

## KNOWLEDGE ON MANAGEMENT OF SIDE EFFECTS OF CHEMOTHERAPY AMONG CANCER PATIENTS IN A HOSPITAL OF BHAKTAPUR

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### ABSTRACT

**Background:** Cancer is the second leading cause of death worldwide. The increase in incidence of cancer is directly related to the increase in number of patients receiving chemotherapy. The objective of the study was to assess the knowledge on management of side effects of chemotherapy among cancer patients in a hospital of Bhaktapur.

**Method:** Descriptive cross-sectional study was conducted among 104 cancer patients in a hospital of Bhaktapur, Nepal using non-probability purposive sampling technique. Data was collected through face-face interview technique by using self-developed structured questionnaire. The study was conducted between 2079-10-01 to 2079-10-30. Data management, analysis and interpretation was done using descriptive and inferential statistics and represented in tabulated form.

**Findings:** More than half (56.7%) of the cancer patients had adequate knowledge on management of side effects of chemotherapy. Adequate knowledge was present on management of diarrhoea (82.7%), infection (65.4%) and nausea and vomiting (63.5%). However, inadequate knowledge was present on management of constipation (31.8%), extravasation (33.7%) gums bleeding (35.6%) and hair fall (38.5%). The study shows significant association between level of knowledge on management of side effects of chemotherapy with age ( $p=0.037$ ) and educational status ( $p=0.029$ ) of the cancer patients.

**Conclusion:** More than half of the cancer patients had adequate knowledge on management of side effects of chemotherapy. Despite of this, respondents had still gap in knowledge on management of side effects of chemotherapy which shows need for, health education and counselling should be done among cancer patients.

**Key words:** Cancer, Chemotherapy, Knowledge, Management, Side effects

### INTRODUCTION

Cancer is a non-communicable disease which can spread from primary site to other part of the body via bloodstream or lymph system It is the second leading cause of death worldwide that is caused by an uncontrolled division of abnormal cells in a part of the body<sup>1</sup>.

Worldwide, the burden of cancer incidence and mortality is increasing in a faster rate. A total of 18,094,116 million cases of cancer were diagnosed in 2020. The incidence rate of cancer is higher in men (222.0 per 1,00,000) than in women (186 per 1,00,000)<sup>2</sup>.

The number of new cases in 2020 in Nepal, for male, was 8943 whereas for females, the total number of new cases was 11,565. A total number of 6244 male and 7385 female death occur due to cancer<sup>3</sup>.

Chemotherapy is a drug treatment that helps to inhibit the proliferation of cells as well as the multiplication of tumours preventing metastasis. It is also called as “systemic treatment” because it enters the bloodstream<sup>4</sup>. Chemotherapy is generally given in cycles in which treatment period is followed by recovery period. Chemotherapy agents can be given per oral (PO), intravenous (IV), subcutaneous (SC), intramuscular (IM), intrathecal (IT). Most of the chemotherapy agents are IV because of the 100% absorption rate<sup>5</sup>.

As patients requiring chemotherapy annually has increased from 9.8 million to 15.0 million, a relative increase of 53% worldwide<sup>6</sup>. In Bhaktapur Cancer Hospital, a cross-sectional study was conducted between 2016 to 2017 among 294 cancer patients. Among them 55.4 % of patient were receiving chemotherapy<sup>7</sup>.

As chemotherapy can increase the survival rate among cancer patient but it can also cause various kinds of long term and short-term side-effects<sup>7</sup>. According to this study the most common reported side effects were nausea and vomiting (79.3%), and fatigue (74.7%). Other frequently reported prominent side effects to include decreased appetite (65.5%), changes in taste (60.9%), hair loss 60.0%, dry mouth 51.7% and constipation 51.7%. Each of these side effects was experienced by more than 50% of the patients<sup>8</sup>.

Lack of knowledge on chemotherapy treatment and various methods to manage related adverse effects could increase hospital admissions, increased morbidity, and decreased quality of life among cancer survivors while having increase in level of knowledge on side-effects of chemotherapy would aid in improving the self-care practices on managing its side-effects which will further help them in improving their quality of life<sup>1</sup>.

With the increase in incidence of cancer, there is also an increase in morbidity and mortality rate. This results in increase number of patients receiving chemotherapy treatment. So, knowledge about chemotherapy helps cancer patient in managing its various side-effects. Thus, the study attempts to find out knowledge regarding management of side-effects of chemotherapy among cancer patients.

## MATERIAL AND METHODS

A cross-sectional descriptive study designed was used. The data collection was done in Bhaktapur Cancer Hospital. Under 3 different wards: chemotherapy ward, supportive ward and palliative care by using non-probability purposive sampling technique and self-structured questionnaire for data collection. The total sample size was 104. Ethical approval was taken from IRC of Manmohan Memorial Institute of Health Sciences and Bhaktapur Cancer Hospital. Written informed consent was obtained from all respondents before the data collection. Data analysis was done using SPSS version 25; statistical software. Data was interpreted by employing descriptive statistics (frequency mean and standard deviation), and inferential statistics (Chi-square test) were used to measure the association between the level of knowledge with socio demographic variables.

## RESULTS

Majority (61.6%) of the respondents belonged to age group 40-59 years likewise 14.4% of the respondents belonged to age group 20-39 (55.8%) of respondents were female. (73.1%) can read and write and (55.3%) of respondents had completed Basic level of education.

In this study Majority (72.1%) of the cancer patients reported cancer as a disease involving abnormal cell growth which can spread to other body parts. Cent (100%) of them responded chemotherapy as a drug that is used to treat cancer. (32.7%) of them answered that the main routes of chemotherapy are intravenous and oral route. (34.6%) of the cancer patients responded that pre-medication for chemotherapy is a drug that is given minutes to hours before administering chemotherapy.

Most (76.9%) of the cancer patients reported that fatigue was the most common short-term side effects of chemotherapy followed by nausea and vomiting (74%). (36.5%) of the cancer patients reported that extravasation was the most common short-term side effects of chemotherapy

Majority (63.5%) of the cancer patients knew that taking anti-emetic medications was management of nausea and vomiting

Less than half (31.8%) of the cancer patients knew that the most effective management of constipation was to eat high fibre food. (54.8%) of them responded that the most effective management of mucositis was to gargle with antiseptic mouthwash (35.6%) of them knew that the best method to manage gums bleeding was to use soft toothbrush. (54.8%) of the cancer patients responded that change of menu was the best method to manage alteration in taste. (62.5%) of them reported that the best way to manage loss of appetite was to eat small frequent meals shown in table 5

Most (84.6%) of the cancer patients responded that hair fall was the most common long-term side effects of chemotherapy followed by weight loss (73.1%), thrombocytopenia (31.7%) as the most common long-term side effects of chemotherapy.

**Table 1: Socio-Demographic Characteristics of the Respondents**

n=104		
Variables	Number	Percent
<b>Age</b>		
20-39	15	14.4
40-59	64	61.6
60 Over	25	24
	Mean±SD	52.5±11.8
<b>Sex</b>		
Female	58	55.8
Male	46	44.2
<b>Educational status</b>		
Can read and write	76	73.1
Cannot read and write	28	26.9
<b>Educational level</b>		
Basic level	42	55.3
Secondary level	31	40.8
Higher level	3	3.9

**Table 2: Knowledge on Most Common Short-Term Side Effects of Chemotherapy among Respondents**

n=104

Most Common Short-Term Side Effects*	Number	Percent
Nausea and vomiting	77	74
Fatigue	80	76.9
Fever	66	63.5
Diarrhoea	56	53.8
Constipation	46	44.2
Mucositis	56	53.8
Gums bleeding	46	44.2
Alteration in taste	69	66.3
Loss of appetite	70	67.3
Skin rashes	43	41.3
Pruritus	43	41.3
Extravasation	38	36.5
Burning micturition	45	43.3

\*Multiple Response

**Table 3: Knowledge on Management of Short-Term Side Effects of Chemotherapy among Respondents (Nausea and vomiting, Fatigue, Fever, Diarrhoea)**

n=104

Management of Short-Term Side Effects	Number	Percent
<b>Nausea and vomiting</b>		
Avoid food for whole day	3	2.9
Take anti-emetic medications	66	63.5
Limit intake of water	10	9.6
Drink plenty of water	25	24.0
<b>Fatigue</b>		
Take rest for the whole day	40	38.5
Take balanced diet with balanced activity and rest#	42	40.4
Take nutritional diet	18	17.3
Perform strenuous exercise	4	3.8
<b>Diarrhoea</b>		
Avoid drinking water	6	5.8
Drink plenty of fluid including water and ORS#	86	82.7
Drink plenty milk	9	8.7
Drink fruit juice	3	2.8

Correct Responses#

**Table 4: Knowledge on Most Common Long-Term Side Effects of Chemotherapy among Respondents**

n=104

<b>Most Common Long-Term Side Effects of Chemotherapy*</b>	<b>Number</b>	<b>Percent</b>
Hair fall	88	84.6
Weight loss	76	73.1
Thrombocytopenia	33	31.7
Anemia	53	51.0
Infection	43	41.3

\*Multiple responses

**Table 4: Knowledge on Management of Long-Term Side Effects of Chemotherapy among Respondents**

n=104

<b>Most Effective Management of Long-Term Side Effects</b>	<b>Number</b>	<b>Percent</b>
<b>Hair fall</b>		
Tie and cover hair all the time	37	35.6
Comb hair with soft brushes and cutting it short#	40	38.5
Avoid washing and combing hair	3	2.9
Wash hair daily and massage with oil	24	23.1
<b>Weight loss</b>		
Eating foods frequently#	46	44.2
Monitoring weight daily	8	7.7
Effort to eat a lot at a time	9	8.7
Consume balanced diet	41	39.4
<b>Thrombocytopenia</b>		
Minimize injury#	42	40.4
Stay at home	31	29.8
Minimize activities	6	5.8
Maximize activities	25	24
<b>Anaemia</b>		
Eat high fibre diet	5	4.8
Eat iron rich diet #	59	56.7
Eat high calories diet	6	5.8
Eat high protein diet	34	32.7

**Infection**

Maintain good personal hygiene #	68	65.4
Take drugs from pharmacy	10	9.6
Restricting self at home	22	21.2
Take bath occasionally	4	3.8

**# Correct Response**

Less than half (38.5%) of the responded that the most effective management of hair fall was to comb hair with soft brushes and cutting it short, (44.2%) of them answered that the most effective management of weight loss was eating food frequently. (40.4%) of the cancer patients answered that the best way to manage thrombocytopenia was to minimize injury (56.7%) of the cancer patients responded that the best way to manage anaemia was to eat iron rich diet. (65.4%) of them knew that the best way to manage infection was maintaining good personal hygiene.

**Table 5: Level of Knowledge on Management of Side Effects of Chemotherapy among Respondents**

Level of Knowledge	Number	Percent
Adequate level of knowledge ( $\geq 25$ )	59	56.7
Inadequate level of knowledge ( $< 25$ )	45	43.3

The respondent's level of knowledge on management of side effects of chemotherapy. Respondent's level of knowledge was categorized on the basis of median score (25). More than half (56.7%) of the cancer patients had adequate knowledge and (43.3%) had inadequate knowledge on management of side effects of chemotherapy

**Table 6: Association of Level of Knowledge with Socio-demographic Variables of the Respondents n=104**

Variables	Level of Knowledge		$\chi^2$	P-value
	Adequate (%)	Inadequate (%)		
<b>Age</b>				
20-40	13(86.7)	2(13.3)	6.591	0.037*
41-60	34(53.1)	30(46.9)		
61-80	12(48.0)	13(52.0)		
<b>Sex</b>				
Male	22(47.8)	24(52.2)	1.999	0.157
Female	37(63.8)	21(36.2)		
<b>Educational status</b>				
Cannot read and write	11(39.3)	17(60.7)	4.75	0.029*
Can read and write	48(63.2)	28(36.8)		
<b>Educational level</b>				
Basic	27(64.3)	15(35.7)	0.051	0.821
Secondary and Higher	21(61.8)	13(38.2)		
<b>Occupational status</b>			3.67	0.452

Unemployed	16(55.2)	13(44.8)
Agriculture	9(40.9)	13(59.1)
Business	9(64.3)	5(35.7)
Housewife	16(61.5)	10(38.5)
Others (Service and student)	9(69.2)	4(30.8)

There is association between age group and level of knowledge since p value is 0.037 (<0.05). Also, there is association between educational status and level of knowledge of the cancer patients since p value is 0.029 (<0.05). However, no association is found with other variables

## DISCUSSION

In this study demonstrated that less than half (43.3%) of the cancer patients had inadequate level of knowledge whereas more than half (56.7%) of the cancer patients had adequate level of knowledge which is similar to the study conducted in India where (58%) of the cancer patients had an above average level of knowledge on management of side effects of chemotherapy<sup>1</sup>.

With regard to meaning of cancer, majority (72.1%) of the cancer patients had knowledge about the meaning of cancer which is contradictory to study done in India where (25%) had knowledge about meaning of cancer<sup>4</sup>. This may be due to difference in sample size i.e. n=104

In this study, cent (100%) of the cancer patients knew the meaning of chemotherapy which is similar to the study done in Nepal where (98.6%) of the cancer patients knew the meaning of chemotherapy<sup>9</sup>.

In the current study, less than half (34.6%) of the cancer patients had knowledge about the meaning of Pre-medications for chemotherapy which is similar to the study conducted in Sri-Lanka where (33.8%) of the cancer patients knew the meaning of pre-medications for chemotherapy<sup>10</sup>.

Regarding knowledge on most common side effects majority (76.9%) had knowledge on fatigue which is contrast to the study conducted in Bhaktapur where (48.3%) had knowledge on fatigue<sup>9</sup>. Present study shows that ,majority (74%) of the cancer patients had knowledge on nausea and vomiting , majority (67.3%) had knowledge on loss of appetite, more than half (53.8%) had knowledge on mucositis, nearly less than half (44.2%) had knowledge on constipation which is similar to the study conducted in Nepal where (85.45%) had knowledge on nausea and vomiting, (72.72%) had knowledge on loss of appetite, (65.45%) had knowledge on mucositis and (52.72%) had knowledge on constipation<sup>11</sup>.

In this study, majority (63.5%) of the cancer patients had knowledge on management of nausea and vomiting as they took anti-emetic medications for its management which is contradictory to the study conducted in Sudan where (39%) of the cancer patients took anti-emetic medications for the management of vomiting<sup>12</sup>. This discrepancy in the findings is due to difference in sampling technique.

In the present study, more than half (54.8%) of the cancer patients knew that changing of menu and performing oral hygiene is the best way to manage alteration in taste which is similar to the study conducted in India where (45%) of the cancer patients knew that change of menu and oral hygiene is the best way to manage alteration in taste<sup>1</sup>.

In this study, less than half (31.8%) of the cancer patients knew about eating high fibre food for the effective management of constipation which is contradictory to the study conducted in India where (56.25%) of the cancer patients knew about management of constipation<sup>13</sup>. This may be due to difference in sample size i.e. n=104.

In this study, less than half (38.5%) of the cancer patients had knowledge about management of hair fall by combing hair with soft brushes and cutting it short which is similar to the study conducted in Nepal where (43.2%) of the cancer patients knew about the management of hair fall and , nearly less than half

(46.2%) of the cancer patients had knowledge about management of burning micturition by maintaining perineal hygiene and staying hydrated which is similar to the study conducted in Nepal where (44.6%) of the cancer patients knew about the management of burning micturition<sup>9</sup>.

In this study, there was a significant association between respondents age group and level of knowledge since p value is 0.037 (<0.05). Most (86.7%) of the cancer patients aged 20-40 years had adequate knowledge on management of side effects of chemotherapy. This finding is similar to the study conducted in Saudi Arabia where significant association (p=0.001) was seen between age group and level of knowledge<sup>14</sup>.

In this study, there was association between educational status and level of knowledge of the cancer patients since p value is 0.029 (<0.05). Majority (63.2%) of the cancer patients who could read and write had adequate knowledge on management of side effects of chemotherapy. This finding is similar to the study conducted in India where significant association (p=0.002) was there between educational status and level of knowledge<sup>4</sup>.

## CONCLUSION

Based on the findings of the study more than half of the cancer patients had adequate knowledge among cancer patients. However, inadequate knowledge on management of constipation, extravasation, gums bleeding, hair fall, and thrombocytopenia. The study shows significant association between level of knowledge and level of educational status of the cancer patients.

## REFERENCES

1. Arunachalam SS, Shetty AP, Panniyadi N, Meena C, Kumari J, Rani B, et al. Study on Knowledge of Chemotherapy's Adverse Effects and Their Self-Care Ability to Manage. *The cancer survivors impact. Clinical Epidemiology and Global Health*. 2021 Jul; Available from: <https://cegh.net/article>
2. (Global cancer statistics ,2020). - Google Search [Internet]. [cited 2023 May 28]. Available from: <https://www.google.com/search>
3. (GLOBOCAN, 2020). - Google Search [Internet]. [cited 2023 May 28]. Available from: <https://www.google.com/search>
4. Choenyi N, Kumari MM, Choedon S, Kumari MM, Kumari MS, Kumari MI, et al. Knowledge Regarding Ill Effects of Chemotherapy and Its Home Management among Patients Receiving Chemotherapy. *Journal of Nursing and Health Science* 2016. Available at DOI: 10.9790/1959-0503012529
5. Vijayan A, Ghosh A, ML S. Knowledge Regarding Prevention of Infections in Patients Receiving Cancer Chemotherapy among Nursing Students. *International Journal of Health Sciences & Research* (www.ijhsr.org) 104 Vol.9; Issue: 12; December 2019. Available at [https://www.ijhsr.org/IJHSR\\_Vol.9\\_Issue.12\\_Dec2019/16.pdf](https://www.ijhsr.org/IJHSR_Vol.9_Issue.12_Dec2019/16.pdf)
6. Estimates of global chemotherapy demands and corresponding physician workforce requirements for 2018 and 2040: a population-based study [Internet]. [cited 2023 May 29]. Available from: <https://www.google.com/search>
7. Khatiwoda SR, Dhungana RR, Sapkota VP, Singh S. Estimating the Direct Cost of Cancer in Nepal. *Front Public Health*. 2019 Jun. Available from: <https://www.frontiersin.org/article/10.3389/fpubh.2019.00160/full>
8. İnsaf A, Alper S. Evaluation of Common Side Effects of Chemotherapy among Cancer Patients in Khartoum Oncology Hospital Ward. *Iran J Public Health*, Vol. 47, No.8, Aug 2018, pp.1218-1219 2019. Available from: <https://www.google.com/search>



9. Mandal R, Bhurtel R. Knowledge on Management of Chemotherapy Related Side-effects Among Cancer Patients. *International Journal of Nursing Research and Practice*. 2023 May 24. Available from: <https://www.google.com/search>
10. W.P.H.L P et al. Level of Awareness of Chemotherapy and its Side-effects among Cancer Patients Admitted for Chemotherapy at Teaching Hospital Batticaloa. *International Journal of Scientific and Research Publications*, Volume 10, Issue 4, April 2020 Sri Lanka. Available from: <http://www.ijsrp.org/research-paper-0420.php?rp=P1009918>
11. Thapaliya K, Shrestha A, Prajapati S, Subedi, Giri. Study Of Pattern Of Adverse Drug Reaction Due To Cancer Chemotherapy And Their Management In Hospitalized Patient In BP Koirala Memorial Cancer Hospital. *Journal of Chitwan Medical College* 2014; 4(10): 24-28. Available from: : [www.jcmc.cmc.edu.np](http://www.jcmc.cmc.edu.np)
12. Abdalla M, Osman MA, Mohamed AA, Yousef BA. Evaluation of Common Side Effects of Chemotherapy among Cancer Patients in Khartoum Oncology Hospital Ward. *Khartoum Journal of Pharmaceutical Sciences*. 2020 Volume (1). Available from: <https://www.google.com/search>
13. Basha S, Sk H, SK SA, Haritha S. A Descriptive Study on Adverse Reactions of Chemotherapy and Assessment of Knowledge Score in Cancer Patients. *World Journal of Current Medical and Pharmaceutical Research*. 2020 Mar 27:40-52. DOI <https://doi.org/10.37022/WJCMPR.2020.02014>
14. Almohammadi A, Alqarni A, Alraddadi R, Alzahrani F. Assessment of patients' knowledge in managing side effects of chemotherapy: case of King Abdul-Aziz University Hospital. *Journal of Cancer Education*. 2020 Apr;35:334-8. DOI: 10.4103/njcp.njcp\_34\_20
15. Basha S, Sk H, SK SA, Haritha S. A Descriptive Study on Adverse Reactions of Chemotherapy and Assessment of Knowledge Score in Cancer Patients. *World Journal of Current Medical and Pharmaceutical Research*. 2020 Mar 27:40-52. DOI <https://doi.org/10.37022/WJCMPR.2020.02014>