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Effectiveness of Multicomponent Intervention Programme on Dysphagia among Patients Undergoing Radiation Therapy for Head and Neck Cancer

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Abstract: ***Head and neck cancer incidence is rising in both developing countries, due to the increased exposure to tobacco smoking and alcohol as well as in developed countries it is due to the spreading of high - risk serotypes of human papillomaviruses.1 The Indian Council of Medical Research (ICMR) has estimated that approximately 0.20 - 0.25 million new head and neck cancer patients are diagnosed every year, and this constitutes about 30% of all incident cancers.2 The present study investigated the effectiveness of multicomponent intervention programme on dysphagia among patients undergoing radiation therapy for head and neck cancer attending Radiation Oncology Outpatient Department at Govt. Medical College Hospital, Kottayam. Aquantitative research approach with quasi experimental pretest post test control group design was used for the study. The study was theoretically supported by Betty Neuman's system model. A total of 52 patients, 26 each in the control and experimental group, were selected for the study using non probability purposive sampling technique. The data were collected with socio personal and clinical data sheet and Eating Assessment Tool (EAT - 10). Pretest was done on the 2nd day of radiation therapy, control group received routine care and experimental group received multicomponent intervention programme. The Multicomponent intervention programme consisted of computer assisted teaching programme of 10 minutes duration regarding radiation therapy and related care measures (side effects and oral care measures), demonstration and return demonstration of swallowing exercises. Patients on radiation therapy had to perform the exercise under the supervision of the investigator for 3 consecutive days, 30 minutes prior to radiation therapy and patient had to continue it 5 times per day for 28 days. Post tests were conducted for the control and experimental groups on the 14th (day 18) and 21st (day 29) days of radiation therapy. The result of the study revealed that multicomponent intervention programme had a significant effect on reducing dysphagia (p < 0.05) among patients undergoing radiation therapy for head and neck cancer.***

Keywords: Dysphagia, Radiation Therapy, Head and Neck Cancer

1. Introduction

Head and neck cancer involve cancers in the oral cavity, oropharynx, nasal cavity, nasopharynx, paranasal sinuses, hypopharynx, larynx and salivary glands, and tongue. Globally, head and neck cancers account for 23% of all cancer cases.2Oral cancer is one of the most common types of cancer affecting a large population in India. India is reportedly the second country having the highest number of oral cancer cases, with the country contributing to one - third of the total burden.3Treatment options and recommendations depend on various factors, including the type and stage of head and neck cancer, possible side effects, and overall health status of the patient. Radiation therapy can play a significant role in the cure or control of cancer, and the palliation of symptoms, but it also has side effects. The long - term side effects of radiation therapy (RT) were high incidence of dysphagia among patients undergoing radiation therapy for head and neck cancers, dysphagia is an important symptom in head and neck patients greatly affecting their quality of life.4 The long - term side effects of radiation therapy (RT) for head and neck cancer (HNC) showed that there was high incidence of dysphagia, hypothyroidism, and osteoradionecrosis among patients undergoing radiation therapy for head and neck cancers.5

Objectives

1) To assess the dysphagiaamong patients undergoing radiation therapy for head and neck cancer.
2) To evaluate the effectiveness of multicomponent intervention programme on dysphagia among patients undergoing radiation therapy for head and neck cancer.

2. Materials and Methods

Quantitative research approach was selected for the study. The study design used was quasi experimental pretest post test control group design. Non probability purposive sampling technique was used to select the subjects in which 26 subjects in control group and 26 subjects in experimental group among patients undergoing radiation therapy for head and neck cancer attending Radiation Oncology Outpatient Department at Govt. Medical College Hospital, Kottayam. Inclusion criteria of the present study was patients with primary head and neck cancers on the 2nd radiation therapy who were: willing to participate in the study, with age group of 21 - 80 yrs., and who can understand Malayalam or English, those who excluded from the study were patients with primary head and neck cancer on the 2nd radiation therapy with critically ill and with cognitive impairment. Socio personal and clinical data sheet and Eating Assessment Tool (EAT - 10) were used to collect the data. First twenty - six subjects were allocated to the control

group. The investigator met the study participants individually, the purpose of the study was explained and informed consent was obtained from the subjects who met the inclusion criteria. The pretest was conducted on 2nd day of radiation therapy by using socio personal and clinical data sheet, Eating Assessment Tool respectively. The first twenty - six subjects were received routine care. Post tests were conducted on the 14th and 21st day of radiation therapy, with the same tools. After completing data collection from the control group, the next twenty - six subjects were allocated to the experimental group. The investigator met the study participants individually, purpose of the study was explained and informed consent was obtained from the subjects who met the inclusion criteria. The pretest was conducted on 2nd day of radiation therapy by using socio personal and clinical data sheet, Eating Assessment Tool (EAT - 10) respectively. After the pretest multicomponent intervention programme was administered. The Multicomponent intervention programme consisted of computer assisted teaching programme of 10 minutes duration regarding radiation therapy and related care measures (side effects and oral care measures), demonstration and return demonstration of swallowing exercises (Oro motor exercises are administered to improve muscle control for swallowing). Patients on radiation therapy had to perform the exercise under the supervision of the investigator for 3 consecutive days, 30 minutes prior to radiation therapy and patient had to continue it 5 times per day for 28 days. Post tests were conducted on the 14th (day 18) and 21st (day 29) days of radiation therapy, with the same tools. The obtained data was tabulated and analysed in terms of objectives of the study using descriptive and inferential statistics.

3. Result

3.1 Findings related to sample characteristics

Among 52 patients, majority of subjects in control group (42.31%) belonged to the age group of 51 - 60 years and most subjects in experimental group (42.31%) belonged to the age group of 61 - 70 years. Majority of subjects among the control group (96.15%) and experimental group (88.46%) were males. The data showed that 46.15% of subjects in control group had high school education and 73.08% of subjects in experimental group had primary education. The data pointed out that the majority of subjects in control (38.46%) and experimental (34.61%) groups were unemployed. Most of the subjects in control group (80.77%) and experimental (84.62%) group belonged to BPL category. Majority of subjects in control group (96.15%) and experimental (92.31%) group were nonvegetarian. The result revealed that 92.30% of subjects in control group and 88.46% of subjects in the experimental group had smoking habits. The result depicted that 61.53% of subjects in control groupthe site of irradiationwas larynxwhereas46.15% of subjects in experimental group the site of irradiation was the throat. The data pointed that 100% of subjects in control group and experimental group received dose per fraction of 200 - 250 cGy and a cumulative dose of radiation of 61 - 70Gy. The result showed that majority of subjects in control (80.77%) and experimental (57.69%) group received radiation therapy alone, whereas 34.62% of subjects in the experimental group and 15.38% of patients in the control group received radiation therapy and chemotherapy. The data depicted that 38.46% of subjects in control group 34.62% of subjects in experimental group had practiced oral care 3 - 4 times per day, 42.31% of subjects in experimental group and 34.62% of patients in control group had practiced oral care every time after eating.

3.2 Findings related to dysphagia among patients undergoing radiation therapy for head and neck cancer

Table 1: Frequency distribution and percentage of patients undergoing radiation therapy for head and neck cancer based on dysphagia (n = 52)

Dysphagia	Control group (n=26)		Experimental group (n=26)		df	$\chi 2$	P
	f	%	f	%			
No dysphagia (1 - 12)	16	61.53	18	69.23	4	2.45	0.65
Mild (13 - 24)	7	26.92	5	19.23			
Moderate (25 - 36)	2	7.69	2	7.69			
Severe (37 - 48)	1	3.86	0	0.00			
Extremely severe (49 - 60)	0	0.00	1	3.85			

Table 1 shows that 61.53% of subjects in the control group and 69.23% of subjects in the experimental group had no dysphagia, 26.92% of subjects in the control group and 19.23% of subjects in the experimental group had mild dysphagia, 7.69% of subjects in the control and experimental group had moderate dysphagia on the second day of radiation therapy (pretest). Chi - square value shows that there was no statistically significant difference between control and experimental group in terms of severity of dysphagia. Hence both groups were homogenous in nature.

3.3 Finding related to effectiveness of multicomponent intervention programme on dysphagia among patients undergoing radiation therapy for head and neck cancer

Table 2: Median and Inter Quartile Range (IQR) of dysphagia among patients undergoing radiation therapy for head and neck cancer between the control and experimental group based on post test 1 and post test 2, (n=52)

Dysphagia	Post test1		Post test2	
	Median	IQR	Median	IQR
Control (n=26)	19	40	26	50
Experimental (n=26)	15	50	17	50

Table 3: Mean rank, sum of ranks and U values of posttest 1 and post test 2 scores of dysphagia among patients undergoing radiation therapy for head and neck cancer in control and experimental group, (n=52)

Post tests	Group	Dysphagia		U	P
		Mean rank	Sum of ranks		
Posttest 1	Control (n=26)	32.12	835	192	0.007
	Experimental (n=26)	20.88	543		
Posttest 2	Control (n=26)	33.96	883	144	0.000
	Experimental (n=26)	19.04	495		

Table 3 shows that the obtained U values (192, 144) during post test 1 and post test 2 were significant at 0.01 level. Hence the null hypothesis was rejected. This revealed that there was statistically significant difference in the post test 1 and post test 2 scores of dysphagia among patients undergoing radiation therapy for head and neck cancer between control and experimental group. This indicates that multicomponent intervention programme was effective in reducing dysphagia among patients undergoing radiation therapy for head and neck cancer.

4. Conclusion

The findings of the present study suggested that multicomponent intervention programme could be used as an effective intervention programme to reduce dysphagia among patients undergoing radiation therapy for head and neck cancer.

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