of global cancer deaths; and the five year prevalence was 1.8 million individuals with cancer corresponding to 5.52% of global prevalence. Cancers of oral cavity, lungs, &stomach were common cancers in men and breast, cervix &colorectum in women. [(4).] In India, cancers account for 6% of the NCD related DALYs [(5).]

The diagnosis of cancer and its treatment have a major impact on every aspects of patient's quality of life. Quality of life is an individual's perception of their position in life in the context of the culture and value system in which they live and in relation to their goals, expectations, standards and concerns [(6)] It is a broad concept incorporating an individual's physical health, psychological state, level of independence, social relationships, personal beliefs and her/his relationships to salient features of the environment [(7)]

Although chemotherapy and radiotherapy have enhanced better prognosis in many cancers, they are not without side effects. The development of treatment related side effects are the most significant disadvantage of chemotherapy. It is a concentrated and repeated treatment drug regimen and has many adverse reactions including gastro intestinal, musculoskeletal and constitutional symptoms like nausea, vomiting, loss of appetite, constipation, diarrhea, fever and fatigue. The most apparent and emotionally challenging side effect is complete falling of hair. Besides, it requires extended periods of treatment and repeated admission to hospital. Side effects with radiotherapy are mainly anemia and fatigue due to bone marrow suppression, skin reaction, gastro intestinal symptoms and sleep problems. Most side effects generally go away within few days of finishing

treatment. However, some side effects may continue after treatment is over because it takes time for healthy cells to recover from the effects of radiation therapy.

Whatever be the treatment methods, the intensity of treatment and their adverse reactions, can eventually affect the quality of life of cancer patients. Hence quality of life assessment should be a part of cancer treatment which helps physicians to properly document the individual impact of such treatments and decide which treatment modality would be better for individual patients. In our study we assessed the difference of quality of life among cancer patients undergoing chemotherapy and radiotherapy and also the impact of number of chemotherapy cycles on patients' quality of life.

II. Material And Methods

It was a cross sectional study done at oncology clinic in Rajendra Institute of Medical Sciences (RIMS), conducted between March 2015 to august 2015. All patients more than 18 yrs undergoing chemotherapy and radiotherapy were included in the study. Patients who were undergoing both chemotherapy and radiotherapy and those who were critically ill and didn't give consent were excluded from the study. Ethical clearance was taken from institutional ethical committee of RIMS.64 patients who were undergoing chemotherapy and 49 patients who were undergoing radiotherapy were interviewed. The quality of life of patients was assessed using a QOL questionnaire designed under EORTC guidelines and validated in Indian scenario by Vidhubala E, *et al.* [8].

The questionnaire consisted of questions relating to10 factors.

Factor 1 - physical well-being
Factor 2 -psychological well being
Factor 3- self adequacy.
Factor 4- confidence in self ability
Factor 5- external support attained by the patient.
Factor 6- extent of pain experienced
Factor 7- mobility of the patients
Factor 8 -optimism and belief
Factor 9 -interpersonal relationship
Factor 10- self-sufficiency and independence

Likert-type four-point rating scale was used to elicit responses from the respondents ranged from a minimum score of 1 and maximum score of 4 for each question. The total scores were summed up and QOL was interpreted as follows:

88 and below=significantly poor QOL, 89-108=below average QOL, 109-132=average QOL, 133-144=above average QOL, above 144=significantly high QOL

Statistical analysis-

Data were entered in MS Excel and analysis was done with SPSS statistical software. Chi-square test was performed to assess the difference in QOL of the patients. $p<0.05$ was considered significant

III. Results

Table 1.Socio-demographic profile

variable	category	frequency	Percentage
Age	<40	33	29.2
	40-60	56	49.6
	>60	24	21.2
gender	Male	46	40.8
	female	67	59.2
ethnicity	Tribal	52	46
	Non tribal	61	54
religion	Hindu	64	56.6
	Christian	12	10.6
	Muslim	21	18.6
	Sarna	16	14.2
education	Illiterate	38	33.6
	primary	47	41.6
	secondary/higher secondary	21	18.6
	Graduates/post graduates	7	6.2
occupation	House wife	52	46
	Daily wagers	46	40.7
	Business	9	8
	Student	2	1.8

	service	4	3.5
Marital status	Married Un married Divorced/separated Widow/widower	78 12 2 11	69 10.6 1.8 9.7
Socio-economic status(modified BG Prasad)	Class 1 Class 2 Class 3 Class 4 Class 5	11 15 21 43 23	9.6 13.3 18.6 38.1 20.4

A total of 113 patients participated in the study .Majority were non tribal (54%),females (59.2%) belonging to Hindu religion (56.6%).Most (49.6%) patients were in the age group 40-60 years, mean age being 48.41±11.35 years .29.2% were aged less than 40years, and 21.2% were more than 60 yrs . 69% of participants were married. Majority (41.6%) of the patients had primary education, and 33.6 % were illiterate. only 6.2%% were postgraduate. Most of the participants were housewives (46%) and 40.7% were daily wagers. Majority were from low socioeconomic class (38.1% from class 4 and 20.4% from class 5)

Table 2.Treatment * Quality of life (QOL), n=113

		QOL			Total	Pearson chi-square test
		Average QOL	Below average QOL	Significantly poor QOL		P value
Treatment	Radiotherapy	14(28.6%)	29(59.2%)	6(12.2%)	49(43.4 %)	
	Chemotherapy	11(17.2%)	32(50%)	21(32.8%)	64(56.6 %)	Chi square=6.973. df = 2 P =.031
Total		25(22.1%)	61(54%)	27(23.9%)	113(100 %)	

In the present study we didn't get any participant with significantly high or above average quality of life. Majority of the patients, i.e. 61(54%) were leading below average quality of life and 27 patients (23.9%) were having significantly poor quality of life. only 25 patients (22.1%) had above average quality of life.

Out of 113(100%) participants, 49(43.4%) were undergoing radiotherapy and 64 (56.6%) were undergoing chemotherapy. Among patients undergoing radiotherapy, 14%, 59.2% and 12.2% were leading average, below average, and significantly poor quality of life respectively. Among chemotherapy group, majority (54%) had significantly poor quality of life. 50% were leading below average quality of life and only 17.2% had average quality of life. Patients undergoing radiotherapy had a significantly better quality of life than those undergoing chemotherapy (p=.031).

Table.3. Different domains of QOL and theirs scores

Factors	treatment	score				Pearson chi -square test
		4	3	2	1	
FACTOR 1	RT	10(20.4%)	21(42.9%)	12(24.5%)	6(12.2%)	Chi square= 8.330 P=.04
	CT	7(10.9%)	16(25%)	27(42.2%)	14(21.9%)	
FACTOR 2	RT	5(10.2%)	12(24.5%)	17(34.7%)	15(30.6%)	Chi square=.567 P=.904
	CT	7(10.9%)	17(26.6%)	18(28.2%)	22(34.3%)	
FACTOR 3	RT	20(40.8%)	15(30.6%)	8(16.3%)	6(12.3%)	Chi square=11.633 P=.009
	CT	12(18.8%)	14(21.9%)	18(28.1%)	20(31.2%)	
FACTOR 4	RT	8(16.3%)	16(32.7%)	14(28.6%)	11(22.4%)	Chi square=1.374 P=.712
	CT	14(21.9%)	19(29.7%)	21(32.8%)	10(15.6%)	
FACTOR 5	RT	15(30.6%)	18(36.7%)	12(24.5%)	4(8.2%)	Chi square=9.564 P=.023
	CT	9(14%)	16(25%)	27(42.2%)	12(18.8%)	

FACTOR 6	RT	8(16.3%)	13(26.5%)	19(38.8%)	9(18.4%)	Chi square=.126 P=.989
	CT	12(18.7)	17(26.6%)	24(37.5%)	11(17.2%)	
FACTOR 7	RT	22(44.9%)	18(36.7%)	6(12.3%)	3(6.1%)	Chi square=14.811 P=.002
	CT	14(21.9%)	17(26.6%)	28(43.7%)	5(7.8%)	
FACTOR 8	RT	20(40.8%)	17(34.7%)	8(16.3%)	4(8.2%)	Chi square=15.521 P=.001
	CT	10(15.6%)	16(25%)	21(32.8%)	17(26.6%)	
FACTOR 9	RT	3(6.1%)	7(14.3%)	18(36.7%)	21(42.9%)	Chi square=6.973. P=.042
	CT	11(17.2%)	13(20.3%)	27(42.2%)	13(20.3%)	
FACTOR 10	RT	21(42.8%)	16(32.7%)	9(18.4%)	3(6.1%)	Chi square=17.082 P=.001
	CT	11(17.2%)	14(21.9%)	21(32.8%)	18(28.1%)	

Patients undergoing radiotherapy showed better score in most of the domains of quality of life. Physical well being, social well being,mobility,self sufficiency and self adequacy (factors 1,3,5,7,8,9 and 10) were better in radiotherapy group compared to chemotherapy group($p<0.05$). However psychological well being, confidence and pain experienced showed no significant difference (factors 2, 4, and 6).

Table 4. Chemotherapy cycle * QOL ,n=64

		QOL			Total	Pearson chi-square test
		Average QOL	Below average QOL	Significantly poor QOL		P value
Chemotherapy cycle	<3 cycles	3(4.7%)	9(14.1%)	13(20.3%)	25(39.1%)	Chi square=6.854
	>_3 cycles	8(12.5%)	23(35.9%)	8(12.5%)	39(60.9%)	df=2 p=.032
Total		11(17.2%)	32(50%)	21(32.8%)	64(100%)	

Out of 64(100%) patients undergoing chemotherapy, 25(39.1%) had undergone less than 3 cycles and 39(60.9%) had undergone 3 or more cycles. Those patients who had taken 3 or more cycles had significantly better quality of life than those who had taken less than 3 cycles($p<0.05$)

IV. Discussion

In cancer care, "global well-being" including physical, emotional, mental, social, and behavioral components is the main surrogate objective apart from concluding cure [(9)]. Over the last decade, clinicians have accepted that while survival and disease-free interval are critical factors for cancer patients, overall quality-of-life is fundamental to understand the impact of cancer upon the patient especially when the aims of treatments are palliative rather than curative [(10)]

In our study, we observed that none of our participants had above average or significantly higher quality of life. Most of them had a below average and poor quality of life. Similar results were found in a study conducted in tertiary care hospital of south India. [(11)].Our study was conducted in an oncology clinic among those cancer patients who were undergoing chemotherapy or radiotherapy and we found that those patients who were undergoing chemotherapy had a significantly lower quality of life compared to those undergoing radiotherapy. A similar study by Awring M. Raoof, et *al* [(12)] showed the same results.

By analyzing each domain of quality of life separately in both groups, we found that patients undergoing radiotherapy showed better score in most domains. Radiotherapy had no significant effect on their overall physical well being and working capacity. On the other hand physical well being of patients undergoing chemotherapy was unsatisfactory. It may be because the toxicity and intensity of chemotherapy treatment

regime and their adverse effects like nausea, vomiting, tiredness, alopecia were interfering with their daily activities, mobility and self sufficiency. In radio therapy patients such side effects are comparatively less and are not severe enough to hamper their routine activities and mobility. Psychological well being was similar in both the groups. Many patients from both the groups were having sadness and depression and were worried about their reduced economic status. A study by Chaturvedi S [13] also showed that psychological domain had no correlation with mode of treatment of cancer.

Majority of patients undergoing chemotherapy were not satisfied with the external and family support they were getting but social well being in radiotherapy patients was satisfactory. Pain was experienced by both the groups and chemotherapy patients experienced more pain but the difference was not statistically significant. We also observed that patients undergoing radiotherapy were more optimistic compared to patients undergoing chemotherapy.

Present study also showed that the patients who had undergone more than 3 cycles of chemotherapy were having a better quality of life. Ali Dehkordi [14] also found in a study among cancer patients that chemotherapy cycles improved patients 'quality of life. This could be because, the symptoms related to cancer gets better with successive cycles and also patients get adjusted to the treatment and their side effects. In another study done in Sweden [15] also, it was seen that chemotherapy improved quality of life in biliary and pancreatic cancer patients. Contradictory to our findings, a study conducted in US [16] among cancer patients undergoing chemotherapy showed that the quality of life of cancer patient did not improve with chemotherapy. It could be because the sample population selected was end stage cancer patients who were near death.

In our study participants were from different ethnic, educational and religious background from both rural and urban areas .The findings of our study showed that there was no correlation between quality of life and socio-demographic characteristics like age, gender, marital status socioeconomic class, education , occupation etc. Studies conducted by dehkordi, [14] Vedat I [17] and Nematollahi [18] also showed similar results.

V. Conclusion

The most commonly used treatment method chemotherapy is more troublesome for patients compared to radiotherapy due to its side effects especially in the beginning of treatment as patients take time to get adjusted with the treatment and its side effects. Though cure and survival are the main aims of cancer treatment physicians should also focus more on patient's quality of life to offer a better productive life to them

Acknowledgement

The authors would like to thank the doctors and staff members of oncology department, Rajendra Institute of Medical Sciences, Ranchi, Jharkhand for their kind support in this research work.

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