



ISSN: 0976-3031

Available Online at <http://www.recentscientific.com>

International Journal of Recent Scientific Research
Vol. 7, Issue, 10, pp. 13525-13529, October, 2016

**International Journal of
Recent Scientific
Research**

Research Article

A QUASI EXPERIMENTAL STUDY TO EVALUATE THE EFFECTIVENESS OF INDIAN TURMERIC POWDER WITH HONEY MIXTURE ON TREATMENT INDUCED ORAL MUCOSITIS OF CANCER PATIENTS AT SELECTED HOSPITAL, KOLHAPUR

Prashant P. Nagarale¹ and Suhasinee Rathod²

¹D. Y. Patil College of Nursing, D. Y. Patil University

²Medical Surgical Nursing, D. Y. Patil College of Nursing, Kolhapur, Maharashtra

Article History:

Received 05th July, 2016, Received in revised form 08th August, 2016, Accepted 10th September, 2016, Published online 28st October, 2016

Copyright © Prashant P. Nagarale and Suhasinee Rathod., 2016, this is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution and reproduction in any medium, provided the original work is properly cited.

INTRODUCTION

World Health Organization identified cancer as one of leading threats to human health and development. The annual report provides the estimated numbers in 2016, there will be 1,685,210 new cancer cases diagnosed and 595,690 cancer deaths in the US.¹

The burden of cancer is still increasing worldwide despite advances for diagnosis and treatment. It is widely held that 80–90% of human cancers and 43% cancer deaths are due to tobacco use, unhealthy diets, alcohol 4 consumption, inactive lifestyles, and infection. In addition to tobacco consumption causes cancer of the oral cavity, pharynx, larynx, oesophagus, stomach, pancreas, liver, kidney, ureter, urinary bladder, uterine cervix and bone marrow (myeloid leukemia). Exposure to environmental tobacco smoke (passive smoking) increases the risk of lung cancer.²

Oral mucositis refers to erythematous and ulcerative lesions of the oral mucosa observed in patients with cancer being treated with chemotherapy, or radiation therapy. Lesions of oral mucositis are often very painful and compromise nutrition and oral hygiene as well as increase risk of local and systemic infection. Mucositis is a highly significant and sometimes dose-limiting complication of cancer therapy^{3,4}

Turmeric is one of the nature's most powerful healers. Turmeric has been used for over 2500 years in India. curcumin in turmeric helps regulate cells by inserting itself into the cell membranes and interfering with molecular pathways that lead to cancer development and spread⁵

Honey has several antimicrobial qualities, including high osmolality, low pH, and ability to generate noncytotoxic levels of hydrogen peroxide through the enzyme glucose oxidase.

Manuka pollen is collected by honey bees from the manuka tree (*Leptospermum scoparium*). Manuka honey has additional potent antibacterial effects attributed to the phytochemical component methylglyoxal⁵

MATERIAL AND METHODS

The purpose of the present study was to evaluate the effectiveness of Indian turmeric powder with honey mixture on treatment induced oral mucositis in cancer patients at selected hospital, Kolhapur, Maharashtra.

The study aimed at accomplishing the following objectives,

1. To assess the scores of treatment induced oral mucositis in cancer patients of experimental and control group by using WHO'S modified oral mucositis assessment scale.
2. To apply Indian turmeric powder with honey mixture to oral mucositis in cancer patients of experimental group
3. To evaluate the effectiveness of Indian turmeric powder with honey mixture application to oral mucositis of treatment induced oral mucositis cancer patient in experimental group.
4. To compare the post assessment scores of oral mucositis in treatment induced oral mucositis cancer patients with experimental and control groups

A quasi-experimental nonequivalent pre-test post-test research design was used for the present study, which consists of two groups consisting of 60 samples; 30 in experimental group and 30 in control group that were selected on the basis of the sampling criteria set for the study. Samples were selected by using non-probability purposive sampling technique.

*Corresponding author: Prashant P. Nagarale
D. Y. Patil College of Nursing, D. Y. Patil University

The content validity and reliability of the tool was done, which suggested that the tool was reliable. The pilot study was done on 08 samples and the feasibility of the study was established.

SECTION I: A) Description of Selected Socio Demographic Variables of Treatment Induced Oral Mucositis In Cancer Patients.

Table 1 Frequency and percentage distribution of treatment induced oral mucositis cancer patients according to their socio demographic variables

n = 60

Sr. No.	Variables	Experimental group		Controlgroup		Total	
		(f)	(%)	(f)	(%)	(f)	(%)
Age in years							
1	a) 15 – 29	02	6.66	03	10	05	8.33
	b) 30 – 44	09	30	06	20	15	25
	c) 45 – 59	11	36.67	15	50	26	43.34
	d) 60 – 74	08	26.67	06	20	14	23.33
Gender							
2	a) Male	10	33.33	14	46.67	24	40
	b) Female	20	66.67	16	53.33	36	60
Place of residence							
3	a) Rural	15	50	19	63.33	34	56.66
	b) Urban	15	50	11	36.67	26	43.34
Diagnosis of the patient							
4	a) Cancer of oesophagus	07	23.33	06	20	13	21.67
	b) Cancer of breast	10	33.34	09	30	19	31.66
	c) Cancer of ovary	04	13.33	02	6.67	06	10
	d) Cancer of pharynx	07	23.33	09	30	15	25
	e) Cancer of stomach	02	6.67	04	13.33	06	10
Type of treatment							
5	a) Chemotherapy	15	50	15	50	30	50
	b) Radiation therapy	15	50	15	50	30	50
Duration of treatment							
6	a) One month	04	13.33	08	26.67	12	20
	b) Two month	11	36.67	09	30	20	33.33
	c) Three month	04	13.33	07	23.33	11	18.33
	d) Fourth month	11	36.67	06	20	17	28.34
Dietary lifestyle							
7	a) Veg	23	76.67	24	80	47	78.33
	b) Mixed	07	23.33	06	20	13	21.67

It was found that the tool had no major flaws and was used for the final study.

Data was collected by using WHO'S modified oral mucositis assessment scale. An intervention (application of Indian turmeric powder with honey mixture) was applied to the subjects in the experimental group at the end of the pre-assessment and a post assessment was conducted after ten consecutive days after pre-assessment.

In order to fulfill the objectives and test the hypotheses, the data was tabulated and analyzed by using both descriptive and inferential statistics. The descriptive statistics used were frequency and percentage distribution of sample characteristics and computation of mean, median, mode, range and standard deviation of the pre-assessment and post-assessment oral mucositis assessment scores. Inferential statistics used were paired 't' test and computation of 'p' values to evaluate the effectiveness of Indian turmeric powder with honey mixture on treatment induced oral mucositis, Unpaired 't' test and Karl Pearson's Correlation coefficient.

FINDING AND DISCUSSIONS

The collected data were coded, organized, analyzed and interpreted by using descriptive and inferential statistics. Tables, graphs, and figures were used to explain the result.

The data was entered in a master sheet for tabulation and statistical processing. Analysis of data is organized and presented under the following heading:

Table 1: Indicate that

- ✓ In experimental group, the majority of the 11(36.67%) subjects belonged to the age group of 45 – 59 years, while minimum 2 (6.66%) subjects belonged to the age group of 15-29 years and in control group majority of the 15 (50%) subjects belonged to the age group of 45 – 59 years, while minimum 03 (10%) subjects belonged to the age group of 15-29 years.
- ✓ In experimental group, the majority of the 20 (66.67%) subjects were female and 10 (33.33%) were male and in control group 16 (53.33%) subjects were female and 14 (46.67%) were male.
- ✓ In experimental group the majority of the 15 (50 %) subjects belong to the rural community and 15 (50 %) belonged to the urban community. In control group the majority of the 19 (63.33 %) subjects belong to the rural community and 11 (36.67 %) belonged to the urban community.
- ✓ In experimental group the majority of the subjects were having Ca of breast 10 (33.34%) and 02(6.67%) had Ca of stomach and in control group majority of the subjects were had Ca of breast 9 (30%) and 02 (6.67%) had Ca of ovary
- ✓ In experimental group the subjects 15 (50%) were taking chemotherapy and 15(50%) were taking radiotherapy and in control group 15(50%) were taking chemotherapy and 15(50%) were taking radiotherapy.
- ✓ In experimental group, the duration of treatment for majority of the subjects 11(36.67%)was four months& two

months whereas 4 (13.33%) received treatment for one month & three months and in control group, the duration of treatment for majority of the subjects 9 (30%) were two months whereas 6 (20%) received treatment for four months.

- ✓ In experimental group, the majority of the subjects were taking veg diet 23 (76.67%) whereas 7 (23.33%) were taking mixed diet and in control group majority of the subjects are consumed veg diet 24 (80%) whereas 6 (20%) were taking the mixed diet.

- ✓ In experimental group, the majority of subjects 21 (70.00%) were having no ill habits and minimum subjects 2 (6.67%) having ill-habit of smoking cigarette/bidi. In control group the majority of subjects 24 (80.00%) were having no ill habits and minimum subjects 2 (6.66%) having ill habit of chewing tobacco/ghutakha/beetleleaf, drinking alcohol, smoking cigarette/bidi.

Table 2 b) Description of life style questions of treatment induced oral mucositis in cancer patients.

Sr. No.	Variables	Experimental group		Control group		Total	
		(f)	(%)	(f)	(%)	(f)	(%)
Type of food							
1	a) Solid	2	6.67	1	3.33	03	05
	b) Semi-solid	17	56.67	16	53.33	33	55
	c) Liquid	11	36.66	13	43.34	24	40
Brushing the teeth							
2	a) Once in a day	21	70	24	80	45	75
	b) Twice in a day	9	30	06	20	15	25
Rinse the mouth							
3	a) Once in a day	1	3.33	03	10	04	6.67
	b) Twice in a day	07	23.33	05	16.67	12	20
	c) Thrice in a day	13	43.34	10	33.33	23	38.33
	d) Four times in a day	09	30	12	40	21	35
Use to brush your teeth							
4	a) Toothpaste	25	83.33	28	93.33	53	88.33
	b) Tobacco powder	05	16.67	02	6.67	07	11.67
Ill habit							
5	a) Drinking alcohol	03	10	02	6.66	05	8.33
	b) Smoking cigarette/bidi	02	6.67	02	6.66	04	6.67
	c) Chewing tobacco/Ghutakha/Beatle leaf	04	13.33	02	6.66	06	10
	d) None	21	70	24	80	45	75

(f) = frequency, (%) percentage

n=60

Table 2: Indicate that

- ✓ In experimental group the majority of the subjects 17 (56.67%) were taking semi-solid diet, and minimum subjects 2 (6.67%) were taking the solid diet. In control group the majority of the subjects 16 (53.33%) were taking semi-solid diet, and minimum subjects 1 (3.33%) were taking the solid diet.
- ✓ In experimental group the majority of the subjects 21 (70%) were brushing the teeth once in a day, and minimum subjects 9 (30%) were brushing the teeth twice daily. In control group, the majority of the subjects 24 (80%) were brushing the teeth once in a day, and minimum subjects 20 (15%) were brushing the teeth twice daily.
- ✓ In experimental group the majority of the subjects 13 (43.34%) rinsed the mouth thrice in a day, while 1 (3.33%) rinsed the mouth one time in a day. In control group the majority of the subjects 10 (33.33%) rinsed the mouth thrice in a day, while 03 (10%) were rinse the mouth once times in a day.
- ✓ In experimental group the majority of subjects 25 (83.33%) were using toothpaste to brush the teeth, and minimum subjects 5 (16.67%) were used tobacco powder to brush the teeth, In control group the majority of subjects 28 (93.33%) were using toothpaste to brush the teeth, and minimum subjects 02 (6.67%) were used tobacco powder to brush the teeth,

Section II: Analysis and Interpretation of Treatment Induced Oral Mucositis assessment Score of Subjects In Experimental And Control Groups.

Table 3 Frequency and Percentage (%) distribution of pre and post-assessment mucositis scores of subjects in experimental group

GRADE	n = 30			
	Experimental group			
	Pre Assessment		Post Assessment	
	(f)	(%)	(f)	(%)
GRADE 0	00	00	00	00
GRADE 1	00	00	14	46.66
GRADE 2	05	16.66	16	53.33
GRADE 3	15	50	00	00
GRADE 4	10	33.33	00	00

Table 3 indicates that, In experimental group pre-assessment of oral mucositis the majority of subjects 15 (50%) had grade three and minimum subjects were 10 (33.33%) had grade four and none of the subjects are in grade zero and one grade, whereas in post assessment 16 (53.33%) subjects had grade two and minimum subjects 14 (46.66%) had grade one

Table no 4 indicates that, In control group pre-assessment treatment induced oral mucositis the majority of subjects 19 (63.33%) had grade three and minimum subjects 4 (13.33%) had grade two whereas in post assessment treatment induced oral mucositis majority of subjects 15 (50%) had grade two and minimum subjects 12 (40%) had grade three

Table no 4 Frequency and Percentage (%) distribution of pre and postassessment scores of oral mucositis in subjects of control group.

GRADE	Control group			
	Pre Assessment		Post Assessment	
	(f)	(%)	(f)	(%)
GRADE 0	00	00	00	00
GRADE 1	01	3.33	03	10
GRADE 2	04	13.33	15	50
GRADE 3	19	63.33	12	40
GRADE 4	06	20	00	00

n=30

Section III: Testing of Hypothesis on Effectiveness of Indian Turmeric Powder With Honey Mixture In Treatment Induced Oral Mucositis Cancer Patients In Experimental Group.

Table 5 Mean median, mode, range and standard deviation of pre & post assessment score of subjects in experimental group

Area Of Analysis	Mean	Median	Mode	Standard Deviation	Range
Pre assessment	3.1	3	3	0.6928	2
Post assessment	2.1	2	2	0.597	2
Difference	1	1	1	0.0958	0

Table 5: Indicate that, in the experimental group, The overall treatment induced oral mucositis assessments to score of subjects was decreased by mean difference 1 units and median difference was 1 whereas mode difference was 1. The variability around the mean of treatment induced oral mucositis cancer patients assessment score distribution was 0.0958. The range between the highest and lowest score was zero

H₁: The mean post assessment treatment induced oral mucositis score of subjects in the experimental group exposed to Indian turmeric powder with honey mixture application to oral mucositis is lower than mean pre-assessment treatment induced oral mucositis score as measured by WHO'S modified oral mucositis assessment scale.

Table 6 Mean difference, Standard Error Difference and Paired 't' values of treatment induced oral mucositis cancer patients in experimental group.

Mean difference	Standard error difference (SED)	Paired 't' values		df
		Calculated	Tabulated	
1.06	0.189	5.60	2.05	29

*P<0.05

Table 6: Indicate that, The calculated paired 't' value ($t_{cal} = 5.60$) is greater than tabulated value ($t_{tab} = 2.05$). Hence **H₁ is accepted.** This indicates that the effectiveness of Indian turmeric powder with honey mixture application to oral mucositis is statistically significant at P < 0.05 level. **H₁: $\mu \neq \mu_0$**

Therefore it can be inferred that the mean post assessment treatment induced oral mucositis score of subjects in experimental group exposed to Indian turmeric powder with honey mixture application to oral mucositis was lower than the mean pre-assessment score, Thus the Indian turmeric powder with honey mixture application to oral mucositis found to be

effective in reducing treatment induced oral mucositis in cancer patients.

The findings of this study are supported by the study done in Mysore on the effectiveness of Indian turmeric and honey mixture on treatment induced oral mucositis. In the study, quasi-experimental non-equivalent control group pre test post-test design was used and non-probability purposive sampling technique was adopted to select 60 cancer patients with treatment-induced oral mucositis, 30 each in experimental and control group. The independent 't' value for post-test 2 and 3 (post-test 2: 2.86 for WHO OMAS and 4.58 for MPJ OMAS, post test 2: 5.42 for WHO OMAS and 7.2 for MPJ OMAS; p < 0.05) were significant between experimental and control group. It is inferred that the application of Indian turmeric and honey on treatment-induced oral mucositis is effective.⁶

SECTION IV: Testing of Hypothesis for Comparison of Post Assessment Treatment Induced Oral Mucositis Score of Subjects With Experimental And Control Groups To Draw The Conclusion.

Table no 7 Mean, median, mode, standard deviation, range of pre and post assessment score of treatment induced oral mucositis cancer patient in experimental & control group

Area of Analysis	Mean	Median	Mode	Standard Deviation	Range
Pre assessment	3	3	3	0.67	3
Post assessment	2.3	2	2	0.64	2
Difference	0.7	1	1	0.03	1

Table 7: Indicate that, in control group, the overall assessments of treatment induced oral mucositis score of subjects was decreased by mean difference 0.7 units and median difference was 1 whereas mode difference was 1. The variability around the mean of treatment induced oral mucositis cancer patients assessment score distribution was 0.03. The range between the highest and lowest score was decreased by 1 unit.

H₂: The mean post assessment treatment induced oral mucositis score of subjects exposed to Indian turmeric powder with honey mixture application to oral mucositis in the experimental group is lower than mean post assessment scores of subjects in control group, as measured by WHO modified oral mucositis assessment scale.

Table no 8 Standard error difference (SED) and unpaired 't' values of treatment induced cancer patients in experimental & control group

Mean difference	Standard error difference (SED)	Unpaired 't' values		df
		Calculated	Tabulated	
0.77	0.14	5.5	2.00	59

Table no.8 indicates that, the obtained mean difference between post assessment treatment induced oral mucositis scores in experimental and control groups was 0.77. Tabulated 't' value ($t_{tab} = 2.00$) is less than calculated 't' value ($t_{cal} = 5.5$). Hence **H₂ is accepted** i.e. **H₂: $\mu \neq \mu_0$** . This indicates that reduction in severity of treatment induced oral mucositis scores is statistically significant at P < 0.05 level.

Therefore it can be inferred that the mean post assessment treatment induced oral mucositis score of cancer patients in the experimental group exposed to intervention was lower than the mean post-assessment score of subjects in control group. So it is proved that the Indian turmeric powder with honey mixture application to oral mucositis is an effective intervention in treatment induced oral mucositis in cancer patients.

The findings of this study are supported with the study done in in the Department of Oral Medicine and Radiology, Tamilnadu Government Dental College and Hospital, Chennai with the aim of to evaluate the effect of natural honey and 0.15% benzydamine hydrochloride on onset and severity of radiation mucositis and to compare it with control. The results revealed that patients in Group I had a late onset of Grades 1, 2, 3 and 4 mucositis, compared to Group II and Group III and the difference was statistically significant.⁷

CONCLUSION

Therefore it was concluded that the Indian turmeric powder with honey mixture application to oral mucositis is an effective intervention in treatment induced oral mucositis cancer patients. The findings of the study will be helpful in the areas of nursing practice, nursing administration, nursing education and nursing research.

Acknowledgement

It is my privilege to be a part of D. Y. Patil University and I thank my Guide, Principal Prof. Mrs. Suhasinee Rathod, HOD of Medical Surgical Nursing, D. Y. Patil College of Nursing and teaching and non-teaching faculty in helping me to make this study a successful one.

Reference

1. American Cancer Society. Cancer Facts & Figures 2016. Atlanta: American Cancer Society; 2016 <http://www.cancer.org/acs/groups/content/@research/documents/document/acspc-047079.pdf>
2. Lopez AD, Mathers CD, Ezzati M, Jamison DT, Murray CJL, editors: Global burden of disease and risk factors. Washington: The Word Bank/Oxford University Press; 2006. 13
3. Lalla RV, Peterson DE. Oral mucositis. Dent Clin North Am. 2005 Jan; 49(1):167–184. [PubMed]
4. Treister N, Sonis S. Mucositis: biology and management. Curr Opin Otolaryngol Head Neck Surg. 2007 Apr; 15(2):123–129. [PubMed]
5. Mavric E *et al* (2008) Identification and quantification of methylglyoxal as the dominant antibacterial constituent of manuka (*Leptospermum scoparium*) honeys from New Zealand. Mol Nutr Food Res 52:483–489
6. Barasch A, Epstein JB (2011) Management of cancer therapy-induced oral mucositis. Dermatol Ther 24: 424-431
7. Francis M, Williams S. Effectiveness of Indian Turmeric Powder with Honey as Complementary Therapy on Oral Mucositis: A Nursing Perspective among Cancer Patients in Mysore. *Nurs J India*. 2014 Nov-Dec; 105(6):258-60. Available from <http://www.ncbi.nlm.nih.gov/pubmed>
8. Sadaksharam Jayachandran, Evaluating the Effectiveness of Topical Application of Natural Honey and Benzydamine Hydrochloride in the Management of Radiation Mucositis. *Indian J Palliat Care*. 2012 Sep-Dec; 18(3): 190–195. doi: 10.4103/0973-1075.105689
9. Available from <http://www.ncbi.nlm.nih.gov/pubmed/3573473>

How to cite this article:

Prashant P. Nagarale and Suhasinee Rathod. 2016, A Quasi Experimental Study To Evaluate The Effectiveness of Indian Turmeric Powder With Honey Mixture on Treatment Induced oral Mucositis of Cancer Patients At Selected Hospital, Kolhapur. *Int J Recent Sci Res*. 7(10), pp. 13525-13529.