IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

A Study To Assess The Effectiveness of Ice Cube Application In Reducing Oral Mucositis Among Chemotherapy Receiving Patients In Selected Hospital At Kanyakumari District Tamil Nadu India.

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ABSTRACT

Oral mucositis is a common, debilitating symptom affecting many patients on high-dose chemotherapy. It has been shown to affect 5-15% of patients undergoing cancer treatment in general, but with certain agents such as 5-florouracil (5FU), the rates are much higher, approaching 40-50%. **Statement of the Problem**: A study to assess the effectiveness of ice cube application in reducing oral mucositis among chemotherapy receiving patients in selected hospital at kanyakumari district. **Objectives:** To assess the level of oral mucositis before the application of ice cubes among chemotherapy receiving patients with cancer. To assess the level of oral mucositis after the application of ice cubes among chemotherapy receiving patients with cancer. **Methodology**:This study adopts quasi experimental design with pretest and post test control group design. Data was collected from 40 samples by simple random technique. The tool used for data collection include: Selected demographic variables, World Health Organization (WHO) scale gradings. All tools were validated and subjected to reliability testing. Pilot study was conducted to find out the feasibility of the study. The tool was administered and data was collected for 6 weeks from 40 samples and the data obtained were classified, grouped and analyzed based on the objectives and hypotheses formulated for the study using descriptive and inferential statistics. **Results:** In experimental group 35% of sample subjects had normal and mild oral mucositis, 20% had

moderate and 10% severe erythema, were as in control group 40% of sample subjects had extreme oral mucositis, 30% had severe, 20% had moderate and 10% had mild erythema. The mean oral mucositis score in experimental group (1.0) was greater than the mean oral mucositis score of the control group (0.8). The mean difference was (0.2) and was significant at (P<0.001) level. **Conclusion:** The study findings revealed that, there was a high significance in reduction of oral mucositis among chemotherapy receiving patients after application of ice cubes in experimental group than control group. Thus ice cube application played an important role in reducing oral mucositis among chemotherapy receiving patients.

Key words: Oral mucositis, ice cube application, chemotherapy

INTRODUCTION

Cancer of the oral cavity is eleventh most common malignancy worldwide while in the Indian subcontinent and regions of Southeast Asia, it is the predominant malignancy accounting for up to 40% of all the cancers. The term cancer is used to refer to malignant neoplasms. The National Cancer Institute (2009) estimates that 8.9 million Americans alive today have a history of cancer.

At the beginning of the century, cancer was the sixth cause of the death in industrialized countries; today, it is the second leading cause of death. Cancer affects all communities worldwide. The burden of cancer is distributed unequally between developed and developing countries (Park, 2009).

According to WHO (2009) cancer prevalence in India is estimated to be around 2.5 million, with over 8,00,000 new cases and 5,50,000 deaths occurring each year due to this disease and more than 70% of the cases report for diagnostic and treatment services in the advanced stages of the disease, which lead to a poor survival mortality rate. There are over 200 types of cancer.More than half of the people diagnosed with cancer receive chemotherapy. It causes harm to normal cells and cause side effects like pain, stress, nausea, vomitting and discomfort.

NEED FOR THE STUDY:

In 2008, the World Health Organization identified cancer as one of four leading threats to human health and development. Cancer is the leading cause of death worldwide, accounting for 7.4 million deaths (around 13% of all deaths) in 2008. An estimated 12.7 million new cancer cases were diagnosed worldwide in 2008. Lung, stomach, liver, colon and breast cancer cause the most cancer deaths each year. The most frequent types of cancer differ between men and women. In Chennai, the total cancer burden is predicted to increase by 32% by 2012–16 compared with 2002–06, with 19% due to changes in cancer risk and a further 13% due to the impact of demographic changes. The incidence of cervical cancer is projected to drop by 46% in 2015 compared with current levels, while a 100% increase in future

thyroid cancer incidence is predicted. Among men, a 21% decline in the incidence of oesophageal cancer by 2016 contrasts with the 42% predicted increase in prostate cancer (The national medical journal of india, 2011).

Health professionals, particularly nurses, play an important role in helping individuals cope with the symptoms of mucositis and tolerate the cancer treatment that causes it. Based on the review and observation of patients with oral mucositis after the administration of chemotherapeutic agents the study was selected.

STATEMENT OF THE PROBLEM:

A study to assess the effectiveness of ice cube application in reducing oral mucositis among chemotherapy receiving patients in selected hospital at kanyakumari district,Tamilnadu,India

OBJECTIVES:

- ✓ To assess the level of oral mucositis before the application of ice cubes among chemotherapy receiving patients with cancer.
- ✓ To assess the level of oral mucositis after the application of ice cubes among chemotherapy receiving patients with cancer.
- ✓ To find the association between the oral mucositis before application of ice cubes among chemotherapy receiving patients with cancer with the selected demographic variables such as age, sex, religion, occupation, habits, height, weight and body mass index.

HYPOTHESES:

- ✓ There will be a significant reduction of oral mucositis in those who receive application of ice cubes and those who not received chemotherapy.
- ✓ There will be significant association between the application of ice cubes and selected demographic variables such as age, sex, religion, occupation, habits, height, and weight and body mass index.

METHODOLOGY:

The research design used in this study was quasi experimental with pretest - post test control group design. The researcher used this design to ascertain the nature of relationships among phenomena investigated and also this design enhances feasibility of conducting pretest – posttest control group design. The target population of the study is patients with cancer chemotherapy in oncology ward of the International Cancer Centre, Neyyoor ,Kanyakumari District. The population of hospital is 75 in that 20 beds allotted for chemotherapy in a separate cubicle. The chemotherapy unit is functioning on every day and 25 to 50 patients are getting chemotherapy every day. In this study simple random technique was used to select the samples. The samples those who met the criteria were assigned for both the groups in

alternative days. The first and third day is assigned for experimental group and the second and fourth day for control group. The tool used for this study was divided into two sections. Section I had items related to demographic data which included age, sex, religion, occupation, habits, weight, height and body mass index. Section II comprised of WHO grading scale to assess the grading of oral mucositis. It consisted of 5 grades ranging from 0-5.

RESULTS:

Table: 1 Frequency and percentage distribution of samples in the experimental and control group. (N = 40)

S. NO	Demographic variables	Components of variables	Experimental n=20		Control n=20		'Z'	Sig
			No	%	No	%		
1	Age (years)	20 – 35	3	15	3	15	0.320	P>0.05
		36 - 50	6	30	5	25		
		51 – 65	6	30	6	30		
		Above 66	5	25	6	30		
2	Gender	Male	12	60	13	65	0.327	P>0.05
		Female	8	40	7	35		
3	Religion	Christian	5	25	6	30	0.327	P>0.05
		Hindu	8	40	6	30		
		Muslim	7	35	8	40		
4	Occupation	Unemployed	4	20	4	20	0.0	P>0.05
		Moderate worker	6	30	6	30		
		Sedentary worker	6	30	6	30		
		Skilled worker	4	20	4	20		
5	Habit	Smoking	2	10	2	10	0.327	P>0.05
		Alcohol consumption	2	10	2	10		
		Tobacco leaves chewing	3	15	3	15		
		Smoking and alcohol consumption	2	10	2	10		
		Alcohol consumption and tobacco leaves chewing	2	10	3	15		
		Smoking and tobacco leaves chewing	2	10	2	10		
		Smoking,alcohol consumption and tobacco leaves						

		chewing	2	10				
		None of the above	5	25	2	10		
					4	20		
6	Weight in kilograms	41 - 50	3	15	3	15		
		51 – 60	7	35	5	25		
		61 – 70	7	35	6	30	0.0	P>0.05
		71 – 80	3	15	3	15		
		Above 80	0	0	3	15		
7	Height in centimeters	141 – 150	3	15	4	20		
		151 – 160	6	30	8	40	0.639	P>0.05
		161 – 170	8	40	5	25		
		171 - 180	3	15	3	15		
8	Body mass index	Below 18.5	3	15	5	25		
		18.6 – 24.9	7	35	7	35	0.691	P>0.05
		25 – 29.9	7	35	5	25		
		Above 30	3	15	3	15		

Table-2: Assessment of mucositis among experimental and control groups before and after Ice cube application. (N = 40)

Sl.No	Category	Score	Experimental Group				Control Group			
			Before		After		Before		After	
			No	%	No	%	No	%	No	%
1	Normal	0	0	0	7	35	0	0	0	0
2	Mild	1	7	35	7	35	6	30	2	10
3	Moderate	2	7	35	4	20	6	30	4	20
4	Severe	3	4	20	2	10	5	25	6	30
5	Extreme	4	2	10	0	0	3	15	8	40

The above table-2 assesses the oral mucositis among the study and control groups before and after ice cubes application. Before application of ice cubes no patients had normal mucositis. The mild and moderate erythema was 35% of persons each. The severe and extreme erythema was 20% and 10% respectively. After application of ice cubes 35% was normal and 35% and 20 % of persons were mild and moderate erythema respectively. In respect of control group without ice cubes application 30% of patients had mild and moderate erythema each. Similarly the severe and extreme erythema were present in 25% and 15% respectively. After the occasion, the erythema was increased as moderate and severe 20% and 30% each and extreme erythema was 40%.

Fig – 1. Distribution and Comparison of Oral Mucositis in Pretest and Post Test among Experimental Group

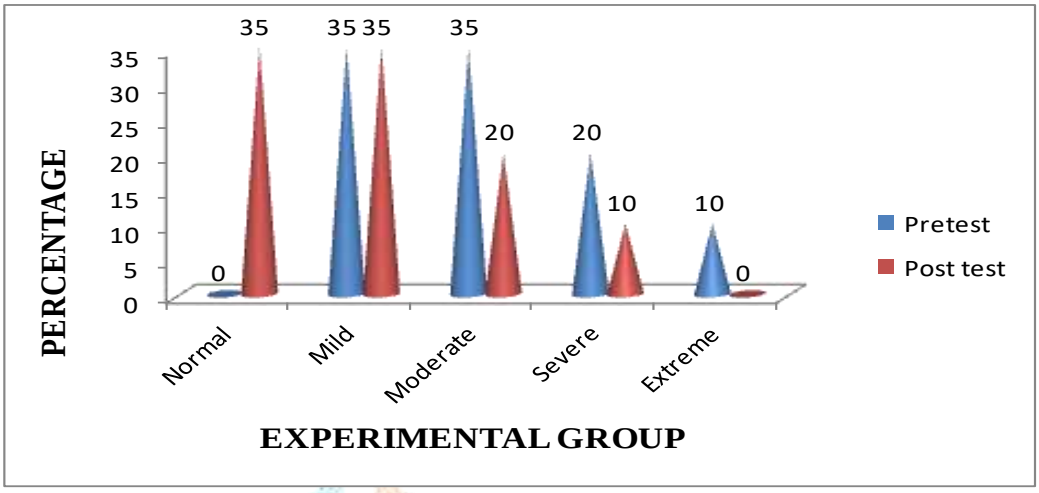

Fig – 2: Distribution and Comparison of Oral Mucositis in Pre Test and Post Test among Control Group

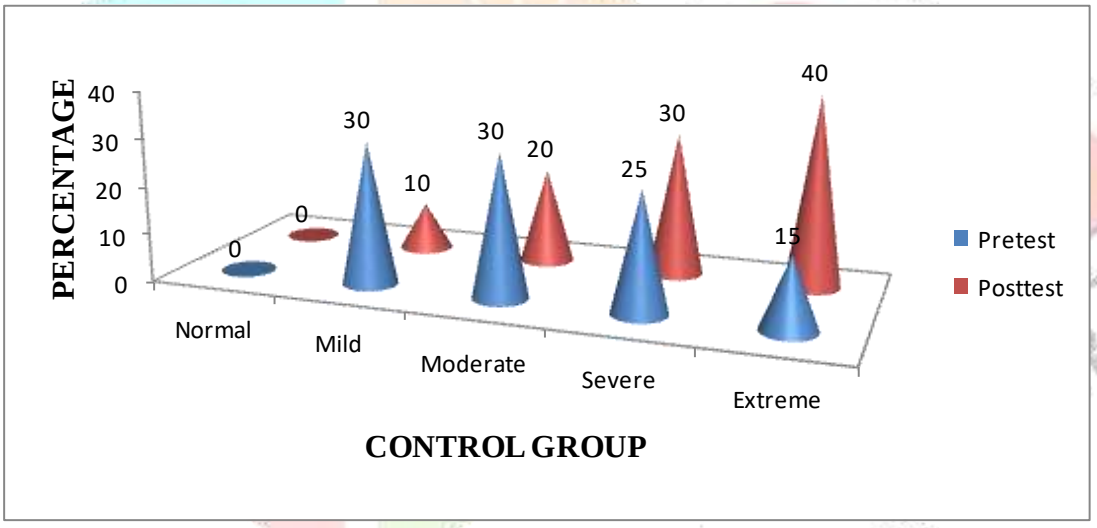

Table – 3: Comparison of effectiveness of ice cube application among experimental and control groups. (N = 40)

Groups	Before		After		Decreased		't'	Df	Sig.
	Mean	SD	Mean	SD	Mean	SD			
Experimental	2.1	1.0	1.1	0.7	1.0	0.6	7.958	19	P<0.001
Control	2.3	1.1	3.1	0.9	0.8	0.4	10.376	19	P<0.001

The ice cube application effectiveness was expressed in the above table-3. The oral mucositis before ice cube application was 2.1±1.0 and the same was decreased to 1.1 ± 0.7 with a statistically significant reduction level of

1.0±0.6.Whereas during that period in control group the mean mucositis was increased from 2.3±1.1 to 3.1±0.9 with statistically significantly 0.8±0.4.

Major findings of the study are follows:

The demographic profiles of the oral mucositis patients were shown in the table 1, the maximum 6 (30%) were in the age group at 35 – 65 years and in gender maximum 13 (65%) were males. Regarding religion, maximum 8(40%) were Hindus and Muslims and in occupation, maximum 6(30%) were moderate and sedentary workers. The tobacco leaf chewers and alcohol consumers were maximum 3(15%) and in weight between 51 – 70 kilograms were maximum 7 (35%). Regarding height, maximum 8(40%) were 151-170 centimeters and maximum 7(35%) in 18.6 – 24.9 in body mass index.

In experimental group 35% of sample subjects had normal and mild oral mucositis, 20% had moderate and 10% severe erythema, were as in control group 40% of sample subjects had extreme oral mucositis, 30% had severe, 20% had moderate and 10% had mild erythema.

Effectiveness of ice cube application in experimental and control group. The mean oral mucositis score in experimental group (1.0) was greater than the mean oral mucositis score of the control group (0.8). The mean difference was (0.2) and was significant at ($P<0.001$) level.

Association between oral mucositis with demographic profiles of experimental group.:The findings revealed that there is no significant association between oral mucositis and age ($\chi^2= 4.25$, df = 3), gender ($\chi^2 = 2.13$, df = 1), religion ($\chi^2 = 2.433$, df = 2), occupation ($\chi^2 = 4.057$, df = 3), habits ($\chi^2= 2.73$, df = 7), weight ($\chi^2 = 2.913$, df = 4), height ($\chi^2 = 2.732$, df = 3) and body mass index ($\chi^2 = 2.801$, df = 3) of the experimental group.

Association between oral mucositis with demographic variables of control group.: The findings revealed that there is no significant association between oral mucositis and age ($\chi^2= 3.922$, df = 3), gender ($\chi^2 = 0.364$, df = 1), religion ($\chi^2 = 2.71$, df = 2), occupation ($\chi^2 = 4.33$, df = 3), habits ($\chi^2= 2.61$, df = 7), weight ($\chi^2 = 2.73$, df = 4), height ($\chi^2 = 2.21$, df =3) and body mass index ($\chi^2 = 2.316$, df = 3) of the control group.

CONCLUSION:

The study findings revealed that, there was a high significance in reduction of oral mucositis among chemotherapy receiving patients after application of ice cubes in experimental group than control group. Thus ice cube application played an important role in reducing oral mucositis among chemotherapy receiving patients.

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