

Nutritional Status of the Cancer Patients Receiving Chemotherapy in an Oncology Centre, Nepal

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Introduction

- Malnutrition is a frequent manifestation of cancer and a significant contributor of morbidity and mortality in cancer patients (Kumar, 2012).
- Side effects of anticancer therapies can also lead to inadequate nutrient intake and subsequent malnutrition (Nunilon Vergara, 2013).
- The prevalence of malnutrition in Cancer patients with chemotherapy is extremely high, 40.21% of cancer patients receiving chemotherapy were malnourished (Nunilon Vergara, 2013).
- About 20% of the cancer patients die of the symptoms caused by malnutrition (Leuenberger et al., 2010).

Objectives of the Study

General Objective

To find out the nutritional status of the cancer patients receiving chemotherapy.

Specific Objectives

- To assess the level of nutritional status of cancer patients receiving chemotherapy.
- To elicit the determinants of malnutrition in the cancer patients receiving chemotherapy.

Research Methodology

Research Design

Descriptive, cross sectional study design.

Setting

Day care centre and chemotherapy ward Bhaktapur Cancer Hospital, Dudhpati, Bhaktapur, Nepal.

Population

The study population were cancer patients who had already received one cycle of chemotherapy. There were 241 patients per months receiving chemotherapy.

Sampling

Convenience sampling

Sample Size

Assuming the prevalence of malnutrition in cancer patients receiving chemotherapy 40% (Nunilon Vergara, 2013), using the Cochran's formula :

$$n = \frac{Z^2 \times p \times q}{l^2}, \text{ where}$$

$$Z = 1.96$$

$$p = 0.4$$

$$q = 1 - 0.4 = 0.6$$

Sample size (n) = 198

Inclusion Criteria

- Patients of age more than or equal to 18 years.
- Patients not having any signs of infection, nutrition related problem (diabetes) and acutely ill.
- The patient who had already received prior one cycle of chemotherapy.

Instrument

- Instrument: Semi-structured questionnaire
- Patient Generated Subjective Global Assessment (PG-SGA)
- Karnofsky Performance Scale (KPS)
- Data collection method: Face to face Interview.
 - Nepali version instrument,
 - February 27 to March 28, 2016

Ethical Consideration

- Ethical clearance- Institutional Review Board, TU, IOM (Institutional Review Board no: 244/072/073).
- Permission for data collection- Bhaktapur Cancer Hospital.
- Written informed consent from participants.

Data Analysis Procedure

- Analyzed using SPSS version 16.
- Descriptive statistics such as frequency and percentage for categorical variables and mean and standard deviation for continuous variables.
- Bivariate analysis was done for categorical variables and those variables that were significant at p-value <0.05 were further analyzed by using multivariate analysis.

Findings of the Study

- The **mean age** of the cancer patients was 52 years (52 ± 14.13) years and varied from 18 to 83 years.
- The **female cancer** patients 61.6%.
- The cancer patients who were **literate** were 50.5%.
- Cancer patients who had **family income** sufficient for less than twelve months were 46.5%.
- Cancer patients who had **agriculture** as their **occupation** were **44.4%**.
- Majority (**83.3%**) of the cancer patients were **married**.
- Majority of the cancer patients (**80.3%**) **received cancer nutrition related information**.

Table 1: Cancer- Chemotherapy Related Factors: Anemia Status of the Cancer Patients Receiving Chemotherapy n=198

Anemia Status	Number	Percentage
Anemia status before chemotherapy		
Hb<11mg/dl	43	21.7
Hb≥11mg/dl	155	78.3
Mean hemoglobin before chemotherapy	12.14±1.99	
Range of hemoglobin before chemotherapy	6.3-17.4	
Anemia status after chemotherapy		
Hb<11mg/dl	49	24.7
Hb≥11mg/dl	149	75.3
Mean hemoglobin after chemotherapy	12.01±1.48	
Mean change in hemoglobin	0.13±2.02	
Range of hemoglobin after chemotherapy	8.5-15.6	
Range of change in hemoglobin	-4.6-7.9	

Table 2: Cancer-Chemotherapy Related Factors: Types of Cancer in Cancer Patients Receiving Chemotherapy

n=198

Types of Cancer	Number	Percentage
Head and Neck	34	17.2
Gastrointestinal	35	17.7
Breast	46	23.2
Lungs	19	9.6
Genitourinary System	41	20.7
Others	23	11.6

Table 3: Cancer-Chemotherapy Related Factors: Chemotherapy Regimen and Treatment Modalities Used in Cancer Patients Receiving Chemotherapy

n=198

Chemotherapy Regimen and Treatment Modalities	Number	Percentage
Type of chemotherapy regimen		
Single drug therapy	96	48.5
Combination therapy	102	51.5
Line of chemotherapy		
I	159	80.3
II	18	9.1
≥III	3	1.5
Not applicable	18	9.1
Cycle of chemotherapy		
II-III	91	45.9
IV-V	48	24.2
≥VI	41	20.7
Not applicable	18	9.1
Radiotherapy	74	37.4
Surgery	101	51.0

Table 4: Karnofsky Performance Score of the Cancer Patients Receiving Chemotherapy n=198

Karnofsky Performance Score	Number	Percentage
Mean score	74.04 _± 12.93	
Karnofsky Performance Score Grading		
Able to carry normal activities	96	48.5
Unable to work	100	50.5
Unable to selfcare	2	1.0

**Table 5: Classification of Malnutrition in the
Cancer Patients Receiving Chemotherapy** n=198

Category of Malnutrition	Number	Percentage
Nutrition status (n=198)		
Normal	32	16.2
Malnourished	166	83.8
Malnutrition classes (n=166)		
Moderate malnourished	75	45.2
Severe malnourished	91	54.8
Mean nutrition assessment score	8.33 _± 4.29	
Score range	1-22	

Findings of the Study (Continued)

- On bivariate analysis, no socio demographic variables were found to be significant with nutritional status (Unadjusted odds ratio).
- Combination status statistically significant with the nutrition status (p -value=0.033, OR= 2.365, CI=1.055-5.301).
- Radiotherapy receiving status was significantly associated with malnutrition(p - value= 0.017, OR= 3.007, CI= 1.174-7.698).
- Karnofsky performance score was highly significantly associated with nutrition status work (p -value =0.000, OR=7.591, CI= 2.785-20.696).
- Unexpected weight loss was highly associated with nutrition status. (p -value of <0.001, OR 15.360, CI=2.043-115.489).

Table 6: Determinants of Malnutrition in the Cancer Patients Receiving Chemotherapy

Determinants of Malnutrition	Nutrition Status		Adjusted odds ratio(CI)	p-value
	Malnourished (n%)	Normal (n%)		
Type of regimen				
Single	86(89.6)	10(10.4)	1.742 (0.710-4.275)	0.226
Combined	80(71.4)	22(28.6)	Ref	
Radiotherapy				
Yes	68(91.9)	6(8.1)	2.323 (0.833-6.472)	0.107
No	98(79)	26(21)	Ref	
Karnofsky performance score				
Unable to work and care for self	97(95.1)	5(4.9)	7.308 (2.593-20.592)	<0.001*
Able to work	69(71.9)	27(28.1)	Ref	
Unexpected weight loss				
Yes	55(98.2)	1(1.8)	10.733 (1.378-83.623)	0.023*
No	111(78.2)	31(21.8)	Ref	

Conclusion

Majority of the cancer patients receiving chemotherapy have problems of malnutrition during the session of chemotherapy. The result of the thesis suggests that the existing care treatment that provide nutrition support to the cancer patients on chemotherapy doesnot appear to address these issues in their totality.

Recommendations

- **Early monitoring of the Karnofsky Performance Status and Unexpected weight loss** can be helpful in preventing the undernutrition among cancer patients receiving chemotherapy and other modalities of treatment.
- **Aggressive nutrition support and counselling** should form an integral part of the cancer treatment and care program and impact study of those interventions should be carried out.
- **One group pre test post study design** can be carried out to find out the actual derangement caused by the chemotherapy in the nutrition status.

References

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Thank you

