

A Study to Assess the Effectiveness of Ginger Tea on Reduction of Chemotherapy induced Nausea and Vomiting among the Patients Receiving Chemotherapy in Selected Cancer Hospitals of Bagalkot

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Abstract: ***Background of the Study:** Educational intervention is a particular mode of communication. This programme is one of the most effective management for the reduction of chemotherapy induced nausea and vomiting among cancer patients. **Methodology:** A quasi - experimental, non - randomized control group pre - test and post - test design was adopted for the present study. The study sample includes 60 cancer patients from selected hospitals of Bagalkot selected by, using simple purposive sampling technique. Data was collected using structured interview & analyzed using descriptive and inferential statistics. **Results:** Findings related to significance of difference between mean post level of chemotherapy induced nausea and vomiting of experimental group and control group subjects revealed that, a statistical significant difference was found between the post test scores of experimental and control group. [$t=7.34$ (p value=0.001), $p<0.05$]. **Conclusion:** The study proved that administration of Ginger Tea intervention programme on reduction of chemotherapy induced nausea and vomiting was very effective, scientific, logical and cost - effective strategy.*

Keywords: Effectiveness, cancer patients, Ginger Tea and Socio - demographic variables.

1. Introduction

Oncology (from the ancient Greek ‘onkos’ meaning bulk, mass, or tumor, and the suffix ‘logy’ means “study of”) is a branch of medicine that deals with the diagnosis and treatment of tumors (cancer)¹.

Cancer is a group of disease characterized by uncontrolled cellular growth with local tissue invasion and systemic metastasis. Cancer is a term used for diseases in which abnormal cells divide without control and are able to invade other tissues. Cancer cells can spread to other parts of the body through the blood and lymph systems. Cancer is not just one disease but many diseases. There are more than 100 different types of cancer. Most cancers are named or organ or type of cell in which they start – for example, cancer that begins in basal cells of the skin is called basal cell carcinoma¹.

Tobacco use is the cause of about 22% of cancer deaths. Another 10% are due to obesity, poor diet, lack of physical activity or excessive drinking of alcohol. Other factors include certain infections, exposure to ionizing radiation and environmental pollutants. In the developing world, 15% of cancers are due to infections such as Helicobacter pylori, hepatitis B, hepatitis C, human papilloma virus infection, Epstein–Barr virus and human immunodeficiency virus

(HIV). These factors act, at least partly, by changing the genes of a cell. Typically, many genetic changes are required before cancer develops. Approximately 5–10% of cancers are due to inherited genetic defects from a person's parents. Cancer can be detected by certain signs and symptoms or screening tests. It is then typically further investigated by medical imaging and confirmed by biopsy².

Cancer symptoms are changes in the body caused by the presence of cancer. They are usually caused by the effect of a cancer on the part of the body where it is growing, although the disease can cause more general symptoms such as weight loss or tiredness. There are more than 100 different types of cancer with a wide range of different signs and symptoms which can manifest in different ways. Typical symptoms of cancer include, change in bowel and bladder habits, a sore that does not heal, unusual bleeding or discharge, thickening or lump in the breast or elsewhere, indigestion or difficulty in swallowing, obvious change in wart or mole, nagging cough or hoarseness³.

Chemotherapy, surgery and radiotherapy are the most common types of cancer treatments available nowadays. The history of chemotherapy began in the early 20th century, but its use in treating cancer began in the 1930s. The term “chemotherapy” was coined by the German scientist Paul Ehrlich, who had a particular interest in alkylating agents

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and who came up with the term to describe the chemical treatment of disease.⁵

Chemotherapy - induced nausea and vomiting (CINV) is a common side - effect of many cancer treatments. Nausea and vomiting are two of the most feared cancer treatment - related side effects for cancer patients and their families. In 1983, Coates et al. found that patients receiving chemotherapy ranked nausea and vomiting as the first and second most severe side effects, respectively.

Ginger is a very popular spice used worldwide; whether it be used to spice up meals, or as a medicine, the demand The research design selected for this study was Quasi - experimental, non - randomized control group pre - test post - test design, because this study was intended to ascertain the reduction of nausea and vomiting among the participants who have received the intervention. The effect of the treatment would be equal to the level of the phenomenon after the treatment minus the level of the phenomenon before treatment. for ginger all over the world has been consistent throughout history. Ginger can be used for a variety of food or medicine items such as vegetables, candy, soda, pickles, and alcoholic beverages⁷

Ginger has been considered 10000 times more powerful than chemotherapy for the treatment of cancer. It is an anti - oxidant and a natural cancer fighter. The active compounds of ginger exhibit anti - cancer properties against the gastro intestinal tract and helps in cancer cell death. Ginger has the ability to inhibit the production of cancer causing properties speed up the repairing process of DNA and decreases the proliferation of cancer cells⁹

2. Material and Methods

2.1 Study Design and Participants

The research design selected for this study was Quasi - experimental, non - randomized control group pre - test post - test design, because this study was intended to ascertain the reduction of nausea and vomiting among the participants who have received the intervention. The effect of the treatment would be equal to the level of the phenomenon after the treatment minus the level of the phenomenon before treatment.⁶⁰ subjects were selected by using purposive sampling technique to select the 60 sample cancer patients who are receiving chemotherapy treatment at selected cancer hospitals of Bagalkot, researcher includes cancer patients, who are: experiencing nausea and vomiting from early administration of chemotherapy, receiving chemotherapy and where in first, second, third and fourth stage of cancer. The subjects were assured the anonymity and confidentiality of the information provided by them.

Modified Rhodes Index of Nausea, Vomiting and Retching scale and socio - demographic questionnaire was administered to the selected subjects with the required information.

2.2 Instruments

In the present study there are 2 Tools:

Tool – 1: Socio - demographic variables of cancer patients

It consists of sociodemographic variables such as Age, Gender, education, religion, Qualification, income, type of family, diet, family history of cancer, duration of illness, stage of the disease, number of chemotherapy.

Tool – 2: Items to Assess the chemotherapy induced nausea and vomiting

Rhodes Index of Nausea, Vomiting and Retching scale is prepared to assess the level of chemotherapy induced nausea and vomiting. Rhodes Index of Nausea, Vomiting and Retching scale Consists of 8 Items with 5 Points ranging from profound, severe, moderate & mild (4, 3, 2, 1, 0).

Scoring: For mild 0 - 8 mark, moderate carries 9 - 16 marks, severe carries 17 - 24 marks, profound carries 25 - 32 marks. Least possible score was 0 and maximum possible score was 32.

Socio- demographic Variables and Clinical characteristics

Age, Gender, education, religion, Qualification, income, type of family, diet, family history of cancer, duration of illness, stage of the disease, number of chemotherapy.

2.3 Data Analysis

Descriptive univariate statistics such as frequencies and percentages were used for categorical variables, Mean and standard deviation will be used to identify the effectiveness of ginger tea on chemotherapy induced nausea and vomiting. Paired “t” test will be used to find out the effectiveness of ginger tea for chemotherapy induced nausea and vomiting. Correlation coefficient (r) will be used to find out the effectiveness of ginger tea on chemotherapy induced nausea and vomiting. Chi square test will be used to test the association between selected socio demographic variables and chemotherapy induced nausea and vomiting.

3. Results

Assessment of level of Chemotherapy induced Nausea & vomiting among cancer patients receiving chemotherapy in experimental and control group.

Table 1: Frequency and percentage for level Chemotherapy induced Nausea & vomiting among cancer patients receiving chemotherapy in experimental and control group (N=30+30=60)

Levels	Control group	%	Experiment group	%	Total	%	χ^2	p - value
Pretest levels								
Mild	0	0.00	0	0.00	0	0.00	6.1574	0.0502
Moderate	0	0.00	3	10.00	3	5.00		
Severe	9	30.00	3	10.00	12	20.00		
Profound	21	70.00	24	80.00	45	75.00		

Posttest levels								
Mild	0	0.00	3	10.00	3	5.00	40.1905	0.0001*
Moderate	0	0.00	14	46.67	14	23.33		
Severe	8	26.67	13	43.33	21	35.00		
Profound	22	73.33	0	0.00	22	36.67		
Total	30	100.00	30	100.00	60	100.00		

Hence, as per the above stated findings it is clear that, there is a statistically significant difference between mean pre - test and post - test level among experimental group.

H₁ - The mean post - test level of Chemotherapy induced Nausea & vomiting will be significantly lower than the mean pre - test level of Chemotherapy induced Nausea & vomiting among cancer patients receiving Chemotherapy in experimental group.

Hence H₁ is accepted.

Evaluation of the effectiveness of ginger tea on reduction of Chemotherapy induced Nausea & vomiting among cancer patients receiving chemotherapy.

Table 2: Mean, SD and paired ‘t’ test of pre and post - test level of Chemotherapy induced Nausea & vomiting in control group. (N=30+30=60)

Test	Mean	SD	Mean Diff.	SD Diff.	t - value	p - value
Pretest	25.07	3.12				
Posttest	25.10	2.06	- 0.03	2.53	- 0.0723	0.9429

The above table shows that the calculated ‘t value’ in the control group was - 0.0723 which was not significantly at P<0.05 level. It can be concluded that there is no much difference in pre - test and post - test in control group.

Table 3: Mean, SD and unpaired ‘t’ test of post - test level of chemotherapy induced nausea and vomiting in control and experimental group. (N=30+30=60)

Level of chemotherapy induced nausea and vomiting.	Control post test		Experimental post test		Mean difference	‘t’ value
	Mean	SD	Mean	SD		
	25.07	2.06	15.60	3.53	9.47	7.34****

(* - P<0.05, significant and ** - P<0.01 & **** - P<0.001, Highly significant)

The **Table No: 3** shows that the obtained ‘t’ value between control and experimental group is 7.34 which was highly significant at p<0.001 level. Hence H₂ is accepted. It can be concluded that the ginger tea was effective in reducing chemotherapy induced nausea and vomiting in experimental group among cancer patients receiving chemotherapy than control group.

Table 4: Association between pre test level of chemotherapy induced nausea and vomiting in control group and Experimental Group with their selected demographic variables.

SN.	Characteristics	Control Group			Experimental group		
		X ²	P - value	Level of significance	X ²	P - value	Level of significance
1	Age	3.0610	0.3820	P>0.05 NS	8.0450	0.2350	P>0.05 NS
2	Religion	0.7800	0.6770	P>0.05 NS	1.5450	0.8190	P>0.05 NS
3	Gender	1.4290	0.2320	P>0.05 NS	0.8140	0.6650	P>0.05 NS
4	Qualification	0.7360	0.8650	P>0.05 NS	2.6530	0.8510	P>0.05 NS
5	Income	2.8570	0.2400	P>0.05 NS	2.8130	0.5900	P>0.05 NS
6	Type of family	0, 0680	0.7940	P>0.05 NS	4.3780	0.1120	P>0.05 NS
7	Diet	3.9680	0.0460*	P>0.05 S	1.0070	0.6040	P>0.05 NS
8	Family history of cancer	2.3340	0.1270	P>0.05 NS	3.2140	0.2000	P>0.05 NS
9	Duration of illness	1.6840	0.6410	P>0.05 NS	9.5300	0.1460	P>0.05 NS
10	Number of chemotherapy	0.0260	0.8730	P>0.05 NS	2.3960	0.3020	P>0.05 NS

NS: Not significant. S: Significant

Table No: 4 shows that there was association between the level of chemotherapy induced nausea and vomiting and the socio demographic variable in Diet and there was no association between level of chemotherapy induced nausea and vomiting with the other socio demographic variables in control Group.

Hence H3 is accepted in Diet and rejected in all other socio demographic variables.

Table No: 4 shows that no relationship between level of chemotherapy induced nausea and vomiting and demographic variables, in experimental group.

Hence H3 is rejected for all the socio demographic variables.

4. Discussion

The main objective of the present study was **to assess** the effectiveness of ginger tea on reduction of chemotherapy induced nausea and vomiting among the patients receiving chemotherapy. Purposive sampling technique was used to select study participants. The study included a sample of 60 cancer patients receiving chemotherapy in selected cancer hospitals of Bagalkot. Findings related to significance of difference between mean post level of chemotherapy induced nausea and vomiting of experimental group and control group subjects revealed that, a statistical significant difference was found between the post test scores of experimental and control group. [t=7.34 (p value=0.001), p<0.05]. A similar study conducted by Panahi et al. study in 2012, showed no significant difference between the

intervention and control groups in each of the four subclasses of severity of acute and delayed nausea.

The findings were supported by study conducted by Neethu Maria Joseph, Sasmita Das and Mary Preeti Banra (2019) to compare the findings of socio demographic characteristics. Thus results showed that majority (65.2%) of participants in experimental group and (73.9%) control group were age group age between 26 - 60 years, majority (52.2%) of participants in the experimental group were female and majority (65.2%) of participants in control group were male. The study revealed that majority (60.9%) of participants had mild post - test levels of chemotherapy - induced nausea and vomiting in an experimental group.

The findings were supported by study conducted by Jean Harvey (2013) had recently confirmed the effectiveness of ginger in decreasing nausea during pregnancy. Sixty - seven pregnant women in Iran who were experiencing nausea and vomiting were given 250 mg of ginger 4 times a day, while the control group was given placebo. The women taking the gingerroot demonstrated 85% improvement, while the placebo group reported a 56% improvement. A significant decrease in the frequency of vomiting occurred among the ginger group: 50% versus 9% for the placebo group. The clinicians concluded that ginger is an effective tool for decreasing nausea and vomiting during pregnancy.

The findings were supported by study conducted by Fischer's (2014) had done a study to evaluate the efficacy of powdered ginger root in the treatment of hyperemesis gravidarum among 30 women. Each women swallowed capsules containing either 250mg ginger or lactose q. i. d during first four days of treatment. The severity of symptoms before and after each period was evaluated. 19 women 70.4% stated preference to the period in ginger had been given at the level of $p=0.003$. More objectively assessed by relief scores a significantly greater relief of the symptoms was found after ginger treatment compared to placebo at the level of $p=0.035$, suggesting that powdered ginger in daily dose of 1g for four days is best in eliminating symptoms of hyper emesis gravidarum.

The findings were supported by study conducted by Iatrakin. S. M (2013) using questionnaire to 102 pregnant women in the first 12 weeks of pregnancy in an effort to see which factor is co - related with nausea and vomiting. Findings showed that nausea, vomiting correlated with unsuitable diet with big and rare meals, poor communication with husband, poor communication with obstetrician, stress doubts and inadequate information about pregnancy and childbirth.

5. Conclusions

The study is helpful to find the effectiveness of Ginger tea in reducing chemotherapy induced nausea and vomiting in cancer patients receiving chemotherapy. There is a significant difference between mean post level of chemotherapy induced nausea and vomiting of experimental group and control group subjects. Future researches can investigate the effect of Ginger tea to reduce the chemotherapy induced nausea and vomiting with the aim of improving their overall quality of education.

6. Ethical Clearance

Ethical clearance was obtained from the institutional ethical committee of BVVS Sajjalashree Institute of Nursing Sciences, Bagalkot.

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Conflict of Interest: Nil

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