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Research Article

EVALUATION OF WEIGHT LOSS IN PATIENTS UNDERGOING RADIOTHERAPY FOR HEAD AND NECK CANCERS- A HOSPITAL BASED STUDY

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ABSTRACT

Aims & Objectives- to evaluate weight loss in patients undergoing radiotherapy for head neck cancers. **Material & Methods-** The present study was conducted on 100 patients between age group of 30-70 years attending ENT OPD of SMGS Hospital, GMC Jammu during a time period of July 2017 to June 2019. Inclusion criteria for our study were patients with primary sites of malignancy at oral cavity, oropharynx, larynx & hypopharynx undergoing external beam radiotherapy. Exclusion criteria were age below 30 years, patients on palliative radiotherapy, patients who underwent surgery for primary cancer and patients requiring feeding jejunostomy at any point of treatment. A baseline weight of all patients was taken using weighing machine, before starting the radiotherapy; once weekly thereafter till the end of treatment; followed up for weight loss on 1st and 3rd month after treatment completion. Weight loss was calculated as a percentage with reference to the pre treatment weight. **Results-** Out of 100 patients, 68 patients showed <5% weight loss at 3rd month after treatment completion, 17 patients showed 5-10% weight loss, 12 patients showed >10% weight loss and 3 patients showed no weight loss. The mean weight loss in our study was 4.9kgs. **Conclusion-**Weight loss is a common side effect of radiotherapy in head and neck cancer patients.

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INTRODUCTION

Radiotherapy is an important modality in head and neck cancer management, particularly where preservation of organ function is of concern. Radiotherapy is the application of radiation for the purpose of therapeutic gain. Most commonly, this is by means of external beam radiotherapy where a radiation beam is directed from a machine placed outside the patient to a treatment volume located within. Alternatively, radioactive material can be introduced directly to within a tumor or tumor bearing area (brachytherapy).[1] Radical radiotherapy alone plays a key role in the management of early laryngeal cancer.[2]

The balance between delivering treatment of sufficient intensity to cure the highest proportion of patients and minimising the risk of serious sequelae remains a challenge for oncologists, just as it remains a challenge for surgeons in the surgical arena.

There are two main factors affecting patient shape and contour; first factor, over a standard course of radiotherapy, tumor shrinkage is a possibility.[3] This is most apparent for virally mediated tumors such as human papilloma virus positive squamous cell carcinoma. These tumors often present with

bulky nodal disease and respond well to treatment showing a significant reduction in size as treatment progresses[4]. The second factor is Weight loss, as treatment progresses, related toxicities can impact upon the dietetic health of patients, which needs to be monitored to ensure patient health is maintained. [5]

In head neck cancer patients, several factors contribute to weight loss before, during and after treatment. Weight loss is usually attributed to the physiological abnormalities associated with the tumor (because of obstruction and interference with swallowing), the tumor host response (such as chronic inflammation and cytokine production), and adverse effects of cancer treatments.[6]

Unintentional weight loss is an indicator of malnutrition [7] and is associated with longer recovery from treatment related toxicity and reduced quality of life[8].Furthermore, studies have suggested that malnutrition reduces overall survival[9]. Cancer patients are susceptible to malnutrition, not only due to the impact of metabolic changes induced by tumor itself, but also by anti-cancer therapies. Malnutrition reduces the vitality of cancer patients and impairs their quality of life

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Overall, 57.5% of global head and neck cancers occur in Asia especially in India. Head and neck cancers in India accounted for 30% of all cancers. Significant weight loss in 75-80% of those with head and neck cancer has been widely accepted.[10] The aim of our study was to evaluate weight loss in patients undergoing radiotherapy for head neck cancers

MATERIAL AND METHODS

The present study was conducted on 100 patients between age group of 30-70 years attending ENT OPD of SMGS Hospital, GMC Jammu during a time period of July 2017 to June 2019.

Inclusion criteria for our study were patients with primary site of malignancy at oral cavity, oropharynx, larynx & hypopharynx undergoing external beam radiotherapy.

Exclusion criteria were age below 30 years, patients on palliative radiotherapy, patients who underwent surgery for primary cancer and patients requiring feeding jejunostomy at any point of treatment.

All patients on admission were subjected to relevant clinical history, general physical examination including neck examination and indirect laryngoscopy. Indirect laryngoscopic findings were confirmed with flexible laryngoscopy.

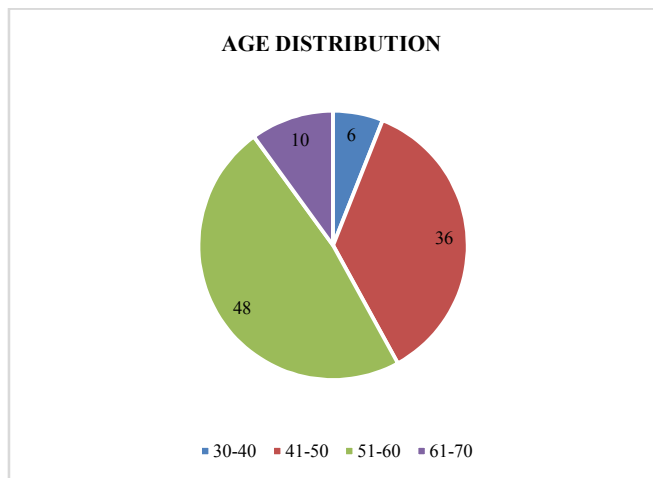
All patients were subjected to routine laboratory investigations, Ultrasound abdomen, X-ray chest, CECT neck. All patients were then staged as per TNM staging system.

A baseline weight of all patients was taken using weighing machine, before starting the radiotherapy; once weekly thereafter till the end of treatment; followed up for weight loss on 1st and 3rd month after treatment completion. Weight loss was calculated as a percentage with reference to the pre treatment weight

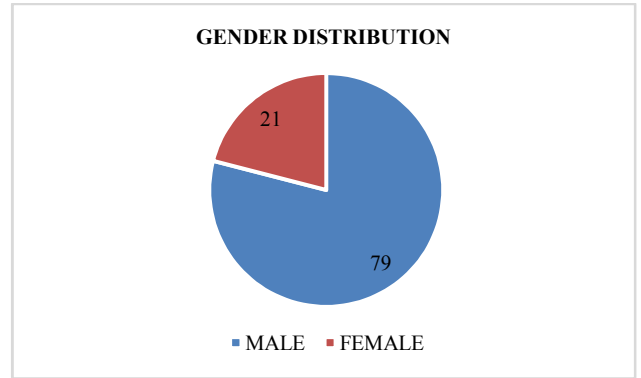
All patients received a total dose of 70 Gy of external beam radiotherapy for 7 weeks. Those requiring chemotherapy (concurrent, adjuvant or neoadjuvant) were subjected to Cisplatin/paclitaxel/5-fluoro uracil therapy.

RESULTS

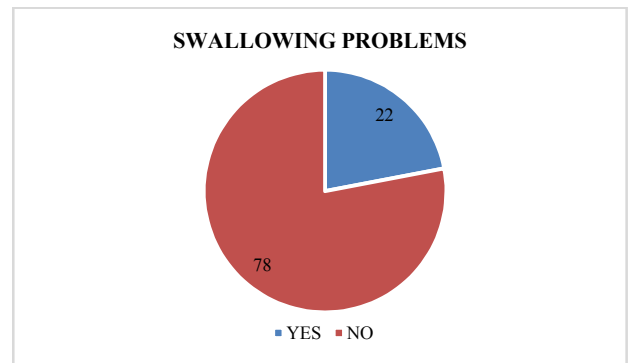
Mean age of presentation of 54.2 years, with majority of patients in the age group of 51-60 years.



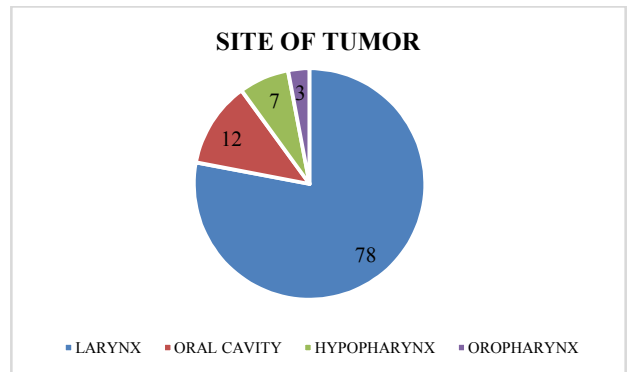
Out of 100 patients, 79 were males and 21 were females.



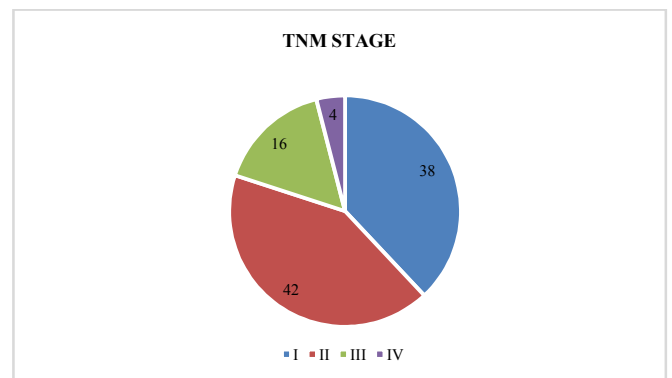
Out of 100 patients, 22 patients had swallowing problems at the time of admission.



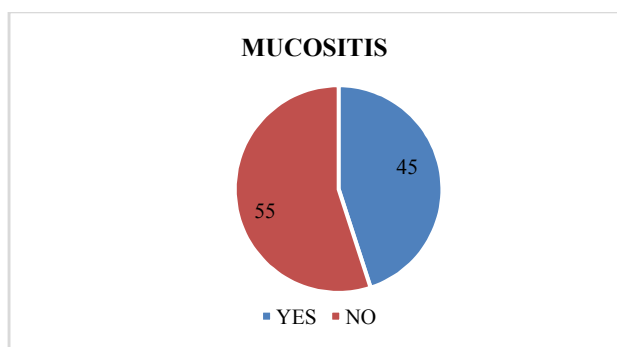
Out of 100 patients, most common site of primary tumor was larynx (78%), oral cavity (12%), hypopharynx (7%) and oropharynx (3%).



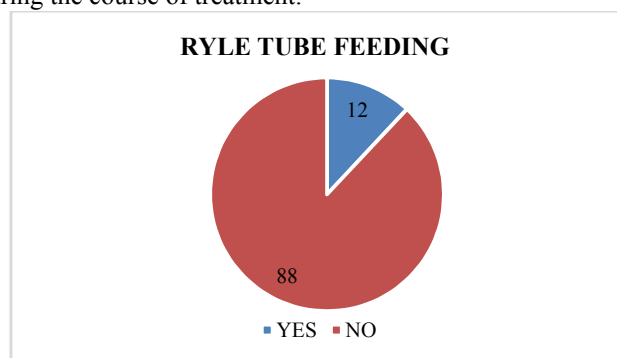
Out of 100 patients, 38 patients were in Stage I TNM Staging, 42 were in Stage II, 16 in Stage III and 4 in Stage IV.



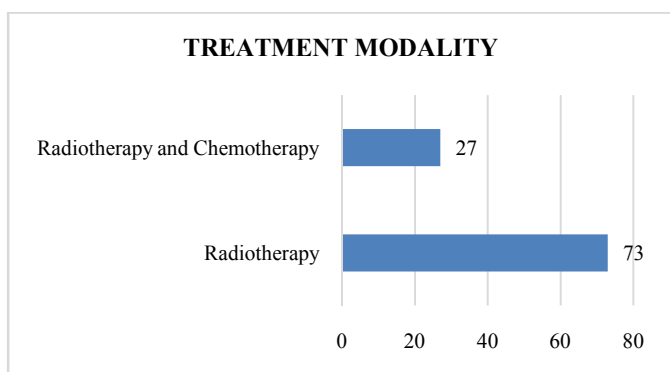
Out of 100 patients, 45 patients developed mucositis.



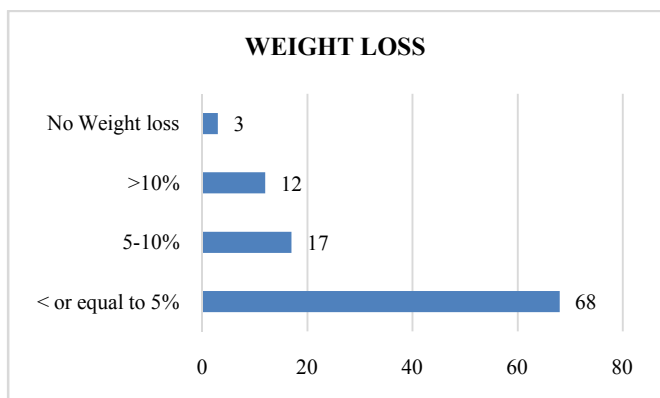
Out of 100 patients, 12 patients required Ryle’s tube feeding during the course of treatment.



Out of 100 patients, 73 patients received radiotherapy and 27 patients received chemotherapy along with radiotherapy.



Out of 100 patients, 68 patients showed <5% weight loss at 3rd month after treatment completion, 17 patients showed 5-10% weight loss, 12 patients showed >10% weight loss and 3 patients showed no weight loss.



DISCUSSION

Weight loss has been recognised as a problem and remains a clinically significant complication of Head and Neck radiotherapy. In the treatment of patients with head and neck cancer, nutritional issues have been raised and discussed for decades. The tumor itself, radiation induced fibrosis and surgical defects are reported to be followed by excessive weight loss and malnutrition. Problems include dysphagia, xerostomia, mucositis, loss of appetite, smell and taste changes, as well as pain and badly fitted dentures.[11]

The nutritional management of patients with head and cancer is very complex because several factors are involved, including the disease itself, treatment modalities and other individual factors. Regular measurements of body weight during and after treatment of head and neck cancer have been identified as an important method to use for surveillance.

Mean age of presentation of 54.2 years, with majority of patients in the age group of 51-60 years. Dawson *et al.*, in their study showed mean age to be 57 years. Langius J A E *et al.*[12], showed 61.4 years as the mean age of presentation. Ehrsson Y T *et al.*[13], in their study showed 60.4 years as the mean age.

Out of 100 patients, 79 were males and 21 were females. Zhang *et al.*[15], in their showed more male predilection (72%). Bicakli D H *et al.*[16], in their study showed presentation by more male population.

Out of 100 patients, 22 patients had swallowing problems at the time of admission and consequently showed more weight loss after treatment completion.

Out of 100 patients, most common site of primary tumor was larynx (78%), oral cavity (12%), hypopharynx (7%) and oropharynx (3%). Langius J A E *et al.*[12], demonstrated larynx as the most common site (33%) followed by oropharynx (23%) and oral cavity (18%). Newman L A *et al.*[17], in their study showed oropharynx to be most common site (49%) followed by larynx (30%).

Out of 100 patients, 38 patients were in Stage I TNM Staging , 42 were in Stage II, 16 in Stage III and 4 in Stage IV. In our study, it was observed that stage I and stage II patients showed less than or equal to 5 % weight loss; stage III and IV patients showed more than 5 % weight loss at 3rd post treatment month. Cacicedo J *et al.*, also showed in their study that mean weight loss was significantly lower for patients in stage I and II than for patients in stages III and IV.[18]

Out of 100 patients, 45 patients developed mucositis. Mucositis was significant to limit oral intake in such patients and lead to weight loss.

Out of 100 patients, 12(12%) patients required Ryle’s tube feeding during the course of treatment. Nourissat *et al.* in their study showed 14 % patients needed enteral feeding[19]. According to Ottosson *et al.*, 10 % needed enteral nutrition.[20]

Out of 100 patients, 73 patients received radiotherapy and 27 patients received chemotherapy along with radiotherapy. In our study, no significant correlation was found between the two treatment modalities and weight loss

Out of 100 patients, 68 patients showed <5% weight loss (68%) at 3rd month after treatment completion, 17 patients showed 5-10% weight loss (17%), 12 patients showed >10% weight loss(12%) and 3 patients showed no weight loss(3%). The average weight loss in our study following radiotherapy was 4.9 kgs. Ehrsson *et al.*, in their study showed average weight loss to be 4.2 kgs. Langius *et al.*, showed mean weight loss of 4 kgs.[21]

CONCLUSION

Weight loss is a common side effect of radiotherapy in head and neck cancer patients. Patients with symptoms like swallowing difficulty at the time of presentation or mucositis during treatment, show more weight loss. Tumor staging is also an important parameter, with patients of early stages (stage I and II) showing less weight loss post treatment. Thus , proper nutritional counselling is required for all patients of head neck cancer undergoing radiotherapy.

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