

# An overview of weight loss and G.I associated toxicities among cancer patients

## Abstract

There is a high risk of malnutrition among cancer patients receiving chemotherapy secondary to the disease and treatment. The vast majority of cancer patients experience malnutrition and ultimately weight loss during the course of the treatment depending on the tumor type and stage which affects the patient's overall health and quality of life (QoL). The present study aimed to evaluate prevalence of weight-loss prevalence depending on the tumor site and the gastrointestinal (G.I) symptoms experienced by patients receiving chemotherapy. The current study included 160 advanced cancer patients who were receiving chemotherapy treatment. The majority of the study participants were male (68%) with stage III cancer (65.6%) and lung as the primary tumor site (89.4%). Of these 45% patients experienced weight loss after chemotherapy and its prevalence was similarly higher among lung cancer patients. The common Gastro intestinal (G.I) symptoms or toxicities after chemotherapy were observed among 42.5% of the study participants. In conclusion, the present study findings indicate that G.I symptoms can influence weight loss among cancer patients and it must be considered as an integral part of early nutritional evaluations.

**Keywords:** weight loss, cancer stage, G.I symptoms, chemotherapy, lung

Volume 11 Issue 4 - 2023

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**Received:** November 01, 2023 | **Published:** November 13, 2023

**Abbreviations:** QoL, quality of life; G.I, gastro intestinal; HKL, Hospital Kuala Lumpur; MoH, Ministry of Health; SD, standard deviation

## Introduction

The term malnutrition means a significant loss of weight and body resources that affects the disease prognosis and hence quality of life (QoL).<sup>1</sup> Weight loss is common among cancer patients and often associated with loss of appetite but not limited to it. Other causes associated with weight loss among cancer patients may include gastro intestinal (G.I) symptoms such as nausea, vomiting and diarrhea. Besides this, it might be accompanied by pain, difficulty in swallowing, cachexia etc.<sup>2</sup> Malnutrition is a serious issue among cancer patients and its incidence ranges from 40% to 80% that affects approximately 15-20% of the cancer patients at diagnosis and up to 80% to 90% of patients with advanced stage cancer. Moreover, cancer patients who are malnourished has also shown low rates of response to the cancer treatment primarily, chemotherapy.<sup>3</sup>

Routine screening of malnutrition among cancer patients should be non-invasive and take into consideration for G.I symptoms that affects the food intake and hence eating behavior. The aim of the present study was to have an overview of the prevalence of weight loss among cancer patients receiving chemotherapy and G.I symptoms experienced by these patients.

## Subjects and methods

The present retrospective study was conducted at Hospital Kuala Lumpur (HKL) Radiotherapy and Oncology Department. It included at total of 160 patients who were diagnosed with advanced stage cancer and were undergoing chemotherapy at HKL. Out of these 160 patient's majority were diagnosed with lung cancer, followed by bone cancer, brain cancer and fewer with liver cancer. Besides this, those patients who had histologically confirmed diagnosis with stage III and stage IV (termed as advanced cancer) were included in the study. The selection criteria were as follows: age  $\geq 19$  years old, complete diagnosis information that includes cancer type and stage at

diagnosis, weight at diagnosis and after chemotherapy, information regarding G.I symptoms (e.g. nausea, vomiting and diarrhea) that occurred during and/or after chemotherapy treatment were reported by clinical Oncology Physician whereas the exclusion criteria included any patient below 19 years old, incomplete patient files, patients who received radiotherapy and surgery as an oncological treatment and patients who were receiving treatment from hospital other than HKL. The research was conducted according to the guidelines of the Declaration of Helsinki and the Ethics Committee of Ministry of Health (MOH), Malaysia and HKL. Moreover, for reviewing patient files permission was also granted by the Head of Department (HOD) of Radiotherapy and Oncology Clinic, HKL. After permission was granted to proceed the with data collection, we retrieved the list of the patients registered with the department of Radiotherapy and Oncology HKL. The list included their name, IC number, age of the patient, registration number, date of diagnosis and diagnosis. The patient files were then found based on the registration number at the Medical record room of the department. Once found, the patient files were viewed and included based on the inclusion criteria of the study.

## Statistical analysis

Statistical analysis was performed using the IBM SPSS 29.0 Software. The continuous variables were reported as mean and standard deviation (SD) whereas the nominal and categorical variables were reported as frequency and percentage.

## Results

We reviewed a total of 160 patient files who had undergone chemotherapy. It included 109 (68.0%) male and 51 (32.0%) females. The most frequent cancer type was lung cancer consisting of 143 out of 160 patients (89.4%) followed by bone cancer consisting of 38 out of 160 patients (23.8%). The mean age was 56.4 (SD 10.0) and a minimum age of 22 years old and maximum age of 81 years old. The mean body weight was 57.3 (SD 13.7) kg (Table 1). Overall, 45% patients experienced weight loss after chemotherapy among which 28.7% was observed among patients with lung cancer. The G.I symptoms such as nausea, vomiting and diarrhea were reported among

23 (42.5%) patients out of total 54 patients documented. Majority of the study participants had stage IV cancer (65.6%) followed by stage III cancer (34.4) % (Table 2).

**Table 1** General characteristics

Variables	n	(%)
<b>Gender</b>		
Male	109	68
Female	51	32
<b>Age (years)</b>		
Mean	56.4	
SD	10	
<b>Weight (kg)</b>		
Mean	57.3	
SD	13.7	
<b>Cancer stage</b>		
III	55	65.6
IV	105	34.4

**Table 2** Weight (kg) and weight loss by tumor location

Tumor location	n	%	Weight (Kg)		Patients with weight loss (kg) After Chemotherapy n
			Mean	SD	
Lung	143	89.4	57.29	14	46
Bone	38	23.8	55.5	13.4	13
Brain	34	21.3	63.3	18	7
Liver	24	15	54.96	9.4	6

## Discussion

The prevalence of weight loss in patients with lung cancer receiving chemotherapy has been reported as 31%.<sup>4</sup> Another study by Simmons's et al.,<sup>5</sup> has also showed that weight loss was observed among all patients with advanced stage cancer and should be viewed with caution. Moreover, the study also found that weight loss has been considered as the poor prognostic factor in patients with lung cancer.<sup>5</sup> The present study also found similar results that weight loss was most prevalent among the advanced stage lung cancer patients and lowest among liver cancer patients. However, contrast findings have been observed based on the summary of concise review of epidemiological studies by Saitta et al. (2019) that with the growing epidemic of obesity, a parallel increase of the liver cancer is foreseen. These findings might be contrast to the present study due to small number of study participants experiencing liver cancer and limited data availability concerning the risk factors.

In the context of G.I toxicities observed among cancer patients during and after chemotherapy a similar prevalence of G.I symptoms was observed in a study by Abernethy et al.,<sup>6</sup> and a systemic review of 44 studies pooling 25,000 with advanced stage cancer reported

31% prevalence of nausea and 20% prevalence of vomiting.<sup>7</sup> In future studies, focus on the more prevalent symptoms besides G.I symptoms in cancer patients is required to be explored to guide symptom management by the health care professionals. However, it must be emphasized that treatment should be based on symptom intensity, symptom burden, and the impact of symptoms on QoL. Also ensuring to provide individual tailored treatment aimed at improving or maintaining quality of life of cancer patients in the last period of their lives.

## Conclusion

In our present study population lung and bone cancer patients had a high prevalence of weight loss compared to patients with other primary cancer sites. G.I symptoms such as nausea, vomiting and diarrhea were observed among lung cancer patients experiencing highest prevalence of weight loss after chemotherapy. The current study also indicated that tumor site, information regarding weight loss and G.I symptoms were determinant factors of nutritional status among cancer patients and they must be included in the screenings and evaluation of cancer patients.

## Acknowledgments

This study received funding in the form of grant from Monash University Malaysia, School of Pharmacy.

## Conflicts of interest

There is no conflict of interest reported.

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