

Introduction

Many studies have shown that Head and Neck Cancer (HNC) has high incidence of malnutrition; 20% to 67% of HNC patients are malnourished at the time of diagnosis or they are at high risk of becoming malnourished during treatment. The unique location, treatment modalities and side effects of radiotherapy such as oropharyngeal mucositis, xerostomia and dysphagia has a major role in developing malnutrition in HNC patients. Among various nutritional assessment methods such as anthropometric measurements, biochemical, clinical, dietary assessments, dual energy X-ray absorptiometry, CT and MRI; BIA (Body Impedance Analysis) remains a reliable, economical method to assess nutritional status. It can give details of Total Body Water (TBW), Fat Mass (FM), Fat Free Mass (FFM) and Bone Mass (BM). Many studies have shown that nutritional supplementation results in good clinical outcome and reduces economic burden in cancer patients.

Aim of the Work

The aim of this study was to assess the effect of oral nutritional supplements in head and neck cancer patients receiving radiotherapy with or without chemotherapy in Alexandria University Clinical Oncology Department. Primary objective of this study was to compare the changes in FFM, FM and BM in Oral Nutritional Supplement (ONS) and No ONS groups. At the same time, it was aimed to correlate the relationship between ONS and radiation related acute toxicity as well as patients' compliance to treatment.

Patients and Methods

This study was a prospective clinical control pilot study which was carried out in Alexandria University Hospital, Clinical Oncology department during August 2021 to May 2022. It included 15 patients in the study arm (ONS group) and 15 patients in the control arm (No ONS group) who had confirmed diagnosis of head and neck cancer and received radiotherapy with or without chemotherapy. Patients above 18 years and ECOG performance score of 0 or 1 were included and any patient who were unable to tolerate oral feeding, who needed hospitalization and malnourished or obese patients were excluded. (BMI <18.0 and > 29.9). Eligible patients underwent physical examination and BIA assessment at baseline, mid RT course and at the end of RT course. ONS (200 ml) was given twice daily with 920 KJ/100 ml nutritional value.

Results

Study showed that patients in No ONS group had statistically significant reduction in their nutritional status during treatment period. Body weight ($p<.001$), BMI ($p<.001$), fat mass ($p<.001$), fat free mass ($p<.001$) and bone mass ($p=.031$) in the No ONS group while in the ONS group there was no statistically significant change. Furthermore, using Pairwise comparisons for No ONS group showed that loss of nutritional values was seen remarkably towards the end of the radiotherapy course. The p values of mid to end of RT course and beginning to end of RT course for body weight were (.007 and <.001), BMI were (.007 and <.001), FM were (.004 and .001), FFM were (.032 and <.001) confirms the statistically significant nutritional deterioration after mid RT course. In addition, percentage change of nutritional parameters also showed statistically significant reduction in the No ONS group compared with ONS group after mid RT course.

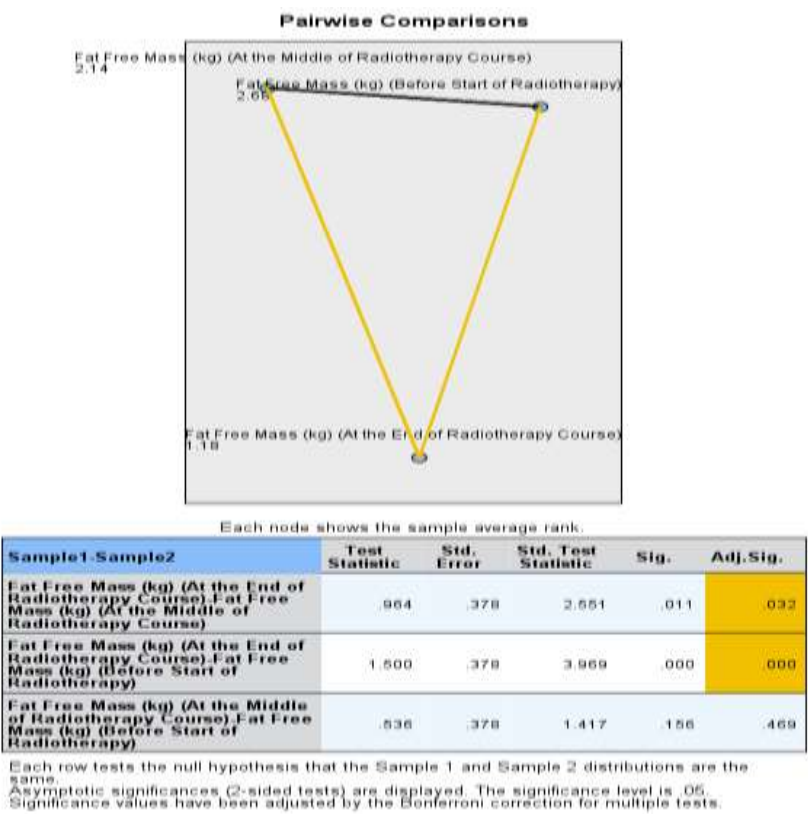
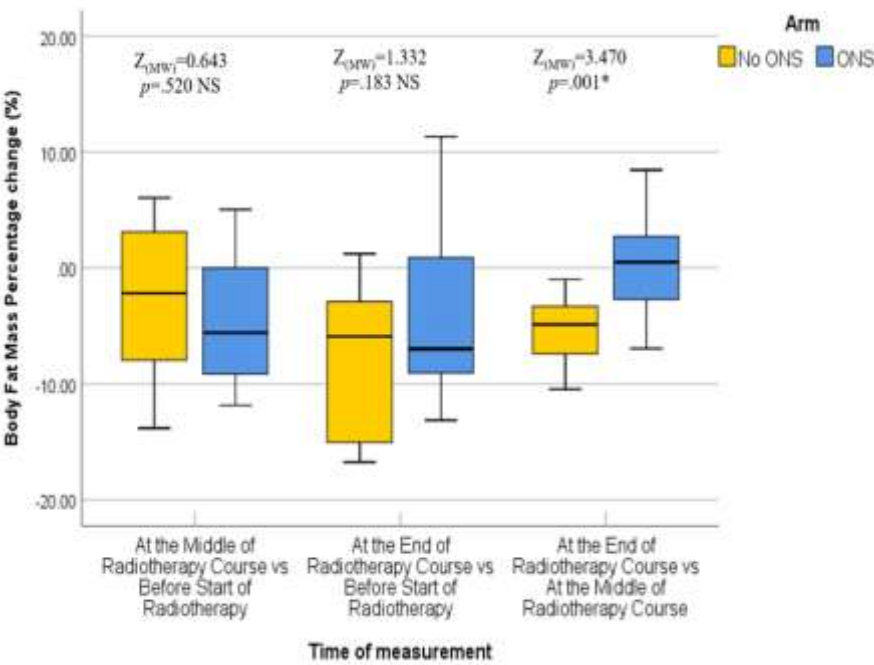


Figure 1



Conclusion

- Starting early oral nutritional supplementation during radiotherapy has significant effect on the head and neck cancer patients to maintain their body weight, BMI, fat mass, fat free mass and bone mass.
- Significant deterioration of nutritional status begins towards the middle of radiotherapy course which correspond to third or the fourth week of the treatment course.
- This study implied that use of ONS for four or more weeks is beneficial to maintain nutritional status.
- There was no significant correlation between ONS supplementation and radiotherapy related acute side effects or compliance to treatment among HNC patients.