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A STUDY TO ASSESS THE EFFECTIVENESS OF NUTRITIONAL COUNSELING ON THE DIETARY PATTERN, SYMPTOMS OF SIDE EFFECTS OF RADIATION THERAPY ON PATIENTS WITH HEAD & NECK (H&N) CANCER RECEIVING RADIOTHERAPY IN A SELECTED CANCER RESEARCH INSTITUTE, DEHRADUN."

Nursing

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ABSTRACT

Radiation therapy is the treatment modality of cancer treatment which has benefit to reduce cancer as well as side effects which lead to malnourishment. The purpose of the study was to give nutritional counseling to patients with H&N cancer undergoing RT and assess its effects on dietary pattern and Symptoms of side effects of radiation therapy.

Methodology: the research design was adopted in this study was quasi experimental one group time series design. purposive sampling technique was adopted to include 46 patients with head and neck cancer undergoing radiation therapy in Cancer Research Institute, Swami Ram Himalayan University, Jolly Grant, Uttarakhand India. Data were collected by administering socio-demographic proforma, structured dietary pattern checklist. The data were analyzed using descriptive and inferential statistics.

Results:

The result of the study showed significant improvement in calorie intake between first and second week on radiation therapy after giving dietary counselling but after third week there was significant decrease in calories intake up to fourth week due to increase symptoms of side effects of radiation therapy.

Conclusion:

Dietary counseling given to H&N cancer patients who were undergoing RT was effective in improving their dietary pattern i.e. daily energy intake during the first and second week of radiotherapy and was not effective during the third week of radiotherapy because of side effects of radiotherapy i.e. difficulty in swallowing, dryness of mouth, etc. Symptoms of the side effects of RT increased as the days of RT progressed.

KEYWORDS

Dietary pattern, Symptoms of side effects of Radiotherapy (RT), head and neck (H&N) cancer patients.

1. INTRODUCTION

Cancer of Head and Neck (H&N) include in CA of oral, nasal part, salivary glands, laryngeal and Hypopharyngeal region, nasopharynx, oropharynx. In 2015 NCBI reported that globally 57.5% of peoples were living with cancer. And also reported that in India 2 lakhs peoples were affected each year. According to a report of GLOBOCAN in 2018, globally H&N cancer statistics revealed that there are 8.3 lakhs cases of cancer of head and neck every year, resulting in approximately 4.3 lakh deaths every year. Increased prevalence rates have been reported from developing countries including India, Pakistan, Bangladesh, Taiwan, and Sri Lanka. GLOBOCAN in 2018 reported that oral cancer (16.1%) was mostly affecting the Indian population. H&N CA 30–40% responsible for all cancer sites, in India.

RT is an effective treatment modality to shrink or to destroy the cancerous cell, radiation therapy works on two bases one is by external radiation therapy and the second is by brachytherapy. High energy radiation like X-rays and Gamma rays are used in external radiation therapy, which is delivered by machine at the site of the cancerous cell while brachytherapy uses the insertion of the radioactive electrode in the body close to a cancerous cell. The late and early adverse effect of radiation therapy is lethargy, fatigue, mucositis, dermatological manifestation, Nausea, vomiting, malnourishment which need to be a consideration to reduce the physical problem and to improve the wellbeing of the patient with H&N CA undergoing RT.

In therapeutic procedures such as surgery, RT, chemotherapy and a concoction of these may further cause difficulty in oral intake. The result revealed that 44-80% of patients are malnourished due to Chemotherapy, RT, and a combination of both.

Nutritional counseling and adding supplements in the diets of patients also affect nutritional intake and status. As suggested by International guidelines that thorough nutritional counseling and oral nutritional supplements can be used to raise dietary consumption and also to reduce complications such as weight loss.

2. OBJECTIVES

1. To assess the effectiveness of nutritional counseling on dietary patterns of patients with head and neck cancer undergoing radiation

therapy.

3. METHODOLOGY

In order to achieve the objectives of the study, evaluative approach (quantitative) was used. Quasi-experimental one group time series design was adopted. A total of 46 patient with head and neck cancer undergoing radiation therapy were selected through purposive sampling technique.

4. RESULTS

Maximum of study participants had cancer of the tongue (43%), buccal mucosa (28%), hypopharynx (13%), larynx (9%), minimum (7%) of them had cancer of supraglottis. Regarding the stage of cancer (43%) had the 2nd stage, (43%) 3rd stage, and a minimum (9%) had stage 4 cancers. About half of the participants 54% had surgery earlier were as 33% of participants receiving Chemoradiation therapy and a minimum of 13% of the receiving only radiation therapy. The majority 72 % of the participants had a height between 5.6-5.8 feet. The majority of 74% of participants weighed 55-75 kg. at the time of starting radiation therapy. The majority 78 % of participants were having normal BMI between (18.5-24.9).

The result showed that the mean calorie intake of patients undergoing radiation therapy was 1180.89±47.54 at the baseline. During the second week of radiation therapy, the mean calorie intake had increased to 1586.23±47.19 and during the third week, it had slightly

Table 1 Mean and standard deviation of calories intake of HNC patient undergoing RT

Calories intake of patients undergoing radiotherapy	Mean ± SD	F value	P-value
1st week of radiotherapy	1180.89±47.54	138.0	.0001
2nd week of radiotherapy	1586.23±47.19		
3rd week of radiotherapy	1424.41±71.33		
4th week of radiotherapy	975.93±72.13		

decreased to 1424.41 ± 71.33 , and during the fourth week, it had decreased to 975.93 ± 72.13 . Friedman's test was used to calculate the difference within the group. Which was significant with f value = 138.00 at $p < 0.000$. (table 1).

majority of 100% of the percentage were taking diet thorough oral route in the first week second and third week. During 4th week 17.39% were taking diet through a nasogastric tube and the majority 82.61% were taking diet orally (table 2).

Table No. 2 Frequency and Percentage distribution of Mode of dietary intake of HNC patients undergoing RT.

Weeks	Mode of Dietary Intake			
	Orally		Through Nasogastric Tube	
	f	%	f	%
1st week	46	100	-	-
2nd week	46	100	-	-
3rd week	46	100	-	-
4th week	38	82.61	8	17.39

During the 1st and 2nd week all the research participants (100%) were taking a solid diet. During 3rd week 76% of participants were taking a solid diet while 23% semisolid diet. During 4th week the percentage of participants taking a solid diet was reduced to 36.96% and the percentage of participants taking a semisolid diet increase up to 45.65% and 17.39% were taking a liquid diet (table 3).

Table No. 3 Frequency and percentage distribution of Type of dietary intake by HNC patient undergoing RT

Weeks	Type of Diet					
	Solid	Semi-Solid Diet	Liquid Diet			
	f	%	f	%	f	%
1st week	46	100	-	-	-	-
2nd week	46	100	-	-	-	-
3rd week	35	76.09	11	23.91	-	-
4th week	17	36.96	21	45.65	08	17.39

Table no 4 shows that during the 1st day of radiation therapy the majority of 78.26% of research participants with normal BMI while a minimum of 2.17% of research participants with overweight BMI. On the 10th day of radiation therapy majority of 71.74% of research participants with normal BMI while 28.26% of research participants are underweight. On the 21st day of radiation therapy, the majority of 65.22% of research participants were in normal BMI while 34.78% were in underweight BMI.

Table No. 4 Frequency & Percentage distribution of BMI status of HNC patient undergoing RT

Day	BMI Status					
	Normal		Underweight		Overweight	
	f	%	f	%	f	%
1st day of RT	36	78.26	09	13.57	01	2.17
10th day of RT	33	71.74	13	28.26	-	-
21st day of RT	30	65.22	16	34.78	-	-

5. DISCUSSION

The results of the research study had been discussed according to the objectives and hypothesis in the light of other studies conducted in the same area.

Regarding dietary pattern in patients with HNC treated with RT

The mean calorie intake of patients undergoing radiation therapy was 1180.89 ± 47.54 per day at the baseline (Beginning of radiation therapy. During the second week of radiation therapy, the mean calorie intake had increased to 1586.23 ± 47.19 per day and during the third week, it had slightly decreased to 1424.41 ± 71.33 per day, and during the fourth week, it had decreased to 975.93 ± 72.13 per day.

The result is similar to a study conducted by Pistoia L.F., et al 2013 the patients had an average loss of body weight of 5.7% in 21 days with a reduction in energy intake (26.5 Kcal/kg/d - 21.3 Kcal/kg/d , $p < 0.001$) during the study period.

The result further supported by a study conducted by Isenring EA, Bauer JD, Capra S 2015 Results revealed that the mean intake of energy (calories) per kg of weight for the nutritional therapy group

extended from 28 to 31 kcal per kg per day as compared 25 to 29 kcal per kg per day for the normal practice group ($p = 0.022$).

Result further reinforced by a study directed by Mafnano M., et al 2015 the patient had a significant reduction of BMI from 6-month prior diagnosis to at the time of diagnosis i.e As for reference BMI, before 6 months of diagnosis 77 patients were overweight, whereas just seven patients were low weight. At the time of diagnosis, seventy-two patients were showed overweight according to BMI, whereas 52 patients were having low weight.

6. CONCLUSION

This study concluded that dietary counseling given to HNC patients who were undergoing RT was effective in improving their dietary pattern i.e. daily energy intake during the first and second week of RT and was not effective during the third week of RT because of the side effects of RT i.e. Difficulty in swallowing, dryness of mouth, etc. Symptoms of the side effects of RT increased as the days progressed.

7. Nursing Implication

1. Nurses enhance people's awareness regarding the importance of nutrition to manage the side effects resulting from the adverse effect of radiation and the treatment of cancer.
2. The result of the study will help nurses to understand the need for nutritional counseling.
3. The nurse needs to involve in the holistic care of the patient through that she can follow all phases of the nursing research process to address the issue of patients undergoing radiation therapy i.e. nutritional counseling.
4. The present study could be a source of literature for others intending to conduct a similar study related to dietary patterns and the side effects of RT in HNC patients.

8. Limitations Of The Study

The study is delimited to:-

1. A small sample size limit.
2. Dietary intake is as reported by the participants.
3. A few of the participants receiving radiation therapy were staying near rented rooms and were taking food from the canteen.

4. Recommendations

1. A similar study can be conducted with a large sample for better generalization of the finding.
2. A similar study can be conducted among patients admitted to cancer hospitals for treatment.
3. A longitudinal study can be conducted by assessing symptoms of side effects of radiation therapy after six months, one- or two-years post-RT.
4. Dietary education can be given one week or two weeks before the radiation therapy so the patient came with the pre-adapted improved dietary pattern.
5. A standardized nutrition guide book (with easily available food items) can be provided to the patients at the starting of radiation therapy.

REFERENCES

1. Hanly P, Maguire R, Balfe M, Hyland P, Timmons A. "Burden and happiness in head and neck cancer cases; the role of supportive care needs". Supportive care cancer oct.2016;24(10):4283-4291
2. Krishna Rao SV, Mejia G, Roberts-Thomson K, Logan R. Epidemiology of oral cancer in Asia in the past decade-An update (2000-2012). Asian Pac J Cancer Prev 2013;14:5567-77.
3. Sharma JD, Baishya N, Katakai AC, Kalita CR, Das AK, Rahman T. Head and neck squamous cell carcinoma in young adults: A hospital-based study. Indian J Med Paediatr Oncol 2019;40:18-22.
4. Mulasi U, Vock DM, Jager-Wittenaar H, Teigen L, Kuchnia AJ, Jha G, Fujioka N, Rudrapatna V, Patel MR, Earhman CP. Nutrition Status and Health-Related Quality of Life Among Outpatients With Advanced head and neck cancer. Nutr Clin Pract.2020 Mar 5. doi: 10.1002/ncp.10476. PubMed PMID: 32141121.
5. Ravasco P, Monteiro-Grillo L, Vidal P.M., Camilo M.E. Nutritional deterioration in cancer: the role of disease and diet. Clin Oncol (R Coll Radiol) 2003;15:443-450. [PubMed] [Google Scholar]
6. World Health Organization. 12 September 2018. Retrieved 19 December 2018
7. National Cancer Registry Programme (2013). Three-year report of population based cancer registries:2014. NCDIR-ICMR, Bangalore. "Cancer cases on the rise but death rate is falling". The Hindu. 2015-05-29. ISSN 0971-751X. Retrieved 2016.
8. T Pistoia LF, Abreu CH, Andreatta B, Rabito E. Dietary intake of cancer patients on radiation therapy. Nutricion Hospitalaria.2013. DOI:10.3305/nh.2012.27.6.5958
9. Isenring EA, Bauer JD, Capra S. Nutrition support using the American Dietetic Association medical nutrition therapy protocol for radiation oncology patients improves dietary intake compared with standard practice. J Am Diet Assoc 2007 Mar; 107(3) 404-12.
10. Magnano M., Mola P., Machetta G., Maffei P., Forestiero L., Cavagna R., Artino E., Boffano P. The nutritional assessment of head and neck cancer patients. Eur Arch Otorhinolaryngol .2015 Dec;272(12):3793-9. doi: 10.1007/s00405-014-3462-z. Epub 2014 Dec 23