ISSN Print: 2394-7500
ISSN Online: 2394-5869
Impact Factor: 5.2
IJAR 2016; 2(12): 214-216
www.allresearchjournal.com
Received: 01-10-2016
Accepted: 02-11-2016

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Pattern of weight loss in head and neck cancer patients undergoing curative radiotherapy

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Abstract
Purpose: Many patients receiving fractionated radiotherapy (RT) for head-and-neck cancer have marked anatomic changes during their course of treatment. The aim of this study was to investigate the incidence of weight loss in head and neck cancer patients after the commencement of radiotherapy treatment.
Methods and Materials: A total of 30 patients with head and neck cancer treated with Intensity modulated radiotherapy was enrolled in the study. The weight of patient every week was documented and percentage drop from the baseline was observed.
Results: The mean weight at baseline was 54.50 kg and the mean weight at the end of 6 weeks of radiotherapy was 51.10 kg. The percentage drop in weight was 6.57%. A significant number of patients experienced a dry mouth, had difficulty masticating and swallowing food, had altered taste perception, were missing meals.
Conclusion: Since radiotherapy treatment may further limit oral intake, it is essential that dietetic intervention is addressed for all head and neck cancer patients and incorporated into the treatment plan on diagnosis.

Keywords: Radiation, head and neck cancer, IMRT, weight loss

1. Introduction
Radiation is an important treatment modality in the control and cure of Head and Neck Cancers especially when surgical intervention is not possible and/or chemotherapy may debilitate the patient [1, 2]. Definitive radiotherapy plays an important role in the management of locally advanced squamous cell carcinomas of head and neck. Intensity modulated radiation therapy (IMRT) has now been routinely used for the treatment of head and neck as it provides superior local control while sparing the surrounding normal tissues [1]. Although superior to conventional RT, IMRT still causes significant toxicity and maintaining nutritional status is an important issue as oral feeding is a major issue and can compromise recovery from illness or injury [1]. Patients often experience weight loss following radiotherapy [3, 4] primarily due to treatment-related side effects such as mucositis, xerostomia, and dysphagia [5] leading to an insufficient energy intake. The critical weight loss is reported to reduce disease-specific survival, patient-reported functional performance, and quality of life [6, 7]. The aim of this study was to investigate the incidence of weight loss in head and neck cancer patients after the commencement of radiotherapy treatment.

2. Methods and Materials
A total of 30 patients with head and neck cancer treated with Intensity modulated radiotherapy were enrolled in the study. The inclusion criteria consisted of patient planned for radical radiotherapy requiring Intensity Modulated Radiotherapy and with a performance status > 70. The exclusion criteria included patients who were previously not treated with radiotherapy at the same site and patients requiring palliative radiotherapy. All patients enrolled in the study had histopathology proof of cancer. Informed consent was taken from patients. Patients were staged according to TNM staging system (AJCC Cancer Staging Manual 7TH Edition). Routine investigations such as complete blood count, renal function tests etc were carried out. Radiological examination may include X-ray, Ultrasound, CT scan, and MRI depending on the tumor to assess the extent of the disease.

Immobilization device such as mask was designed to help the patient assume same position each day. CT scan simulation was performed and images transferred to the treatment planning system for planning. Target volumes such as gross tumor volume (GTV), Clinical target volume (CTV), Planning target volume (PTV) was contoured and OAR was delineated. The weight of patient every week was documented and percentage drop from the baseline was observed.

2.1 Statistical Analysis

The data was entered in computer using excel sheet for statistical analysis. The mean along with standard deviation (SD) was calculated for each parameter. Paired t-test was applied to analyze the difference and level of significance between initial scan and repeat scan. The difference was considered significant if p value was less than 0.05.

3. Results

A total number of 30 patients diagnosed with head and neck cancer were included in the study. Among the 30 patients included in the study, 21 (70%) were males and 9 (30%) were females (Table 1). Ratio of males: females = 2.3:1 (Table 1). Dysphagia to solids and pain in oral cavity was seen in majority of patients (23.3%) (Table 1). Other symptoms included swelling in neck (13.4%), bleeding nose (10%), swelling in mouth (6.7%), neck swelling (6.7%), ear pain (3.3%), odynophagia (3.3%); neck pain (3.3%), swelling in cheek (3.3%), & throat pain (3.3%). Of the 30 patients included in the study as depicted in table, 9 (30%) diagnosed with carcinoma of oral cavity, 8 (26.7%) carcinoma oropharynx, 6 (20%) carcinoma hypopharynx, 4 (13.3%) carcinoma nasopharynx, 1(3.3%) carcinoma larynx, 1 (3.3%) carcinoma maxilla, 1(3.3%) MUO (Table 1; Figure 1). The mean weight at baseline was 54.50 kg and the mean weight at the end of 6 weeks of radiotherapy was 51.10 kg (Table 2). The percentage drop in weight was 6.57% which was significant (Table 2; Figure 2).

Table 1: Details of the various parameters evaluated

	Number	Percent
Female	9	30
Male	21	70
Complaints		
Bleeding Nose	3	10
Dysphagia	7	23.3
Left Ear Pain	1	3.3
Neck Swelling	2	6.7
Odynophagia	1	3.3
Pain Neck	1	3.3
Pain Oral Cavity	7	23.3
Swelling Cheek	1	3.3
Swelling In Mouth	2	6.7
Swelling In Neck	4	13.4
Throat Pain	1	3.3
Diagnosis		
Hypopharynx	6	20
Larynx	1	3.3
Maxilla	1	3.3
Muo	1	3.3
Nasopharynx	4	13.3
Oral Cavity	9	30
Oropharynx	8	26.7
Tumor size		
1	1	3.3
2	8	26.7
3	12	40
4	7	23.3
4A	1	3.3
X	1	3.3
Node status		
0	7	23.3
1	4	13.3
2	2	6.7
2B	11	36.7
2C	3	10
3	2	6.7
3A	1	3.3

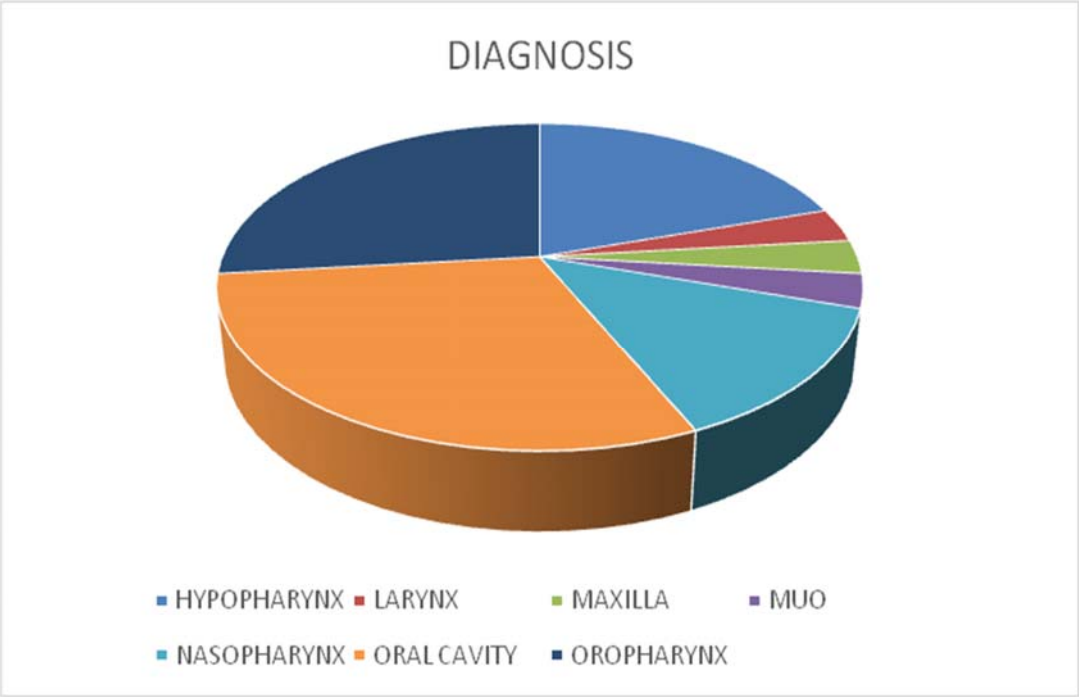

Fig 1: Representation of various H&N cancers observed in the study

Table 2: Weight change pattern in patients with cancer in different locations

DIAGNOSIS	Number	Percent
Ca Hypopharynx	6	20
Ca Larynx	1	3.3
Ca Maxilla	1	3.3
Muo	1	3.3
Ca Nasopharynx	4	13.3
Ca Oral Cavity	9	30
Ca Oropharynx	8	26.7

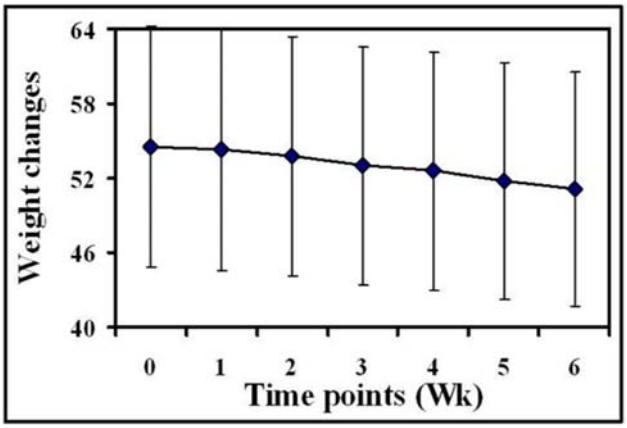

Fig 2: Representation of weight change in the patients undergoing treatment

4. Discussion

Weight loss is a major issue in the treatment of Head and Neck Cancers. Additionally, loss of muscle power affects respiratory function, increasing susceptibility to chest infection, result in increased morbidity and mortality and lengthened stay in the hospital. Weight loss is the most important parameter used to describe nutritional status in clinical practice [1, 2].

In this study the prevalence of weight loss was highest in patients with a tumor in the hypopharynx, oropharynx/oral cavity and supraglottic larynx, especially in patients with larger tumors. Nowadays, tumors with tumor size 3 and 4 are mainly treated with accelerated radiotherapy or chemoradiation. These treatment modalities are accompanied by dysphagia, odynophagia, xerostomia, taste disorders and loss of appetite.

The results of our study have shown that most of these symptoms are predictive for weight loss at the time of diagnosis. If no nutritional intervention takes place, body weight will further decline during cancer treatment. Prophylactic placement of a gastrostomy tube is effective in reducing weight loss during treatment with radiotherapy and chemoradiation [8-10]. When weight loss is present at the time of diagnosis, placement of a gastrostomy tube in these patients in the period before the start of the treatment should be considered to optimize nutritional status. Lee *et al* [11]. Demonstrated the efficacy of nutritional support. Patients receiving follow-up by a special programme that included nutritional counseling and nutritional support had significantly less weight loss compared with a group that did not get such help.

5. Conclusion

Since radiotherapy treatment may further limit oral intake, it is essential that dietetic intervention is addressed for all head and neck cancer patients and incorporated into the treatment plan on diagnosis. Nutritional surveillance is important for all patients, especially in patients with a more severe disease stage.

6. References

1. Van Bokhorst-de van der Schueren MA, v an Leeuwen PA, Sauerwein HP, Kuik DJ, Snow GB, Quak JJ. Assessment of malnutrition parameters in head and neck cancer and their relation to postoperative complications. Head Neck. 1997; 19:419-25.
2. Ravasco P, onteiro-Grillo IM, idal PMV, amilo MEC. Nutritional deterioration in cancer: The role of disease and diet. Clin Oncol (R Coll Radiol). 2003; 15:443-50.
3. Ottosson S, Zackrisson B, Kjellén E, Nilsson P, Laurell G. Weight loss in patients with head and neck cancer during and after conventional and accelerated radiotherapy. Acta Oncol. 2013; 52(4):711-718.
4. Lønbro S, Dalgas U, Primdahl H, Johansen J, Nielsen JL *et al.* Progressive resistance training rebuilds lean body mass in head and neck cancer patients after radiotherapy - results from the randomized DAHANCA 25B trial. Radiother Oncol, 2013; 108(2):314-319.
5. Mortensen HR, Overgaard J, Specht L, Overgaard M, Johansen J, Evensen JF *et al*. Prevalence and peak incidence of acute and late normal tissue morbidity in the DAHANCA 6&7 randomised trial with accelerated radiotherapy for head and neck cancer. Radiother Oncol. 2012; 103(1):69-75.
6. Langius JA, Bakker S, Rietveld DH, Kruizenga HM, Langendijk JA, Weijs PJ *et al*. Critical weight loss is a major prognostic indicator for disease-specific survival in patients with head and neck cancer receiving radiotherapy, 2013.
7. Langius JA, van Dijk AM, Doornaert P, Kruizenga HM, Langendijk JA, Leemans CR *et al.* More than 10%weight loss in head and neck cancer patients during radiotherapy is independently associated with deterioration in quality of life. Nutr Cancer, 2013; 65(1):76-83.
8. Ravasco P, Monteiro-Grillo I, Vidal PM, Camilo ME. Nutritional deterioration in cancer: the role of disease and diet.Clin Oncol. 2003; 15:443-450.
9. Silver HJ, Dietrich MS, Murphy BA. Changes in body mass, energy balance, physical function, and inflammatory state in patients with locally advanced head and neck cancer treated with concurrent chemoradiation after low-dose induction chemotherapy. Head Neck, 2007; 29:893-900.
10. Nourissat A, Bairati I, Samson E *et al*. Predictors of weight loss during radiotherapy in patients with stage I or II head and neck cancer. Cancer, 2010.
11. Lee H, Havrila C, Bravo V *et al.* Effect of oral nutritional supplementation on weight loss and percutaneous endoscopic gastrostomy tube rates in patients treated with radiotherapy for oropharyngeal carcinoma. Support Care Cancer. 2008; 16:285-289.