

Effects of Integrated Yoga and Meditation Programme on Patients Receiving Highly Emetogenic

Chemotherapeutic Drugs

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Abstract

Objective: Chemotherapy induced nausea and vomiting (CINV) is one of the most common and distressing side effects of highly emetogenic chemotherapy regimens. There have been continuous efforts in the direction to control CINV by many investigators and by various anti emetic drugs. The main aim is to demonstrate the effect of yoga and meditation in reducing CINV.

Material and Methods: 50 patients receiving chemotherapy were randomly selected and divided into two groups. Control group (25) that received anti-emetic drug only and study group (25) that practiced yoga and meditation for 1 hr, 2 days prior to CT and post CT as well with anti emetic drugs. Then, these patients were assessed and followed for 3 days for incidence and grading of nausea and vomiting based on RTOG guidelines.

Results: In the study arm, there is significant reduction in the incidence of nausea (88% control v/s 72% study, p=0.005) and significant reduction in the incidence of vomiting (46% v/s 21%, p<0.01) when compared with the control arm. There is significant reduction in grade 2 and 3 nausea (80% control v/s 36% study, p<0.01) and vomiting (25% control v/s 10% study, p=0.005).

Conclusion: The study successfully demonstrates that yoga and meditation can be utilised and are very safe and effective in reducing CINV. So, yoga and meditation with standard anti emetics should be a part of management plan for cancer patients receiving highly emetogenic drugs.

Keywords: Chemotherapy, emetogenic, nausea, vomiting, incidence, grade, RTOG, yoga, meditation, anti-emetics.

Introduction

Nausea and vomiting are usually considered the most distressing short term side effects of chemotherapy,

mainly by highly emetogenic drugs like cisplatin, cyclophosphamide, streptozocin, dacarbazine.¹ CINV affects all the aspects of the quality of life, negatively.² CINV could be in the form of acute, delayed and anticipatory form. Acute CINV occurs within 24 hrs and delayed occurs after 24 hrs. Intuitive or anticipatory form is more common in patients getting second or subsequent chemotherapy. Nausea might be experienced even before administration of the chemotherapy drugs in approximately 20% of patients at any one of chemotherapy cycles and by 25–30% of patients by their fourth chemotherapy cycle.³ It is also referred to as conditioned, learned or psychological nausea and vomiting as this is due to the state of the mind of the patient.^{4,5} This psychological disturbance may aggravate the problem of nausea and vomiting to such an extent that patient may refuse to go for any further treatment.

Moreover, anti-emetic drugs could be less effective in improving delayed nausea and vomiting than acute nausea and vomiting.⁶

Metabolites of anti-neoplasm drugs may affect two important systems, central nervous system and digestive system and both might lead to nausea and vomiting.⁷

The age old practice of yoga (union) as mentioned in the Patanjali Yoga Sutras is a spiritual practice that helps and strengthens in union of mind with body.⁸ The word yoga is derived from the Sanskrit word “Yuj” which means to bind, join, attach or yoke to direct and concentrate the attention in order to use it for betterment. Thus yoga is an art which brings an incoherent and scattered mind to a reflective and coherent state.

Meditation can be defined as a practice where an individual uses a technique, such as focusing their mind

on a particular object, thought or activity, to achieve a mentally clear and emotionally calm state. Meditation is “dhyāna” in Sanskrit, refers to a mental or spiritual state that may be attained by such practices, and also refers to the practice of that state.

Studies have suggested that practicing pranayama can create a relaxed state by enhancing parasympathetic tone thus decreasing the chances of anticipatory nausea and vomiting.⁹⁻¹¹

Material and Methods

The study was carried out in department of Radiation Oncology at Acharya Tulsi Regional Cancer Treatment and Research Institute (ATRCTRI), Bikaner. 50 cancer patients receiving moderate to highly emetogenic chemotherapy were selected and randomised.

Patients were divided into two groups (as shown in Figure 1):-

- Control group: receiving only anti-emetic drugs.
- Study group: practiced yoga and meditation for 1 hr, 2 days prior to CT and post CT as well with anti emetic drugs.

Inclusion Criteria

1. Age > 18 yrs.
2. Were tendency to participate in the study.
3. Receiving moderate to high emetogenic chemotherapy.
4. ECOG performance status (0-2).
5. Informed consent.

Exclusion criteria

1. Lack of known psychological disorder before cancer diagnosis.
2. Brain tumours.
3. Metastasis to GI tract.
4. Not on regular follow up.

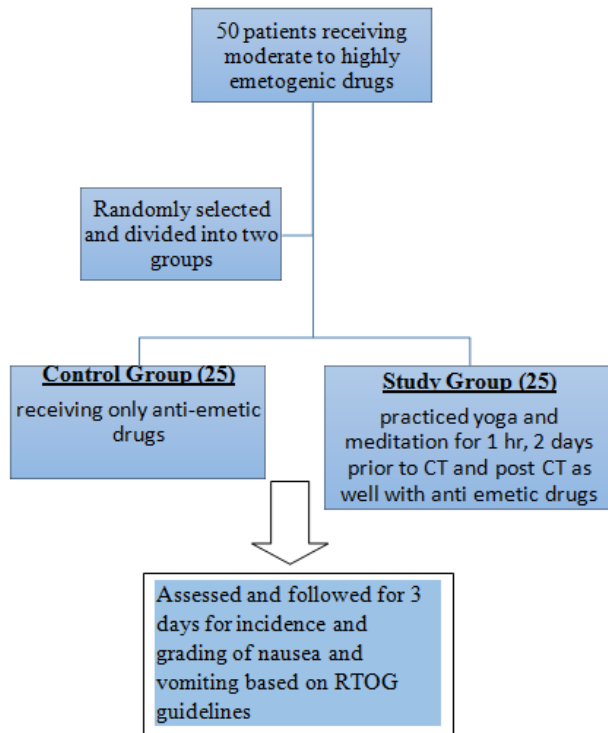


Figure 1: Hierarchy depicting patient selection and two groups.

The anti- emetic drug regimen used were ondansetron 8 mg twice a day and dexamethasone 16 mg twice a day. These drugs should also be given 30 min prior to CT as prophylaxis.

Yoga and meditation should be started 2 days prior to CT at home and ½ hr prior to CT on the day of administration. Yoga and pranayama was done by these patients under supervision of a yoga master. Guided meditation was also included in the practice.

Both the groups were followed for 3 days post CT for incidences and grades of nausea and vomiting according to the RTOG grading for the same.

Results

Mainly, patients <50 yrs were taken. The average age of the patients enrolled in the study was 48 years ± 12.94 (standard deviation). Male to female ratio was 2:1.

Maximum patients i.e. 35% were of head and neck malignancies receiving cisplatin based

chemotherapeutic regime. Breast cancer patients were 21% of the total while genitourinary and lung comprised of 15% each.

Table 1: Patient Characteristics

Patient characteristics		No. of patients	
		Control Group (25)	Study Group (25)
Age	<50 yrs	15 (60%)	13 (52%)
	>50 yrs	10 (40%)	12 (48%)
Sex	Male	18 (72%)	16 (64%)
	Female	7 (28%)	9 (36%)
ECOG	0-1	19 (76%)	15 (60%)
	2	6 (24%)	10 (40%)

Table 2: Patients on the basis of primary diagnosis

Primary diagnosis	Head and neck	35%
	Breast	21%
	Genito-urinary	15%
	Lungs	15%
	Others	14%

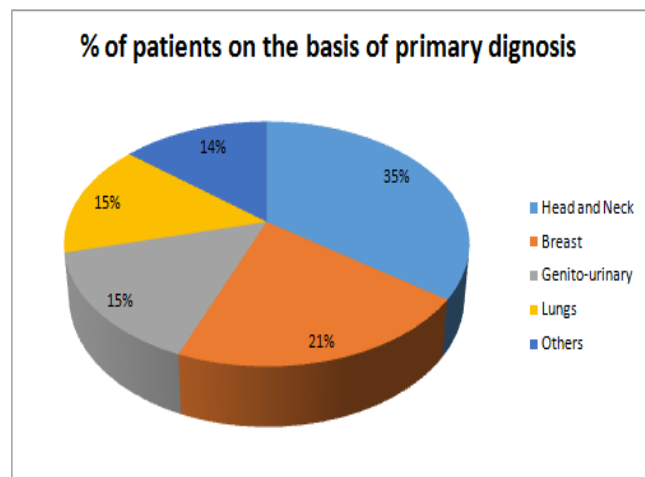


Figure 2: Pie diagram depicting Table 2.

Table 3: Grades of nausea and vomiting in Control and Study group

			Control Group (%)	Study Group (%)
Nausea	Day 1	Grade 1	40	37
		Grade 2	18	10
		Grade 3	7	2
	Day 2	Grade 1	35	30
		Grade 2	12	8
		Grade 3	4	2
	Day 3	Grade 1	11	6
		Grade 2	3	1
		Grade 3	0	0
Vomiting	Day 1	Grade 1	38	30
		Grade 2	22	13
		Grade 3	11	9
	Day 2	Grade 1	28	14
		Grade 2	10	5
		Grade 3	6	0
	Day 3	Grade 1	12	6
		Grade 2	5	0
		Grade 3	0	0

Table 4: Comparison of control and study group in incidence and grading of nausea and vomiting

	Control Group (%)	Study Group (%)	p value
Incidence of nausea	88	72	0.005
Incidence of vomiting	46	21	0.0002
Grade 2 and 3 nausea	80	36	0.00001
Grade 2 and 3 vomiting	25	10	0.005

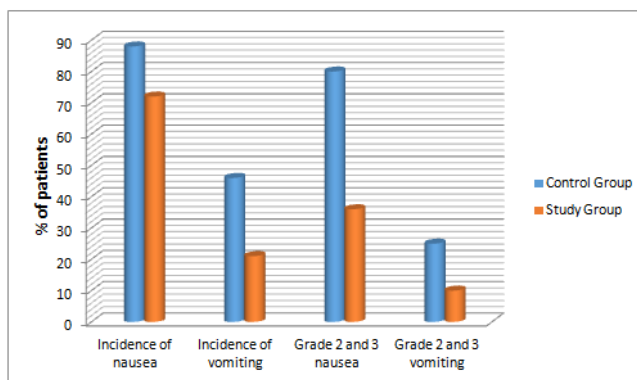


Figure 3: Bar diagram showing results of Table 4.

In the study arm significant reduction in the incidence of chemotherapy induced nausea (88% v/s 72%, $p = .005$) was observed and significant reduction in the incidence of vomiting (46% v/s 21%, $p < .01$) was found when compared with the control arm.

There was significant reduction in grade 2 and 3 nausea (80% v/s 36% $p < .01$) and vomiting (25% v/s 10% $p = .005$).

Discussion

Cancer patients receiving chemotherapy treatment frequently experience the disagreeable side effects including nausea and vomiting which may meddle with the patient’s appetite and also capability to perform activities of daily living, thus causing malnutrition leading to proneness to infections and metabolic imbalances. When CINV is very severe, psychological distress, depression, and physiological impairment occur. Chemotherapy induced nausea and vomiting (CINV) in particular remains one of the most feared side effects from the patient's point of view.¹² Different non-pharmacological interventions have been tried in many forms previously and are still being studied to be helpful in improving the life of the cancer patients and also to tackle the side effects of the cancer treatment.^{13,14}

The aim of this study was to evaluate the effect of yoga and meditation in reducing the incidence and severity of chemotherapy induced nausea and vomiting.

In this study, it was found that young and female patients were more prevalent for nausea and vomiting. Patients with head and neck and breast cancer had the most frequency in both the groups. Similar results were found in Molassiotis et al study in 2000.¹⁵

In the present study, significant reduction in incidence and grading of nausea and vomiting were found. Results were consistent with study conducted by Kothari TO, et al in 2019.¹⁶

Conclusion

This study concluded that yoga and meditation can be successfully utilised and are very safe and effective in reducing the debilitating side effects of chemotherapy that is mainly, chemotherapy induced nausea and vomiting. So, yoga and meditation with standard anti emetics should be a part of management plan for cancer patients receiving highly emetogenic drugs.

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