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Effect of Pain Control on Quality of Life in Cancer Patients

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Abstract: ***There has been growing importance being placed on symptom control and the quality of life (QOL) in patients with cancer, with the aim to provide comprehensive care, and pain is one of the most common distressing symptoms. In this study, 299 enrolled patients' QOL were assessed by FACT-G questionnaire before and after pain control.221patients had pain control in this study, and their FACT G scores showed a statistically significant improvement from baseline. Advanced disease stages, poor performance status, older age and lower socioeconomic status were associated with worse scores in both pain and QOL at baseline.***

Keywords: QOL, Pain management, Cancer

1. Introduction

As a chronic and debilitating illness, Cancer has a huge burden on the people who suffer from it and the society itself at large. Even though there are many modalities used either alone or in combination to combat it like surgery, radiation and chemotherapy, the 'quality of life' (QOL) of the cancer patient after these treatments is a major concern.
Comprehensive cancer care mandates the proper control of symptoms along with the control of the primary disease. Such comprehensive care helps the patient to adhere to his treatment and reap benefits from it. Pain is a frequently reported symptom in patients with cancer and a sizable proportion present with severe pain [1–3]. Despite the existence of guidelines from leading sources and organizations regarding management of pain, including WHO, under treatment is still frequent, especially in countries with limited resources. These issues are often neglected and need to be tackled from the start of management of illness.

The Indian problem is unique in the sense that there are inadequate facilities for the management of cancer and its symptoms in its large population. This is also compounded by the larger proportion of illiterate, economically weak sections in the society, affecting access to care. With adequate symptom control, it is possible to improve the QOL in patients and pain being one of the most common symptoms reported among all cancer patients, we wanted to assess the magnitude of impact on QOL after pain

Objective

To assess the changes in Quality of Life of cancer patients after pain control.

2. Materials and Methods

This study was conducted in the Palliative Care Unit of our institution. The design of the study was a prospective observational study with a before and after comparison. The patients were included in the study if they were between 18-75 years age, had a biopsy proven malignancy and an ECOG performance 0-3. They were excluded if they had cognitive impairment or a psychiatric disorder. 299 patients, attending the palliative care outpatient department, were included for this study, subject to inclusion and exclusion criteria, using simple consecutive sampling.

All patients were enrolled in the study after getting institute ethics committee approval and taking the informed consent. Enrolled patients are invited to complete Functional Assessment of Cancer Therapy FACT-G questionnaire – a validated version in the local language, with the aid of a trained palliative care social worker. Pain was assessed by the Numerical Rating Scale (NRS), designated in our study as the most severe pain in the past 24 hours. The scale ranged from 1 to 10 with 10 being the most severe pain. Data collection occurs at the time of registration in palliative care. Eastern Cooperative Oncology Group (ECOG) performance status was recorded for each patient. Sociodemographic and clinical details were collected. They were subsequently assessed with the same questionnaire (FACT-G) after control of pain for assessing the change in QOL. Stable pain is taken as a pain numerical rating score of less than 3 without any breakthrough pain. Statistical analyses were done using SPSS v21.

3. Results

The mean age of the patients was 50.4 years (S. D =10.4).150 (50.8%) patients were male, 149 (49.2%) patients were female.91.6 % are married and living with spouse. Most of the enrolled patients belonged to low-income groups (57.5% had a monthly income of less than 2000 INR), were uneducated (51.2%) and were engaged in unskilled labour (52.8%). Most common malignancy noted in our study was head and neck carcinomas which included 114 patients (38.1%). Clinical and Demographic details of 299 patients have been summarized in Table 1.

Table 1: General Patient Characteristics

Clinical/ Demographic Factors	n = 299	%
Gender		
Male	150	50.2
Female	149	49.8
Educational Qualifications		
Illiterate	153	51.2
Primary Education	78	26.1
Secondary Education and above	68	22.7
Occupation		
Unemployed	61	20.4
Unskilled Labourer	158	52.8
Skilled Labourer	54	18.1
Professional/Self Employed	26	8.7
Marital Status		
Unmarried/Widower	25	8.4
Married	274	91.6
Income (Per Month)		
<2000 INR	172	57.5
2000 to 4000 INR	72	24.1
>4000 INR	55	18.4
Primary Cancer Diagnosis		
Head and neck cancers	114	38.1
Gynaecological cancers	44	14.7
Gastrointestinal cancers	56	18.7
Breast cancer	28	9.4
Lung cancer	27	9
Other cancers	30	10
Stage of the disease*		
I	3	1
II	33	11
III	69	23.1
IV	187	62.5
ECOG Performance Status		
1	99	33.1
2	127	42.5
3	73	24.4
Time lag from Diagnosis to Referral to Palliative Care		
</= 6 months	186	62.2
> 6 months	113	37.8
Previous Treatment History		
Best Supportive Care	28	9.4
Previous Surgery done	96	32.1
Previous Chemotherapy given	189	63.2
Previous Radiotherapy given	201	67.2
Bone Metastasis		
Present	41	13.7
Absent	258	86.3
Intent of Treatment Given		
Radical	130	43.5
Palliative	169	56.5
Other Co-Morbidities		
DM	21	7
HTN	20	6.7
Others	5	1.7
Addictions		
Tobacco	115	38.5
Alcohol	44	14.7
No Addictions Reported	178	59.5

*Data missing for Stage of disease for 7 patients.

Nearly 64% of the patients presented to palliative care with metastasis. Bone metastasis was present in 41 (13.7 %) patients. Squamous cell carcinomas were the most common histology accounting for 55.2 % of the cases followed by adenocarcinomas, 37.1 %. The average time lag from diagnosis of cancer to palliative care referral was 10.5 months. The intent of primary treatment was palliative in 169 patients comprising 56.5% of the population.143 patients were undergoing chemotherapy or radiotherapy at the time of registration in palliative care (47.8%).

Quality of life, measured by FACT G questionnaire, at the time of registration in palliative care was found to significantly vary with respect to age, income, occupation, education, time lag from diagnosis to palliative care, the presence of bone metastasis, stage of disease, ECOG performance status by using unpaired t test. The results are shown in Table 2.

Pain characteristics were noted down during first palliative care visit as a baseline.193 patients (64.5%) reported that their pain was moderate in intensity based on the numerical rating scale and 32.4 % presented with severe pain. Median pain score at registration was 7 (Range 2-10). Pain at registration and FACT-G overall score at registration showed significant negative correlation with Spearman Coefficient (ρ=-0.738; p<0.001). Pain control was achieved in 221 patients (73.9%) after palliative care intervention and required an average of 3 OPD visits to be made (Range 1-8 visits). The major reasons for loss to follow up in our study in this study include progression of symptoms leading to inability to attend OPD clinic, unwillingness to continue treatment, financial or logistic issues and lack of family support.

Table 2: Comparison of Patient Quality of life (Total FACT-G) at registration in relation to sociodemographic and clinical factors

Comparison of QOL	Groups (n)	Mean QOL with SD	
Age*	<60 years (234)	46.04	12.3
	≥60 years (65)	32.18	14.3
Gender	Male (150)	42.93	13.18
	Female (149)	43.13	14.78
Marital Status	Married (274)	43.2	13.84
	Others (25)	41.6	15.62
Monthly Income*	<2000 INR (172)	38.82	13.3
	>2000 INR (127)	48.73	12.8
Occupation*	Unemployed/ Unskilled (219)	39.56	12.8
	Professional/Skilled (80)	52.53	12.6

Comparison of	Groups (n)	Mean QOL	
Education*	Illiterate & Primary (231)	40.95	13.7
	Secondary & above (68)	50.1	12.7
Time lag from diagnosis to Palliative Care Referral*	<6 months (144)	48.09	13.8
	>6 months (155)	38.33	12.4
Stage*	Early I, II (36)	55.03	14.8
	Advanced III, IV (256)	41.31	13.1
ECOG status*	<3 (226)	46.49	32.3
	=3 (73)	32.32	14
Bone metastasis*	Present (41)	38.95	13.07
	Absent (258)	43.68	14.03

*Statistically significant difference, p-value<0.05.

The FACT-G QOL scores at registration showed improvement after pain control. The findings showed statistically significant improvement in all domains of the FACT G scale by paired t test, as shown in Table 3, using only patients who had pain control (n=221). The largest improvement was noted in FACT-G Physical Well Being Scale.

Table 3: Changes in Quality-of-Life Scores (From FACT G Scale) after pain control

QOL	Mean QOL Score at Registration with SD		Mean QOL Score after Pain Control with SD	
FACT-G Total*	44.07	14.13	56.58	17.35
Physical Well Being*	13.40	4.46	17.3	4.72
Social Well Being*	11.21	4.75	12.28	5.02
Emotional Well Being*	11.36	4.16	13.96	4.45
Functional Well Being*	8.12	4.32	13.04	6.11

*Statistically significant difference, p-value<0.05.

Median follow-up duration for this study was 5.5 weeks (Range 1-40 weeks). The mean starting dose for morphine prescribed was 6.95 mg 4th hourly (SD= 2.44). The mean dose for pain control in our study was found to be 17.5 mg 4th hourly (SD= 13.46). The maximum morphine dose required for a patient in our study was 95mg 4th hourly. In addition, 78 patients (26%) also required adjuvant medications like steroids and neuroleptics for adequate pain control.

4. Discussion

299 patients were enrolled to the study, of which 221 patients had achieved pain control. In our study, almost one-third of the patients presented with severe pain due to the advanced nature of the disease. The patients enrolled included those on curative as well as palliative treatments. Our results are similar to the retrospective review by Van Den Beukenet al [1] and similar Jain etal [2] in Indian population, which showed a high prevalence of severe cancer pain. The numbers are even higher in our institution as we serve a rural population whose access to adequate analgesic medication/ specialist palliative care early in the course of illness are limited or non-existent.

In our study, pain control was possible in 221 patients (73.9 %) after referral to our palliativecare unit and required an average of 3 OPD visits to be made. Cancer pain is unique in the sense that even patients who are on stronger opioids will report breakthrough pain and end of dose pain with frequent usage, requiring round the clock IR morphine to control the breakthrough pain. Our study also shows a similar pattern and reinforces that multiple palliative visits and continuity of care are essential for symptom control. Pain control could not be achieved in all patients, as in other studies

In a study on 520 cancer patients in Thailand [4], a reduction in pain scores increased QOL (FACT-G). Our study had showed statistically significant increases among all domains of FACT G score with reduction in pain score. These improvements in Health Related QOL scores, however small, are clinically meaningful [5]. The minimally important differences (MID) for FACT-G in breast cancer patients was noted to be 5-6 points [6]. While our study did have a different population of cancer patients, the difference in FACT-G overall score after pain control was around 12 points. However it must be noted that in other western studies, the general QOL scores are higher than our population, as in this study of older patients with cancer using FACT-G [7], hence direct comparisons cannot be made. At the same time, adapting to disease, response shift, clinical improvement with active oncologic intervention may have also contributed to the outcomes in our study.

In our study, patients aged > 60 years old were shown to have a poorer quality of life at registration. Older patients may be more likely to have poor social support, issues with dependency, etc which can independently affect their quality of life [8]. Our study also has similar findings to the ones published by Jacob et al [9], which showed that advanced cancer patients, especially lower socioeconomic groups and minorities had lower scores on HRQOL at baseline as measured by FACT G Questionnaire. We had used a cutoff of Monthly Income <2000 in our study, per our institution policy. We acknowledge that this comparison cannot be generalized to the population at large, or a larger comparison to wealthier nations, however this can be similar to populations with poverty or wide disparities in wealth. Majority of the study population came from rural areas with lower socio-economic background; hence a comparison with wealthier counterparts is not possible in this study. Poor Performance status was associated with poor Total FACT G scores. A similar study, albeit with different questionnaires [10] also showed that Poor Performance status was associated with poorer QOL outcomes. They also showed an improvement in QOL scores with improvements in Brief Pain Inventory (BPI) scores.

In our study, Pain and QOL at registration showed significant negative correlation. This has been noted in Indian population before in a cross-sectional study. Their study used a local language version of FACT-G questionnaire and confirmed its validity in the Indian setting. They had suggested that QOL and performance status of patients showed a positive correlation and that, pain and QOL show significant negative correlation [11].

5. Limitations

As mentioned earlier, adapting to disease, response shift, clinical improvement with active oncologic intervention may have also contributed to the outcomes in our study. Not all of the patients initially enrolled had adequate pain control after palliative care clinic referral. A sizable proportion could not follow up in the clinic for various reasons including disease progression, financial constraints, lack of family support, etc. The population in this study was also skewed towards illiterate or unskilled laborer from poor socio-economic background, and done in a single center, limiting its generalizability to the population at large.

6. Conclusion

Pain control alone leads to a statistically significant and clinically meaningful change in the Quality of life of the patient. Opioid availability for pain controlis thus the need of the hour, with more focus on access to affordable, effective medications for pain control. With some patients, there is a need for providing home-based palliative care to care for the patients who are unable to attend due to various reasons. Routine home-care visits by the palliative care team will go a long way in ensuring that patients have continuity of care. Introduction of specialist palliative care in early stages may alleviate the symptoms associated with cancer possibly leading to a better patient Health Related QOL [12], but is demanding and should be explored in a resource-strained country like India.

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