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PROSPECTIVE OBSERVATIONAL STUDY ON PAIN MANAGEMENT IN PATIENTS WITH CANCER

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ABSTRACT

Cancer is a major public health problem worldwide. Pain is among the most common symptoms in patients with cancer. Hence we aimed to assess cancer pain interference, and adequacy of cancer pain treatment in the oncology ward of Mysore teaching hospital. A prospective observational analysis of cancer cases admitted to k r hospital over a period of 6 month from November 2019 to April 2020 was carried out with a sample size of 120 patients demographic data were collected by using patients data collection form and severity and interference on functioning was carried out by using brief pain inventory short form and numeric pain rating scale. Data obtained was analyzed by using spss version 20. In our result majority of the patients were female (n=72) and age group was 31-45 yrs. Breast cancer (n=44, 36.7%) was the major type of cancer and stage 2 (n=47) was the major stage of cancer and followed by stage 3 (n=37). Most of the patients shows nociceptive type of pain (n=64) and moderate pain (n=51). 51 patients shows mild pain interfere on functioning. Non opioid +_ adjuvant was the commonest analgesics prescribed for the pain management. ie, paracetamol and/or diclofinac (n=61, 50.8%) followed by weak opioid + non opioid +_ adjuvant (n=38, 31.7%). 63 (52.5%) were receiving inadequate cancer pain treatment. Therefore it is vital to anticipate and assess pain of the cancer patients as routine clinical practice to optimize analgesic therapy and to identify and overcome barriers to adequate pain management.

KEYWORDS: Cancer, Types of cancer pain, Pain management, Analgesics, Adequacy of cancer pain management, Barriers for pain management.

INTRODUCTION

Cancer is a major public health problem worldwide, it is an increasing public health burden. Cancer patients shows somany symptoms, among this pin is the most common symptom in patients with cancer, due to either the cancer itself (tumor or metastases) and/or the cancer treatment (surgical, chemotherapy, radiotherapy and others)[1]. Cancer pain is more common in patients with advanced or metastatic cancer.[2] Nearly half of cancer patients report interference in daily activity caused by pain.[3] Cancer related pain is often multidimensional involving noci-ceptive and neuropathic pain and may affect many aspects of a person's life, including their psychosocial and spiritual health. The psychological, social, and spiritual factors can affect both the patient's pain experience and it's clinical manifestations. Hence, achieving adequate pain relief among cancer patients involves a proper assessment of psychosocial, spiritual and physical pain issues matched with an individualized treatment plan involving pharmacologic, non pharmacologic and procedural therapies when appropriate.[4,5] Pain even when treated, is often severe enough to impair their ability to function.[6] Despite availability of several established guidelines for the

management of cancer pain, many cancer patients frequently receive inadequate pain treatment and under treatment is well documented.[7,8] Patients may impede their own treatment due to misconceptions about analgesics and their side effects, non adherence to treatment regimens, poor communication of their pain and their concerns about pain to health care providers. Other barriers include inadequate assessment of pain and pain management, patients reluctance to report their pain or to give a pain score and inadequate knowledge of pain management of professionals.[9]

Pain is a common symptom among cancer patients. Adequate pain assessment and management are critical to improve the quality of life and health outcomes in this population. In this project, we try to provide a frame work for assessment (types & severity) and management of cancer related pain by summarizing the evidence for the importance of controlling pain and the barriers to adequate pain management.

MATERIALS AND METHODOLOGY

A prospective observational study conducted at Mysore

medical college and research institute, Mysuru. The study was carried out in patients of oncology department, patients with cancer. The study duration was 6 months, from November 1st 2019 – April 30th 2020.

Ethical approval was obtained from the institutional ethical committee of Mysore medical college and research institute and associated hospital, Mysuru.

Subject of both sex and age above 18 years were included into the study over the period. The patients who were referred to the higher centres were excluded from the study. The data were collected from the case record of patients and their bystanders respectively after getting informed consent. A specially designed data collection form was devised for the study. All relevant data of the enrolled patients including demographic details; clinical data such as diagnosis, stages and site of cancer, type of pain,

severity of pain, past medical history, past medication history, comorbidities; therapeutic data such as drug name, dose, frequency, route and duration of administration was collected from various data sources. A questionnaire based interview using brief pain inventory short form (BPI-SF) and neumeric pain rating scale were used to collect datas about pain severity and pain interference with functioning.

After collection, all data were checked thoroughly for completeness and errors. All enrolled patients were reviewed on the basis of treatment to identify patient drug adequacy. Results were analyzed based on the study objectives using suitable statistical methods. Statistical package for social science (SPSS) was used to analyze the data. The data's were expressed as mean, frequency and percentage. ANOVA (p), Chi Square and confidential interval (CI) were used to identify significance.
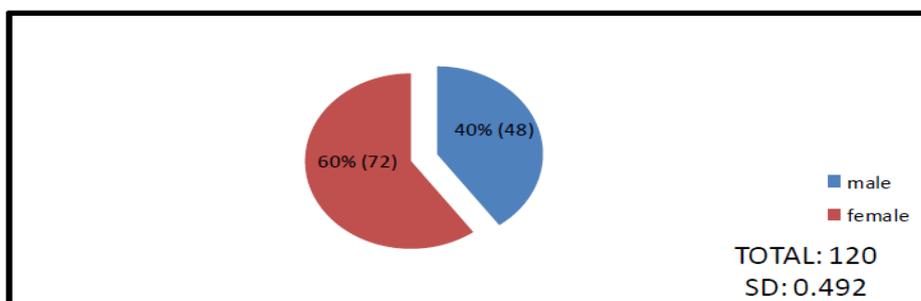
RESULTS

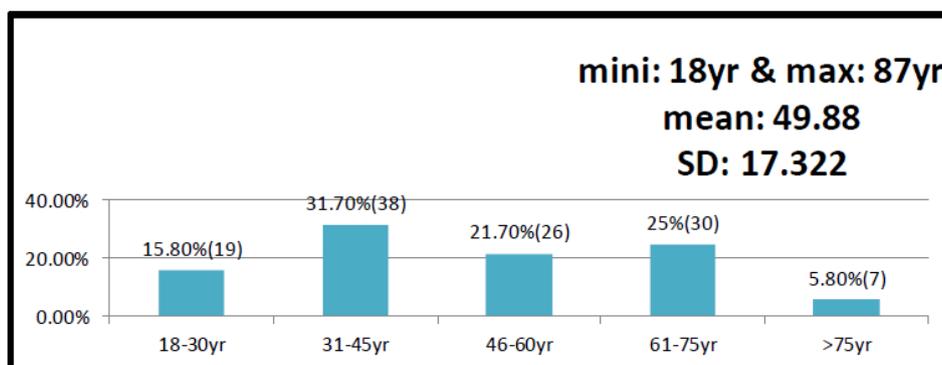**Figure 1: Gender distribution in the study population.**

Figure 2: Age categorization in the study population.

Table 1: Age categorization in the study population.

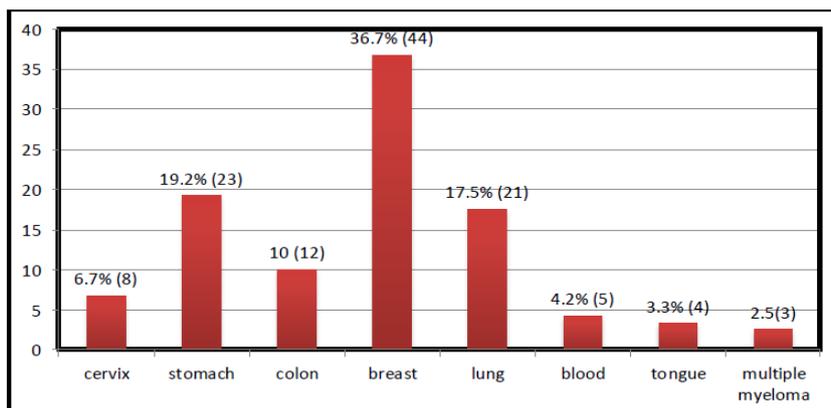| Gender	Patient age group(years)	Number of patients (n=120)	Percentage	Mean
Male	18-30	6	5%	23.5
	31-45	15	12.5%	39.27
	46-60	7	5.83%	52.79
	61-75	15	12.5%	67.2
	>75	5	4.16%	80.6
Female	18-30	13	10.83%	24.85
	31-45	23	19.16%	39.22
	46-60	19	15.83%	55.79
	61-75	15	12.5%	68.33
	>75	2	1.66%	82.5

Figure 3: Site of cancers in study population.

Table 2: Site of cancer according to gender.

Gender	Site	Frequency	Percentage
Male	Stomach	15	12.5
	Colon	7	5.83
	Breast	5	4.16
	Lung	16	13.3
	Blood	2	1.66
	Tongue	3	2.5
Female	Cervix	8	6.66
	Stomach	8	6.66
	Colon	5	4.16
	Breast	39	32.5
	Lung	5	4.16
	Blood	3	2.5
	Tongue	1	0.83
	Multiple myeloma	3	2.5

Table 3: Stage of cancer in study population.

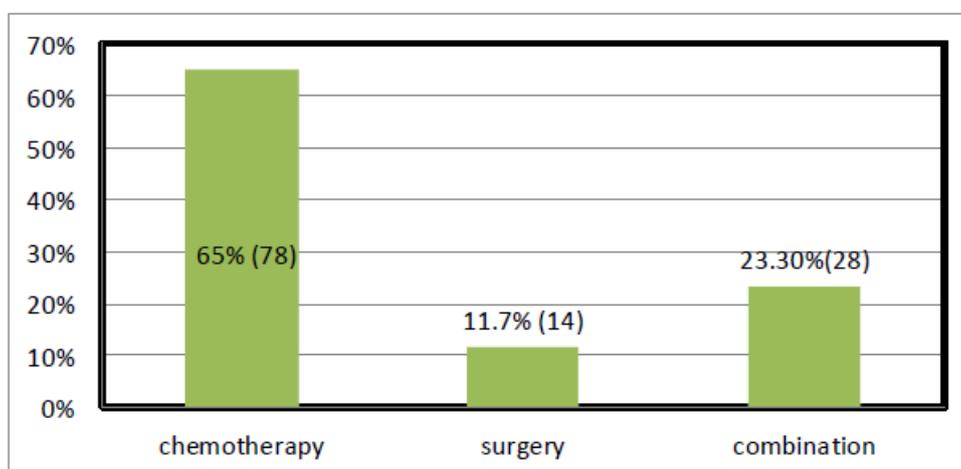| Stages	Frequency	Percentage
Stage 1	29	24.2%
Stage 2	47	39.2%
Stage 3	37	30.8%
Stage 4	7	5.8%

Figure 4: Hx of cancer treatment modality in study population.

Table 4: Types of pain in study population.

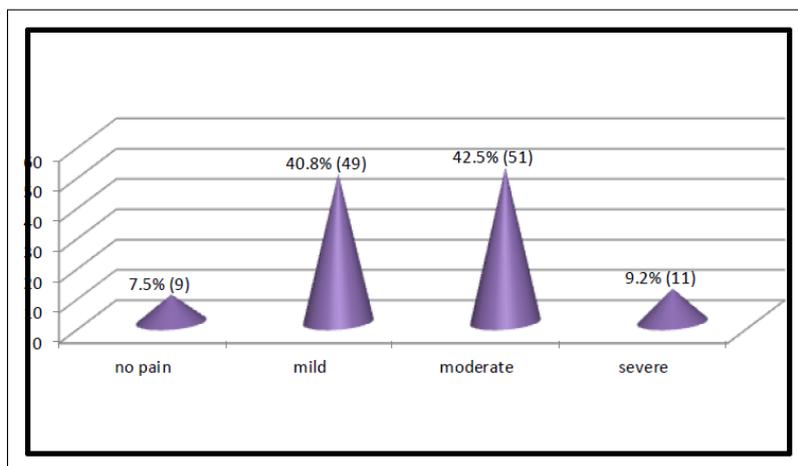| Pain type	Frequency	Percentage
No pain	9	7.5%
Nociceptive	64	53.3%
Neuroceptive	8	6.7%
mixed	39	32.5%

Figure 5: Severity of the pain in study population.

Table 5: severity of pain in study population.

	Nociceptive	Neuropathic	Mixed
Mild	47		2
Moderate	17	4	30
severe	7	4	

Table 6: Pain severity according to stages of cancer.

Stages	No pain	Mild	Moderate	Severe
Stage 1	9	18	2	
Stage 2		30	17	
Stage 3		1	31	5
Stage 4			1	6

Table 7: Pain occurrence in study population.

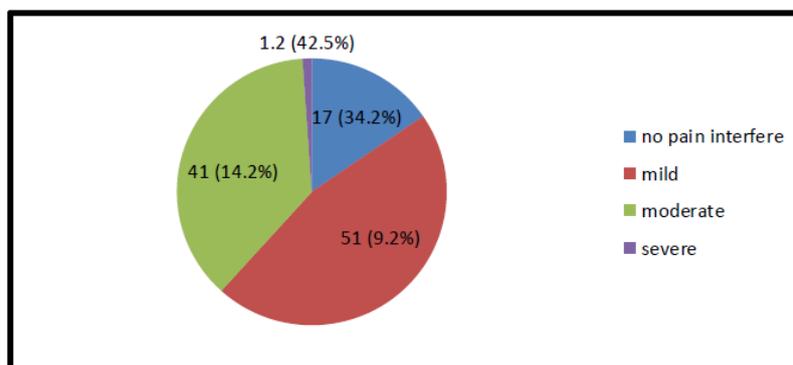| Occurrence	Frequency	Percentage
Persistence	20	16.7%
Comes	44	36.7%
Goes	47	39.2%

Figure 6: pain interference on functioning.

Table 8: Pain interference according to cancer stage.

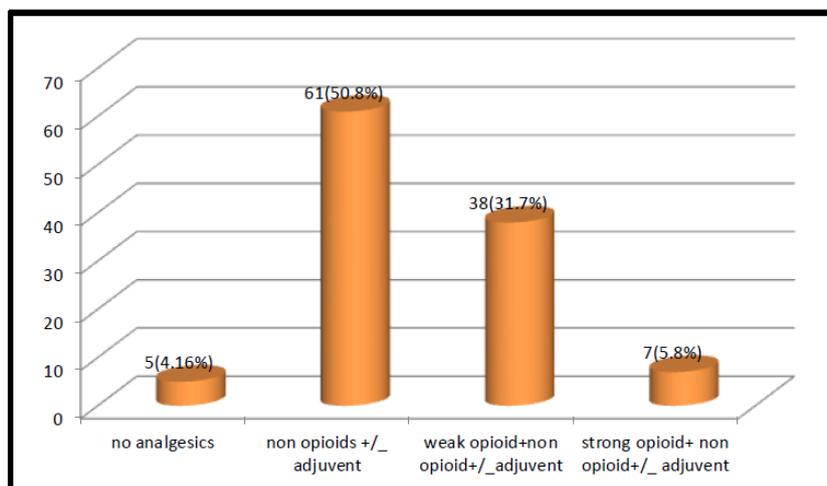| Stages	No pain	Mild	Moderate	Severe
Stage 1	13	13	3	
Stage 2	4	31	12	
Stage 3		7	25	5
Stage 4			1	6

Figure 7: Types of analgesics used in study population.

Table 9: Names of drugs used in study population.

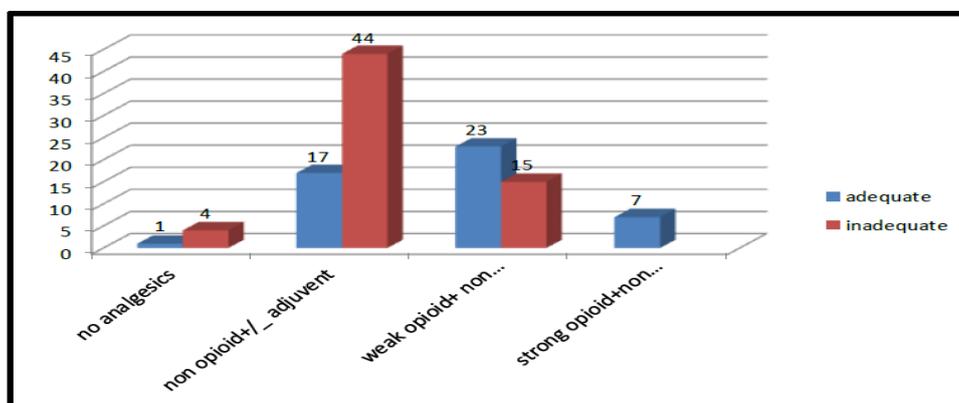| Non opioids	Weak opioids	Strong opioids	Adjuvant
Paracetamol	Tramadol	Morphine	
Aspirin		Tramadole 21	
Diclofenac			

Figure 8: Adequacy of pain management according to analgesics used.

Table 10: Relationship between predictive variables and adequacy of cancer pain management.

Variables		Adequacy of cancer pain management		Chi- square value	P value
		Adequate	Inadequate		
Gender	Male	20	25	0.137	0.714
	Female	27	39		
Education	primary	17	28		
	secondary	16	19	2.434	0.497
	Tertiary	-	2		
	Illiterate	14	15		
Stages	Stage 1	7	13		
	Stage 2	14	33		

	Stage 3	22	15	8.545	0.035
	Stage 4	4	3		
Pain Severity	Mild	18	31		
	Moderate	23	28	1.461	0.489
	Severe	6	5		
Pain types	Nociceptive	17	47		
	Neuropathic	5	3	15.423	0.001
	Mixed	25	14		
Analgesics	No analgesics	1	4		
	Non-opioid +/- adjuvant	17	44		
	Weak opioid + non opioid +/- adjuvant	23	15	16.797	0.001
	Strong opioid + non opioid +/- adjuvant	7	-		
Forms of pain relieving	Tablet	17	42		
	IV infusion	1	-	11.111	0.010
	IV injection	27	18		
	Spinal injection	1	-		

Figure 1 shows that out of 120 patients 40% were males (n=48) and 60% were females (n=72) table and figure 2 shows the 5 different age groups of patients in that group of 31-45 years were the most frequent in number and >75 year group was less in numbers. In figure number 3 most of the patients have breast cancer. Table number 2 shows site of cancer according to gender. most of the male patients shows lung and stomach cancer but female patients have breast cancer. Table number 3 shows stages of cancer; most of the patients have cancer stage 2. Figure number 4 shows history of cancer treatment modality. Table number 4 shows type of cancer pain in study population, among these nociceptive pain was the mostly seeing pain type. Figure number 5 and table number 5 severity of pain and pain severity in accordance with pain type and stages of cancer. Table number 7 illustrates the occurrence of pain in study population. In that "comes" were seen mostly. Figure number 6 and table number 8 shows pain interference on functioning and it in accordance with stages of cancer. 103 of 120 patients with pain (85.83) experienced interference of pain with functioning. Figure number 7 and table number 9 shows type of analgesics prescribed to treat cancer pain and name of drug prescribed. In that non opioid +/_ non adjuvant were the most commonly prescribed analgesics (n=61). Figure 8 and table 10 adequacy of cancer pain treatment in accordance with type of analgesics prescribed and relationship between predictive variables and adequacy of cancer pain management. from these we found that cancer stages, type of pain, type of analgesics prescribed and forms of pain relieving have association with adequacy of cancer pain treatment.

DISCUSSION

The present study set out to analyze the management of pain in patients with cancer in a tertiary care teaching hospital. It also aims to identify the severity of pain , pain interference on functioning and types of analgesics are prescribed to treat cancer pain.

120 cancer cases were reviewed, among these we found that female patients (60%, n=72) were predominant while comparing to male patients (40%, n= 45) with an SD = 0.492. Out of the total study population, 31.7% (n=38) of patients belonged to the age group 31-45 years (male, n=15, 12.5% & female, n=23, 19.16%) followed by the age group 61-75 years (n=30, 25%, male n=15 & female n= 15 (12.5%)) and 46-60 years (n=26, 21.7%). The mean age of the population were found to be 49.88 years (SD +/- 17.322). The minimum age of the population was 18 years and the maximum age were 87 years. These result point out the maximum cancer incidence are seen in younger population. The education status revealed that 24.2% of the patient were uneducated followed by 39.2% primary educated and else had secondary (34.2%) and higher or tertiary (2.5%) education.

Breast cancer (n=44, 36.7%) was found to be the major type of cancer followed by cancer of stomach (n=23, 19.2%) and cancer of lung (n=21, 17.5%). Breast cancer were commonly seen in female patients (n=39) than male patients (n=5). But cancer of lung (male, n=16,/ female, n=5), cancer of stomach (male, n=15/ female, n=8) and cancer of colon (male, n=7/ female, n=5) were commonly seen in male than female. Chi-square analysis showed that gender had a significant influence among various types of cancer with a p-value 0.000 (chi-square value- 43.644). The cancer has 4 stages among these stage 2 (39.2%, n=47) were the mostly seen cancer stage in study population followed by stage 3 (30.8%, n=37). In our study, the rarely seeing cancer stage is stage 4 (5.8%, n=7).by analyzing history of cancer treatment modality, we found that most of the patients belonged to the chemotherapy (65%, n=78) followed by the combination (both surgery & chemotherapy- n=28, 23.3%). 11.7% (n=14) patients

belonged to the surgical treatment.

Our study revealed that total of 111 (92.5%) cancer patients experienced pain with varying degree of severity. In our study population, most of the patients have nociceptive type of pain (n=64, 53.3%) followed by mixed (both nociceptive and neuropathic, n=39, 32.5%). Out of 111 patients, 51 patients (42.5%) shows moderate pain and 49 patients (40.8%) shows mild pain, 9.2% (n=11) patients have severe pain. Patients with both nociceptive and neuropathic pain mainly shows moderate pain (n=30), but patients with only nociceptive pain mainly shows mild pain (n=47). Patient with stage 3 cancer mainly shows moderate pain (n=31) but stage 2 cancer patients shows mild (n=30) and moderate (n=17) pain. Patients with stage 4 cancer mainly shows severe pain (n=6). The severity of pain interference on functioning quality of the cancer patients was also assessed using the multidimensional pain assessment tool (BPI) and 103 of 120 patients with pain (85.83%) experienced interference of pain with functioning. Out of 103 patients with pain interference, 41(39.8%) patients reported that pain posed moderate interference with their functioning and 51 (49.5%) patients reported with mild interference on their functioning. Cancer stages have influence on pain interference on functioning. In our study we found that, cancer patients with stage 3 & stage 4 shows moderate & severe pain interference on their functioning.

According to our study, the overall analgesics utilization was non-opioids +/- adjuvants like paracetamol, aspirin and diclofenac (n=61, 50.8%) followed by weal opioid (like tramadol) + non opioid +/- adjuvant (n=38, 31.7%). Strong opioids (like morphine, tramadol 21) are the analgesics prescribed rarely in this study population (n=7, .5.8%). Based on the assessment of factors affecting the adequacy of cancer pain management, a higher proportion shows inadequate pain management, 56.8% (n=63/111) was observed in cancer patients. Cancer pain was not adequately controlled in patients (80%) for whom no analgesics was prescribed. Upon descriptive analysis regarding the adequacy of cancer pain management, frequency revealed that pain was more likely to be managed adequately in patients taking weak opioid + non opioid +/- adjuvants (n=23). Based on the chisquare value and p value, the adequacy of cancer pain management have relationship or association with stages of cancer (chi-square value = 8.545, p value = 0.035), types of pain (chi-square value = 15.423, p value = 0.001), types of analgesics prescribed (chi-square value = 16.797, p value = 0.001) and forms of pain relieving used (chi-square value = 11.111, p value = 0.010). an increase in the number of analgesics prescribed was positively associated with adequacy of pain management. However the patients with mild or moderate pain &/or metastasis and those who have attended primary or secondary school education we found to be association with inadequate pain management. whereas, the number of analgesics prescribed and patients prescribed with weak opioids were positively associated with adequacy of pain management in this study.

CONCLUSION

Based on the findings of our study, a significant percentage of patients with cancer experience pain (92.5%) of which nearly two thirds of them (56.8%) were receiving inadequate cancer pain treatment and 85.8% of them experience pain interference with their daily activities. It is also vital to assess pain of the cancer patients as routine clinical practice to optimize analgesic therapy through identifying ad intervining barriers of adequacy of pain management, thereby improving patient health outcome and quality of life.

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