



PREVALENCE OF CANCER INDUCED CACHEXIA IN NON-DIGESTIVE TRACT MALIGNANCIES: AN OBSERVATIONAL STUDY

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ABSTRACT **Background:** Complications due to cancer arise at any stage of treatment. May it be prior, during or after the treatment. Cachexia is one such complication, which is multifactorial and has a debilitating effect. The initial presentation is anorexia, followed by weight loss and then muscle wasting. It is associated with reduced quality of life, lower tolerance to treatments such as chemotherapy and thereby reducing the chances of survival. It is more severe in cancers of non-gastrointestinal tract. In this study we evaluated the prevalence of cancer induced cachexia in non-gastrointestinal tract cancers.

Methodology: We had included 203 patients of age more than 18 years of either sex, with histopathologically confirmed cancer of different sites in the body other than gastrointestinal tract, who presented with sudden onset weight loss. Descriptive statistics was used for the assessment of cancer induced cachexia. All the data was presented in the form of numbers and percentages.

Results: There was a male predominance (56.7%) with non-gastrointestinal tract cancer. Of these 203 patients, 69% had head and neck cancer, 13.7% had breast cancer, 6.4% had lung cancer, 4.9% had ovarian cancer, 3.9% had cervical cancer and 2.0% patients had lymphoma. 100 Patients with cancer induce cachexia consist of 49.3% of the total number of cases. Lung cancer is the most common cancer after gastrointestinal cancer presented with cachexia. Cachexia highest with lung cancer 46.1%, head and neck cancer 45.7%, carcinoma of ovary 40%, cervical cancer 25.3%, carcinoma of breast 28.5%, and lymphoma presented with 25%.

Conclusion: The patients with non-gastrointestinal tract cancer should be made aware that on seeing any untoward changes prior, during or after their treatment, they should immediately seek appropriate support so as to prevent debilitating condition such as cancer induced cachexia. Preventive measures help in improving the quality of life with better treatment outcome.

KEYWORDS : Cancer, cachexia, anorexia, cancer induced cachexia.

INTRODUCTION

Cachexia in patients with cancer represents a complex metabolic condition. It presents as a progressive weight loss with host reserve depletion of adipose tissue and skeletal muscle. Cachexia is usually associated with gastrointestinal tract cancers. The survival in these patients is reduced due to progressive weight loss.¹¹

According to Fearon et al, pre-cachexia is defined as weight loss less than 5 percent with systemic inflammation (cancer). Cachexia is defined by weight loss >5 percent or by the dual criteria of BMI <20 with weight loss of 2 percent to 5 percent.

The prevalence of cachexia is from 50 to 80% in advanced cancers with an approximately 80% mortality due to cancer induced cachexia. It is associated with poor quality of life. It is a serious but underrecognized consequence of many chronic diseases. It is one of the major health problems around the globe. With advancement, we are now having an understanding of the multifactorial nature of this condition, especially the role of inflammatory mediators and the imbalance of anabolism and catabolism.

Cachexia is one of the most common and serious side effects of cancer, with up to half of untreated cancer patients losing weight and nearly a third losing more than 5% of their original weight. Cachexia is also responsible for roughly 20% of cancer mortality. Cachexia patients lose weight from both compartments, unlike starvation, which causes fat loss while maintaining lean body mass. There was an 85 percent decrease in total body fat and a 75 percent decrease in skeletal muscle protein in lung cancer patients who had lost 30 percent of their pre-illness stable weight.¹²

Weight loss is an important prognostic indication for cancer patients: total weight loss and weight loss rate (weight loss per week) are both closely connected to cancer patient survival. Even minor weight loss

(less than 5% of body weight) can have a negative impact on the prognosis. Patients who have lost weight have a lower response to chemotherapy.¹¹

Anorexia has been seen in 13–55 percent of cancer patients at the time of diagnosis, and the frequency in terminally sick cancer patients is significantly greater, at around 65 percent.¹³

The present study was conducted with an aim to evaluate the prevalence of cancer induced cachexia in our institution.

PATIENTS AND METHODS

The present hospital-based observational study was conducted on 203 patients with cancer other than gastrointestinal cancers during the study period June 2020 to June 2021 visiting the Department of Radiation Oncology for the first time. A voluntary written informed consent was obtained prior to enrollment. The inclusion criteria for the study was patient diagnosed with cancer other than gastrointestinal tract cancer confirmed on histopathology of age between 18 to 65 years; patient with early and locally advanced cancer and patient willing for curative treatment. The exclusion criteria was patient with gastrointestinal tract cancer; age less than 18 years and more than 65 years; patient on palliative treatment; any co-morbid condition such as human immunodeficiency syndrome (HIV), tuberculosis, etc.; pregnant females and those not willing to provide their voluntary informed consent for participation in the study.

All the patients underwent detailed physical examination, especially weight loss was noted if more than 5% in the last 3 months. BMI was calculated. Information regarding anorexia, asthenia was recorded. Anemia was evaluated from the latest blood investigations.

If the patient was suspected of cachexia, the patients were managed according to standard of care. The management was not under the aim

or objective of the present study, the same was not covered.

A customized proforma was used for collecting the patients information. Descriptive statistics was presented in the form of numbers and percentages.

The present study was not funded by any pharmaceutical company or institution. Also, all the study related expenses were borne by the researcher.

RESULTS

We had included 203 patients with cancers other than gastrointestinal tract. There was male predominance in the study (112 men vs. 88 women). (Table 1)

The mean age of the patients was 60.7 ± 12.9 years with a mean BMI of 24.5 ± 4.4 kg/m². The mean weight of the patients was 61.4 ± 13.2 kg.

Table 1 : Patient Characteristic

Sex	Number of patients	Percentage (%)
Male	115	56.7
Female	88	44.3
Total	203	100

According to primary tumour stratification by site, head and neck cancer was the most common presentation, followed by breast cancer, lung cancer, and genitourinary cancer in the decreasing order. (Table 3).

Table 2 : Site Wise Distribution

Site	Number of patients	Percentage (%)
Head and neck cancer	140	69
Breast cancer	28	13.7
Lung cancer	13	6.4
Ovarian carcinoma	10	4.9
Cervix cancer	8	3.9
Lymphoma	4	2
Total	203	100

According to the cancer staging, 20.2% of all the cancers were localized (i.e., stage I and II), 41.9% were locally advance (i.e., stage III), and 27.6% were metastatic (stage IV).

Cancer stage was not defined in 10.3% patients.

Table 3 : Cancer Staging

Stage	Number of patients	Percentage (%)
Localized (stage 1 and 2)	41	20.2
Locally advance (stage 3)	85	41.9
Metastatic (stage 4)	56	27.6
Not defined	21	10.3
Total	203	100.0

Cachexia found in 63 percent male patients and 32 percent in female patients

Table 4 : Cachexia According To Sex

Sex	Patients with Cachexia	Percentage (%)
Male	72/115	63.0
Female	28/88	32.0

In the present study, cachexia was seen in 100 (49.3%) of the patients with cancer other than gastrointestinal tract cancers. 46.1% prevalence was seen in lung cancers, 45.7% in head and neck cancers, 40% in carcinoma of ovary; 25% in cervical cancer, 28.5% in carcinoma of breast and 25% in patients with lymphoma. This is the overall prevalence considering the local disease as well as metastatic disease.

Table 5 : Cachexia According To The Site Of Primary Cancer

Site of primary cancer	Number of patients	Patients presented with Cachexia (%)
Lung cancer	6 / 13	46.1%
Head and neck cancer	64 / 140	45.7%
Lymphoma	1 / 4	25%
Carcinoma ovary	4 / 10	40%
Cervical cancer	2 / 8	25%
Breast cancer	8 / 28	28.5%

In early disease (Stage 1 and 2), cachexia was seen in 12% patients with local disease, while it was seen in 48% patients with locally advance disease (Stage 3). Higher prevalence of cachexia was seen in patients with locally advance disease in comparison to the local disease.

Highest prevalence of cachexia (82%) was seen in patients with metastatic disease. While it was 25% in those whose cancer staging was not defined.

Table 6 : Stage Wise Cachexia Presentation

Stage	Total Number of patients	Number of patients with Cachexia	Stage wise (%)
Localized (Stages 1 and 2)	41	5	12%
Locally advance (Stage3)	63	30	48%
Metastatic (Stage 4)	79	65	82%
Not defined	20	5	25 %

DISCUSSION

The present study evaluate the prevalence of cachexia in patients with cancers other than gastrointestinal tract. Many others have reported the debilitating effects of cachexia in gastrointestinal tract cancers, but there is lacunae of literature on studies related to its effect in non-gastrointestinal tract cancers.

We found the prevalence of cachexia in these cancer patients. The prevalence was found to be very high around 50% overall and the prevalence was higher in advance stage (Stage 3) and metastatic cancers (Stage 4) in comparison to the local disease. Argiles et al^[9] reported cachexia prevalence to be around 50-80% in their cancer patients, which is comparable to our study findings. There is a male predominance in the study. Vagnildhaug et al^[10] in their also reported a significantly higher prevalence of cachexia in male gender.

The commonest site of cancer was head and neck, followed by breast cancer, lung cancer, ovarian carcinoma, cervical carcinoma and lymphoma in the decreasing order. Vagnildhaug et al^[10] also reported a higher incidence of cachexia in patients with lung cancer (36%). Majority of the patients were in locally advance stage (Stage 3), followed by metastatic (Stage 4). Vagnildhaug et al^[10] reported no major difference in the prevalence of cachexia in metastatic (24%) and localized disease (19%), while our study found higher prevalence of cachexia in these patients.

Cachexia was most commonly seen in lung cancers (46.1%), in head and neck cancers (45.7%), in lymphoma (25%) and in carcinoma ovary (40%). Its prevalence was low in cervical cancer (25%) and in breast cancer (28.5%) in comparison to other cancers.

The limitation of the present study was that there was no follow-up with the management in these cachexic patients, so that long-term outcome could have been evaluated.

CONCLUSION

In patients with cancers other than gastrointestinal tract cancers, the prevalence of cachexia has been found to be high, affecting both the genders. Presentation of cachexia in patients with metastatic disease and locally advance disease is higher. As cancer induced cachexia is a wasting syndrome leading to higher mortality. The patient was suspected of cachexia, the patients were managed according to standard of care. An early diagnosis and treatment will improve the treatment outcome and quality of life of patients with cancers other than gastrointestinal tract.

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Conflict Of Interest: None

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