

Cross-Sectional Study

Assessment of prostate cancer patients knowledge regarding managing side effects of chemotherapy

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ABSTRACT

Chemotherapy remains an important method for treating advance and metastatic prostate cancer. Chemotherapy has many side effects. Patients should have adequate knowledge to manage these side effects. The study aims to assess prostate cancer patients' knowledge regarding management side effects of chemotherapy. A Quantitative study using cross-sectional design approach was conducted to assess level of knowledge for patients with prostate cancer regarding management side effects of chemotherapy. The study conducted from the period of 15th March 2024 up to 1st March 2025. A non-probability (purposive sampling) was used to select the study. The sample of the study consist of 50 patients diagnosed with prostate cancer receiving chemotherapeutic agents. A self-administration constructive questionnaire concerning knowledge of patients about managing side effects of chemotherapy was used in the current study. The findings of the study demonstrate that the most of age group of patients were between (66-71 years), not read & write, self-employee, not engaging in self-learning. Cancer duration for most patients were from 1-3 years, the duration of receiving chemotherapy for most patients were less than 1 year, Taxotere was the antineoplastic agents used for most cancer patients. Most patients were not having chronic diseases and with no family history. The study concluded that the level of knowledge was high percentage of patients had fair and poor knowledge about managing the side effects of chemotherapy.

Keywords: Prostate cancer, Knowledge, Side effects, Chemotherapy

Introduction

The study aimed to assess knowledge of the patients regarding management side effects of chemotherapy. As well as To find out the relationships among Patients' knowledge and their demographic and clinical In the 1990s, chemotherapy's involvement in metastatic prostate cancer became prominent. Recent advancements during the past decade have significantly influenced the modern management of this condition [1].

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Chemotherapy can be used to manage cancer patients to palliate symptoms of cancer by shrinking the tumor [2]. According to Sagt and colleagues study, most cancer patient experiencing side effects of chemotherapy as well as social and psychological aspects [3, 4]. The chemotherapies frequently employed for metastatic prostate cancer treatment are the taxane drugs docetaxel and cabazitaxel, which reversibly bind to microtubulin to inhibit microtubule depolymerisation, thereby obstructing cell division and facilitating cell death [5]. The deficiency of knowledge regarding chemotherapy treatment and the management of associated adverse effects may lead to higher hospital admissions, increased morbidity, and diminished quality of life for cancer survivors. Conversely, enhanced understanding of chemotherapy side effects can improve self-care practices for managing these effects, thereby contributing to an improved quality of life [6]. Cancer patients require information to recognize the side effects associated with chemotherapy and the appropriate actions to mitigate them. The provision of adequate

pre-chemotherapy information, encompassing side effects and self-care strategies, has been shown to mitigate specific treatment-related concerns and improve physical and psychosocial outcomes [7]. Research involving cancer patients indicated that the side effects of chemotherapy and their management were prioritized among the necessary information. A Lei and colleagues indicated that the management and prevention of possible side effects were identified as the most significant treatment-related informational needs, alongside the rationale for treatment and its efficacy against cancer. There exists a persistent disparity between the actual needs of patients and the information supplied by healthcare professionals [8]. Patient and their family participate in self-management for their diseases or adverse effects of treatment, therefore should be well educated about engaging in self-management strategies [9].

Materials and Methods

A Quantitative study using cross-sectional design was conducted to assess level of knowledge for patients with prostate cancer regarding management side effects of chemotherapy. The study conducted in the Kirkuk oncology & hematology center from the period of 15th March 2024 up to 1st March 2025. A non-probability (purposive sampling) was used to select the study. The sample of the study consist of 50 patients diagnosed with prostate cancer receiving chemotherapeutic agents. Overall prostate cancer patients visiting Kirkuk oncology & hematology center were approximately 100 patients. Due to tiredness, older patients, not receiving chemotherapy, some patients excluded

from the study. A self-administration questionnaire concerning knowledge of patients about managing side effects of chemotherapy was used in the current study. It is composed of three parts: Part one: Socio-demographic data of the study sample, Part two: Clinical Data, Part three: patients' knowledge regarding management side effects of chemotherapy. Validity done by presenting the questionnaire to 15 experts from nursing specialties [10-14]. Test-retest reliability is a measure of reliability obtained by administering the same test twice over a period of time to a group of individuals which determined by using Pearson Correlation Coefficient (0.75). The collection of data was taken approximately 20-25 minutes to complete the questionnaire. The data were collected and analyzed by using SPSS version 26. descriptive and inferential statistics was used as follow:

$$\% = \sqrt{\frac{f}{N}} \times 100 \quad (1)$$

$$x^- = \frac{\sum f}{n} \quad (2)$$

$$s = \frac{\sqrt{\sum (xi - x)^2}}{N - 1} \quad (3)$$

$$rs = 1 - \frac{6 \sum di^2}{n(n^2 - 1)} \quad (4)$$

Results and Discussion

Table 1. Distribution of Patients according to their Socio-demographic Characteristics

No.	Characteristics	f	%
1	Age (year)	54 – 59	18
		60 – 65	32
		66 – 71	50
		Total	100
		Not read & write	22
2	Level of education	Read & write	18
		Primary	10
		Intermediate	14
		Secondary	10
		Diploma	12
		Bachelor +	14
		Total	100
3	Occupation	Employee	12
		Self-employee	50
		Retired	20
		Jobless	18
		Total	100
4	Self-learning	No	74
		Yes	26
		Total	100
5	Learning source	None	74
		Scientific website	4
		Social network	4

Doctor/nurse	2	4
Book/magazine	0	0
More than one	7	14
Total	50	100

No: Number, f: Frequency, %: Percentage

Table 1 displays the majority of patients fall within the 66–71 age range (50%). A notable percentage of patients have low educational level (22%). concerning occupational status, a

significant proportion of patients (50%) are self-employed. The patients reported that they not engaging in self-learning (74%).

Table 2. Distribution of Patients according to their Clinical Variables

No.	Variables	f	%
1	Cancer duration	1 – 3 years	34
		4 – 6 years	16
		Total	50
2	Duration of chemotherapy	< 1 year	21
		1 – 2 year	17
		3 – 4 years	11
		5 < years	1
		Total	50
3	Type of chemotherapy	Taxotere	29
		Carboplastin	6
		Carbazitaxel	8
		Gemzar	3
		Doctaxel	4
		Total	50
4	Chronic disease	No	29
		Yes	21
		Total	50
		None	29
5	Type of disease	Hypertension	7
		Diabetes	7
		Other	7
		Total	50
		No	33
6	Family history of prostate ca	Yes	17
		Total	50
			100

No: Number, f: Frequency, %: Percentage.

Table 2 reveals that most of patients have been dealing with prostate cancer for 1–3 years (68%). The duration of chemotherapy refers that most patients have been undergoing chemotherapy for less than 1 year (42%). The most commonly used chemotherapy drug is Taxotere with (58%) of patients

receiving this treatment. Regarding chronic disease, a majority of patients do not have chronic diseases (58%). Regarding family history of the patients, there were (34%) of the patients were family history of prostate cancer [15-18].

Table 3. Assessment of Patients' Knowledge about Management Side Effect of Chemotherapy.

No	Knowledge about Gastrointestinal system items	Scale	F(%)	M	Ass.
1	Anti-emetic medication given before chemotherapy	Incorrect	42(84)	.16	Poor
		Correct	8(16)		
2	Before chemotherapy, I should eat Light meal	Incorrect	29(58)	.42	Fair
		Correct	21(42)		
3	Before chemotherapy, I should drink Plenty of liquid	Incorrect	16(32)	.68	Good
		Correct	34(68)		

4	It is preferred to divide meal daily small six times	Incorrect	37(74)	.26	Poor
		Correct	13(26)		
5	When diarrhea occurred, patients stop eat fibers	Incorrect	33(66)	.34	Fair
		Correct	17(34)		
6	The boiled rice and clear broth beverages preferred during diarrhea	Incorrect	34(68)	.32	Poor
		Correct	16(32)		
7	Constipation can be managed with fiber diet	Incorrect	34(68)	.32	Poor
		Correct	16(32)		
8	In constipation, patients drink plenty of fluid	Incorrect	17(34)	.66	Fair
		Correct	33(66)		
List	Knowledge about Blood items	Scale	F(%)	M	Ass.
1	To minimize fatigue, patients should sleep 8-10 hours	Incorrect	34(68)	.32	Poor
		Correct	16(32)		
2	Commonly fatigue caused by decreased blood cells	Incorrect	36(72)	.28	Poor
		Correct	14(28)		
3	Regular exercise preferred when feeling tired	Incorrect	19(38)	.62	Fair
		Correct	31(62)		
4	Plenty of fruits can help Reduce fatigue	Incorrect	36(72)	.28	Poor
		Correct	14(28)		
5	Use electric razor to prevent easy bleeding	Incorrect	19(38)	.62	Fair
		Correct	31(62)		
List	Knowledge about Nervous system items	Scale	F(%)	M	Ass.
1	Checking water temperature, I use my elbow	Incorrect	38(76)	.24	Poor
		Correct	12(24)		
2	To prevent bleeding and wounds, I take care when using knives	Incorrect	20(40)	.60	Fair
		Correct	30(60)		
3	Improving balance, strength, and weakness, by exercise	Incorrect	36(72)	.28	Poor
		Correct	14(28)		
4	Improving peripheral neuropathy, I consume food rich in vitamins	Incorrect	42(84)	.16	Poor
		Correct	8(16)		
5	The common site of nerves that affected by chemotherapy is peripheral nerve	Incorrect	32(64)	.36	Fair
		Correct	18(36)		
List	Knowledge about Urinary system items	Scale	F(%)	M	Ass.
1	Most common urinary problem after chemotherapy is hematuria	Incorrect	34(68)	.32	Poor
		Correct	16(32)		
2	To decrease urinary problems after chemotherapy, I drink 8–10 glass of water	Incorrect	24(48)	.52	Fair
		Correct	26(52)		
3	To remove toxins from urinary tract, I drink water	Incorrect	28(56)	.44	Fair
		Correct	22(44)		
4	Holding larger volume of urine in bladder help to decrease urinary urgency	Incorrect	36(72)	.28	Poor
		Correct	14(28)		
5	Avoiding coffee beverage that irritate the bladder	Incorrect	34(68)	.32	Poor
		Correct	16(32)		
List	Knowledge about Immune system items	Scale	F(%)	M	Ass.
1	After chemotherapy, immunity decreased due to decreased WBCs	Incorrect	35(70)	.30	Poor
		Correct	15(30)		
2	Whole grains can provide essential nutrients to support immune function	Incorrect	24(48)	.52	Fair
		Correct	26(52)		
3	I perform good hand washing before and after meal	Incorrect	42(84)	.16	Poor
		Correct	8(16)		
4	To prevent infection, I avoid crowded places	Incorrect	40(80)	.20	Poor
		Correct	10(20)		
5	I monitor fever, the most sings and symptom of infection	Incorrect	32(64)	.36	Fair
		Correct	18(36)		
List	Knowledge about integumentary system items	Scale	f (%)	M	Ass.

1	I believe alopecia occurred after chemotherapy temporary	Incorrect	21(42)	.58	Fair
		Correct	29(58)		
2	Re-grow of hair after completing chemotherapy treatment occur within 4-12 months	Incorrect	37(74)	.26	Poor
		Correct	13(26)		
3	Scalp sensitive after chemotherapy, it's important to protect from sun by using hat	Incorrect	43(86)	.14	Poor
		Correct	7(14)		
4	Consuming Omega-3 fatty acid nutrients are essential for promoting hair growth	Incorrect	29(58)	.42	Fair
		Correct	21(42)		
5	I Comb my hair gently using large comb	Incorrect	21(42)	.58	Fair
		Correct	29(58)		
6	Chemotherapy can make my skin more sensitive to the sun, so I use sunscreen	Incorrect	36(72)	.28	Poor
		Correct	14(28)		

Ass: Assessment, M: Mean, (Poor= 0-0.33, Fair= 0.34-0.66, Good= 0.67-1)

Table 3 exhibit the patients' knowledge regarding management side effects of chemotherapy were poor and fair knowledge in all section of knowledge scale.

The current study aimed to assess prostate cancer patient knowledge concerning managing side effects of chemotherapy. It is important to the patients to be aware and overcome the undesirable effects of chemotherapy [6]. The study revealed that the majority of prostate cancer patients' knowledge demonstrate poor and fair knowledge for overall domains regarding management side effects of chemotherapy). According to the study conducted by Majeed and Atiyah were revealed poor knowledge among participants regarding screening of prostate cancer and contributing factors [19].

The findings of the present study exhibit inadequate knowledge concerning management side effect of chemotherapy of gastrointestinal system especially in given anti-emetics before session of chemotherapy and dividing meals to six small meals. The results similar with Cope 2022 that indicates despite of advances in medication to prevent nausea and vomiting affect most patients undergoing chemotherapy [20]. Similar results conducted by Moghazy and others, which states the knowledge level inadequate before utilization of educational program [21]. Most patients display poor knowledge in relation to managing side effects of chemotherapy for blood items as in sleep for 8-10 hours to minimize fatigue and causes of fatigue [22-25]. The results of the study show insufficient knowledge for most patients

regarding nervous system after administering chemotherapy mostly in checking temperature by using elbow and improve balance and strengthen with exercise, chemotherapy-induced peripheral neuropathy can be mitigated with self-care behaviors, Al-Fahham and Al-Jubouri indicate that Peripheral neuropathy can be relieved by foot massage, range of motion by educating the patient proper self-care [26] Regarding patients' knowledge for managing side effects of chemotherapy for urinary system, the majority of patients exhibit inadequate knowledge especially in items of common urinary problems after chemotherapy is hematuria and decreasing urinary urgency with holding urine for long periods. the patients asked for immune system and demonstrate poor knowledge about chemotherapy side effects management, including in performing hand washing before and after meals and avoiding crowded places to prevent infection. also patients exhibit insufficient knowledge regarding managing side effects of chemotherapy for integumentary system as in items of regrow of hair within 4-12 months after completing session of chemotherapy and protect the sensitive scalp after chemotherapy by using hat. Several techniques the healthcare providers can be assumed to ease chemotherapy-induced side effects for patients with cancer [27]. Flayeh and Khuder study recommended printing guide and booklet to improve patients' knowledge as well as participating patients in educational program [28].

Table 4. Relationships among Patients' Knowledge and their Sociodemographic Variables in the Study sample

Variables		Overall Knowledge		
		Mean	SD	Relationship
Age (year)	54 – 59	24.40	2.881	$r^2 = .042$ P-value= .841 Sig= N.S
	60 – 65	21.13	2.475	
	66 – 71	23.83	2.791	
	Total	23.08	2.943	
Level of education	Not read & write	22.00	1.095	$r^2 = .390$ P-value= .054 Sig= N.S
	Read & write	21.50	5.000	
	Primary	23.00	1.414	
	Intermediate	26.33	4.619	
	Secondary	21.00	1.414	
	Diploma	24.25	1.893	

Occupation	Bachelor +	23.75	1.258	$r^s = .045$ P-value= .831 Sig= N.S
	Total	23.08	2.943	
	Employee	23.00	1.414	
	Self-employee	23.07	3.668	
	Retired	24.25	1.893	
	Jobless	22.20	1.643	
	Total	23.08	2.943	
Learning source	None	22.78	3.282	$r^s = .278$ P-value= .179 Sig= N.S
	Scientific website	24.00	.	
	Social network	22.00	.	
	Doctor/nurse	24.50	.707	
	More than one	24.00	2.646	
	Total	23.08	2.943	

r^s: Spearman Correlation coefficient, r^{*}: Biserial correlation coefficient, P: Probability, Sig: Significance, N.S: Not Significant, S: Significant, H.S: High Significant

Table 4 indicates that there is no significant relationship has reported among patients' overall knowledge scores in the study

group and sociodemographic variables; age, level of education, occupation, and learning sources.

Table 5. Relationships among Patients' Knowledge and their Clinical Variables in the Study samples

Variables		Overall Knowledge		
		Mean	SD	Relationship
Cancer duration	1 – 3 years	23.00	3.181	$r^s = .031$ P-value= .882 Sig= N.S
	4 – 6 years	23.29	2.430	
	Total	23.08	2.943	
Duration of chemotherapy	< 1 year	22.45	1.440	$r^s = .120$ P-value= .567 Sig= N.S
	1 – 2 year	23.86	4.880	
	3 – 4 years	23.29	2.430	
	Total	23.08	2.943	
Type of chemotherapy	Taxotere	22.60	2.823	$r^s = .225$ P-value= .279 Sig= N.S
	Carboplastin	21.33	1.155	
	Carbazitaxel	24.80	2.588	
	Gemzar	25.00	5.657	
	Total	23.08	2.943	
Chronic disease	None	22.33	2.795	$r^s = .270$ P-value= .192 Sig= N.S
	Hypertension	24.67	4.041	
	Diabetes	23.67	3.786	
	Both	24.25	2.217	
	Total	23.08	2.943	
Family history of prostate ca	No	22.81	3.209	$r^s = .147$ P-value= .484 Sig= N.S
	Yes	23.56	2.506	
	Total	23.08	2.943	

r^s: Spearman Correlation coefficient, r^{*}: Biserial correlation coefficient, P: Probability, Sig: Significance, N.S: Not Significant, S: Significant, H.S: High Significant

Table 5 reveals that there is no significant relationship has reported among patients' overall knowledge scores in the study group and clinical variables; cancer duration, duration of chemotherapy, type of chemotherapy, chronic disease, and family history of prostate cancer.

The findings of the present study indicate that there is no significant relationship has reported among patients' overall

knowledge scores in the study group and sociodemographic variables; age, level of education, occupation, marital status, residency, and learning sources. The results of the study were similar with the study conducted by Ibrahim and Bakey 2023 that indicated elderly having inadequate knowledge about hygiene and no relationship between persons' knowledge with their sociodemographic data [29]. Another study indicates no

significant between patient knowledge and sociodemographic data [30]. The **Table 5** reveals that there is no significant relationship has reported among patients' overall knowledge scores in the study group and clinical variables; cancer duration, prostate surgery, duration of chemotherapy, type of chemotherapy, chronic disease, and family history of prostate cancer. The results not parallel with the study of Odah and Hattab, that found significant association had been revealed between some sociodemographic data with knowledge of study participant [31, 32].

Conclusion

The patients' knowledge concerning management side effects of chemotherapy were inadequate in both study and control group during pretest. there is no significant relationship has reported among patients' overall knowledge scores in the study and control group and sociodemographic variables; age, level of education, occupation, marital status, residency, and learning sources. Also there is no significant relationship has reported among patients' overall knowledge scores in the study and control group and clinical variables; cancer duration, prostate surgery, duration of chemotherapy, type of chemotherapy, chronic disease, and family history of prostate cancer.

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