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Effectiveness of ginger tea on nausea, vomiting and retching among antenatal mothers residing in rural community of East Sikkim

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Abstract

Background: Nausea, vomiting and retching is a common medical condition in pregnancy affecting women worldwide which occur during the first trimester of pregnancy. Ginger, *Zingiber officinale* Roscoe, is recognized as a popular non-pharmacological treatment for nausea and vomiting of pregnancy (NVP). The present study examined the effectiveness of ginger tea on nausea, vomiting and retching among antenatal mothers residing in rural community of East Sikkim.

Methods: This study was conducted in rural community of East Sikkim among 60 antenatal mothers having nausea, with or without vomiting or retching within 8th to 12th weeks of gestational period. True experimental pre-test post-test design was adopted, and the participants were selected using simple random sampling comprising 30 antenatal mothers each in experimental and control group. Demographic and obstetrical data were used to collect personal information and Rhodes Index of nausea, vomiting and retching scale was used to assess the level of symptoms.

Experimental group was demonstrated to drink 500 mg of ginger tea twice a day and the control group did not receive any intervention. The post-test was conducted for both the groups after 4 days to assess the level of nausea, vomiting and retching.

Result: The findings of the study showed that in the pre-test, majority 53.4% in experimental group had moderate symptoms, 33.3% had mild symptoms and 13.3% had severe symptoms whereas in control group majority 50% had mild symptoms, 36.6% had moderate symptoms, 6.7% had severe symptoms and 6.7% had no symptoms.

After the administration of ginger tea to the experimental group, majority 63.3% were having mild symptoms, 20% had no symptoms and 16.7% had moderate symptoms whereas in control group majority 46.7% had moderate symptoms, 43.3% had mild symptoms, 6.7% had severe symptoms and remaining 3.3% had no symptoms in the post-test. There was a significant difference between the post-test level of nausea, vomiting and retching among antenatal mothers in experimental and control group ($t= 3.762$, $p<0.001$).

Discussion and Conclusion: Nausea, vomiting and retching was found to be the most common symptoms during pregnancy which interfere with their activities of daily living. Thus, the health care professionals can take an important role in educating the antenatal mothers regarding intake of ginger tea which is safe and cost-effective.

Keywords: effectiveness, nausea, vomiting, retching, antenatal, ginger, pregnancy

Introduction

Being pregnant is a very personal experience for each woman. The period in her life possesses many new challenges and possible problems. How she responds to these challenges is independent on her emotional maturity or lack of it. The physiologic, biochemical, and anatomic changes that occur during pregnancy are extensive and may be systemic or local. The alterations during pregnancy maintain healthy environment for the foetus without compromising the mother's health [1].

Nausea and vomiting are common experiences in pregnancy, affecting 70–80% of all pregnant women. In the United States and Canada this translate approximately 4,000,000 and 350,000 women who are affected each year respectively. Although most women with nausea and vomiting of pregnancy (NVP) have symptoms limited to the first trimester, a small percentage of women have a prolonged course with symptoms extending until delivery. Women with severe nausea and vomiting during pregnancy may have hyperemesis gravidarum (HG), which if left untreated may lead to significant maternal and fetal morbidity [2].

A study conducted in New Delhi, India on prevalence of minor ailments during pregnancy among antenatal mothers reported that out of 30 antenatal mothers, 23(77%) had morning sickness which was the most common minor disorder prevalent in the sample subjects [3].

Ginger (*Zingiber officinale* Roscoe) is a perennial herb belonging to the family Zingiberoside, primarily grown in Asia and tropical regions, and is one of the most important and widely consumed herbs worldwide. Ginger has been used since antiquity both as a spice and as an herbal

medicine to treat a variety of primarily gastrointestinal ailments such as nausea, vomiting, diarrhoea, dyspepsia, and diverse ailments including arthritis, muscular aches and fever. The major pharmacological activity of ginger appears to be attributed to gingerols and shogaols, which are the dehydrated products of gingerols. Consequently, gingerols are the major components in the fresh ginger rhizome, whereas shogaols, especially 6-shogaol, are the most abundant polyphenolic constituents of dried ginger [4].

Ozgoli G, *et al*. suggests that 1000 mg of ginger per day (250 mg capsules 4 times daily) can be used as a safe remedy to improve the nausea and vomiting of pregnancy. Gastrointestinal upset is the most common complaint of pregnancy, and because of the side-effects of the anti-nausea drugs, ginger capsules can be suggested by all maternal care providers as a safe and effective means of controlling these symptoms [5].

Use of ginger during pregnancy does not seem to increase the risk of congenital malformations, stillbirth/perinatal death, preterm birth, low birth weight, or low Apgar score. This finding is clinically important for health care professionals giving advice to pregnant women with nausea and vomiting [6].

Dass A P, *et al*. conducted a study on implementing standardised Rhodes Index to measure the efficacy of ginger extract in pregnancy induced nausea and vomiting. A total of 30 women with pregnancy of 4-16 weeks, suffering from nausea and vomiting were included in the study. Subjects were given ginger extract 250 mg, 3 times a day half an hour before food for 1 week and severity was assessed by Rhodes Index of Nausea and Vomiting Form 2. The result found that there was a significant decrease in the Rhodes Index score from baseline (14.43) to end of treatment (1.17; $p<0.005$). The study showed that ginger extract is efficacious in the management of nausea and vomiting in pregnancy [7].

Ginger tea is a cost-effective intervention in reduction of nausea and vomiting during pregnancy. Since for some women, it is very debilitating that conventional antiemetic brings with them a risk of potential teratogenic effects during the critical stage of pregnancy. Women tend to feel more comfortable taking a natural or herbal substance to manage nausea and vomiting. In addition, the severity of nausea and vomiting during pregnancy differs according to many factors which may include race and ethnicity. So, researcher has developed special interest to find out the effectiveness of ginger tea among antenatal mothers of Sikkim.

Methodology

It was a true experimental pre-test post-test design conducted in one randomly selected rural community of East Sikkim among 60 antenatal mothers having nausea, with or without vomiting or retching within 8th to 12th weeks of gestational period. The participants were selected using simple random sampling comprising 30 antenatal mothers each in experimental and control group. Informed consent was taken from the sample under the study. Demographic and obstetrical data were used to collect personal information and Rhodes Index of nausea, vomiting and retching scale was used to assess the level of symptoms.

Samples in the experimental group were demonstrated to prepare the ginger tea by adding 500 mg of ginger and were instructed to take the ginger tea twice a day (total ginger as 1000 mg in a day) for four consecutive days. The control group did not receive any intervention. The post-test was conducted for both the groups after 4 days to assess the level of nausea, vomiting and retching. Descriptive and inferential statistics were used to analyse the data.

Results

Findings related to demographic data of antenatal mothers in experimental and control group

Majority of the antenatal mothers in experimental group were at the age group of 27-30 years of age with the percentage 43.3% and 33.3% were between the age group of 31-35 years in control group.

Most of the antenatal mothers in experimental group had primary education which makes the percentage of 33.3% and 26.7% in control group have completed their senior secondary education. The majority of the antenatal mothers were unemployed in both the groups which makes the percentage of 70% in experimental group and 53.3% in control group.

Majority of the antenatal mothers were Hindu by religion in both the groups with the percentage of 56.7% in experimental group and 60% in control group.

It has also been observed that majority in experimental group which is 53.3% and 63.3% in control group were from nuclear family.

Majority of the antenatal mothers prefer non-vegetarian meal which makes the percentage of 96.7% in experimental group and 93.3% in control group.

Findings related to obstetrical data of the antenatal mothers

Majority of the antenatal mothers were having Last menstrual period between 3/12/20 to 12/12/20 which makes the highest percentage i.e., 30% in experimental group whereas majority of the antenatal mothers in control group had their Last menstrual period between 23/11/20 to 2/12/208 making the percentage of 26.7%.

Expected date of delivery was found to be highest between 9/9/21 to 18/9/21 with the percentage of 30% in experimental group and majority being 30% between 30/8/21 to 8/9/21 in control group.

Most of the antenatal mothers were primigravida in both the groups with the percentage of 60% in experimental group and 63.3% in control group.

The antenatal mothers those who were multigravida, majority 91.7% in experimental group and 90.9% in control group had previous history of nausea, vomiting and retching.

In both the groups, parity one was found to be more among multigravida mothers showing the percentage 66.7% in control group and 81.8% in control group.

Majority were at the gestational age of 11-12 weeks in group the groups which is 53.3% in experimental group and 63.3% in control group.

There was an equal percentage of having no any history of abortion among antenatal mothers in experimental and control group which is 90%.

All the antenatal mothers (100%) had present history of nausea, vomiting and retching in both experimental and

control group.

It was also found that majority 83.3% in experimental group and 93.3% in control group were not taking any home remedies for nausea, vomiting and retching at present.

Findings related to level of nausea, vomiting and retching among antenatal mothers in experimental and control group

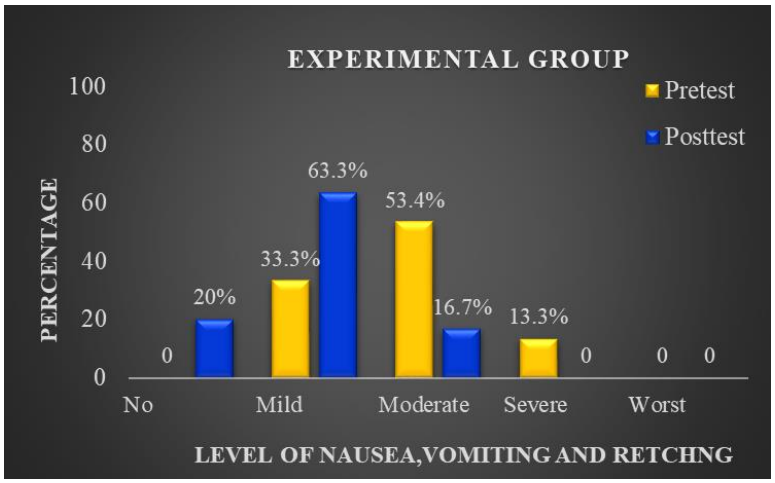

Fig 1: Distribution of pre-test and post-test level of nausea, vomiting and retching among antenatal mothers in experimental group

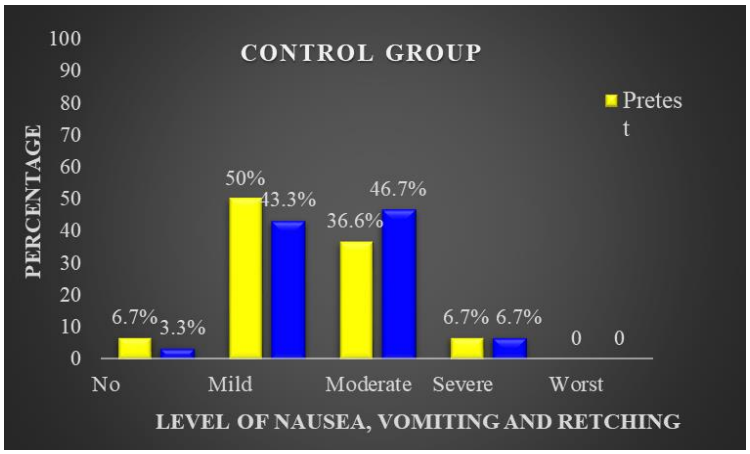

Fig 2: Distribution of pre-test and post-test level of nausea, vomiting and retching among antenatal mothers in control group

Findings related to comparison of pre-test and post-level of nausea, vomiting and retching among antenatal mothers within experimental and control group

Table 1: Comparison of pre-test and post-test level of nausea, vomiting and retching among antenatal mothers in experimental group

n=30

Comparison Experimental group	Mean	SD	t-value	df	p value
Pre-test	9.80	4.334	13.01	29	0.001*
Post-test	4.73	3.503			

df(29)=2.05 *Significant (p<0.05)

Table 2: Comparison of pre-test and post-test level of nausea, vomiting and retching among antenatal mothers in control group

n=30

Comparison Control group	Mean	SD	t value	df	p value
Pre-test	8.13	4.599	1.397	29	0.173
Post-test	8.63	4.468			

df (29) =2.05 p>0.05

Findings related to effectiveness of ginger tea on nausea, vomiting and retching among antenatal mothers between experimental and control group

Table 3: Comparison of post-test level of nausea, vomiting and retching among antenatal mothers in experimental and control group

N=60, n=30

Comparison Post-test	Mean	SD	t value	Df	p value
Experimental group	4.73	3.503	3.762	58	**0.001***
Control group	8.63	4.468			

df (58) =2.00 *Significant (p<0.05)

Table 4: Association between the level of nausea, vomiting and retching with selected variables of antenatal mothers in experimental and control group

n=30

Demographic data	Below median	Above Median	χ2	df	p value
1. Age (in years)					
a. 19-22	6	2	7.885	3	0.048*
b. 23-26	1	5			
c. 27-30	10	3			
d. 31-35	1	2			
2. Educational qualification					
a. Post graduate and above	0	2	6.806	5	0.236^{NS}
b. Graduate	3	3			
c. Higher education	4	1			
d. Secondary education	1	2			
e. Senior secondary	2	2			
f. Primary education	8	2			
g. No formal education	--	--			
3. Occupational status					
a. Profession	2	3	2.282	3	0.516^{NS}
b. Skilled worker	2	0			
c. Unskilled worker	1	1			
d. Unemployed	13	8			
4. Religion					
a. Hindu	14	3	9.230	3	0.026*
b. Muslim	0	1			
c. Christian	1	4			
d. Buddhist	3	4			
e. Any other	--	--			
5. Type of family					
a. Nuclear	10	6	0.089	1	0.765^{NS}
b. Joint	8	6			
6. Type of food intake					
a. Vegetarian	1	0	0.690	1	0.406^{NS}
b. Non-vegetarian	17	12			

*Significant at $p<0.05$ NS-Non significant

Table 5: Association between pre-test level of nausea, vomiting and retching among antenatal mothers with obstetrical data in experimental group

n=30

Obstetrical data	Below median	Above Median	χ2	df	p value
1. Last menstrual period					
a. 23/11/20-2/12/20	6	0	12.29	4	0.015*
b. 3/12/20-12/12/20	6	3			
c. 13/12/20-22/12/20	3	3			
d. 23/12/20-1/1/21	3	1			
e. 2/1/21-11/1/21	0	5			
2. Expected date of delivery					
a. 30/8/21-8/9/21	6	0	12.29	4	0.015*
b. 9/9/21-18/9/21	6	3			
c. 19/9/21-28/9/21	3	3			
d. 29/9/21-8/10/21	3	1			
e. 9/10/21-18/10/21	0	5			
3. Gravida					
a. Primigravida	9	9	1.875	1	0.171^{NS}
b. Multigravida	9	3			
4. Gestational age at present (in weeks)					
a. 8-10	8	6	0.089	1	0.765^{NS}
b. 11-12	10	6			
5. History of abortion					
a. Yes	2	1	0.062	1	0.804^{NS}
b. No	16	11			
6. Present history of nausea, vomiting and retching					
a. Yes	18	12	Not applicable		
b. No	--	--			
6.1 If yes, any history of taking home remedies at present					

a. Yes	3	2	0.0	1	1.0
b. No	15	10			

*Significant at $p<0.05$ NS-Non significant

Table 6: Association between pre-test level of nausea, vomiting and retching among antenatal mothers with demographic variables in control group

n=30

Demographic data	Below median	Above Median	χ2	df	p value
1. Age (in years)					
a. 19-22	4	4	0.900	3	0.825^{NS}
b. 23-26	2	2			
c. 27-30	3	5			
d. 31-35	6	4			
2. Educational qualification					
a. Post graduate and above	1	2	14.13	5	0.015*
b. Graduate	3	3			
c. Higher education	0	4			
d. Secondary education	2	2			
e. Senior secondary	8	0			
f. Primary education	1	4			
g. No formal education	--	--			
3. Occupational status					
a. Profession	3	3	1.143	3	0.767^{NS}
b. Skilled worker	3	4			
c. Unskilled worker	1	0			
d. Unemployed	8	8			
4. Religion					
a. Hindu	8	10	1.365	3	0.714^{NS}
b. Muslim	4	3			
c. Christian	2	2			
d. Buddhist	1	0			
5. Type of family					
a. Nuclear	11	8	1.292	1	0.256^{NS}
b. Joint	4	7			
6. Type of food intake					
a. Vegetarian	1	1	Not applicable		
b. Non-vegetarian	14	14			

*Significant at $p<0.05$ NS-Non significant

Table 7: Association between pre-test level of nausea, vomiting and retching among antenatal mothers with obstetric data in control group

n=30

Obstetrical data	Below median	Above Median	χ2	df	p value
1. Last menstrual period					
a. 23/11/20-2/12/20	9	0	14.22	4	0.007*
b. 3/12/20-12/12/20	2	5			
c. 13/12/20-22/12/20	3	4			
d. 23/12/20-1/1/21	1	4			
e. 2/1/21-11/1/21	0	2			
2. Expected date of delivery					
a. 30/8/21-8/9/21	9	0	15.46	4	0.004*
b. 9/9/21-18/9/21	1	5			
c. 19/9/21-28/9/21	4	4			
d. 29/9/21-8/10/21	1	4			
e. 9/10/21-18/10/21	0	2			
3. Gravida					
a. Primigravida	10	9	0.144	1	0.705^{NS}
b. Multigravida	5	6			
4. Gestational age at present (in weeks)					
a. 8-10	5	6	0.144	1	0.705^{NS}
b. 11-12	10	9			
5. History of abortion					
c. Yes	1	2	0.370	1	0.543^{NS}
d. No	14	13			
6. Present history of nausea, vomiting & retching					

a. Yes	15	15	Not applicable
b. No	--	--	
6.1 If yes, any history of taking home remedies at present			
Yes	1	1	Not applicable
No	14	14	

*Significant at $p<0.05$ NS-Non significant

Discussion

In the present study, the pre-test findings in experimental group were 16(53.4%) who had moderate symptoms, 10(33.3%) had mild symptoms and 4(13.3%) had severe nausea, vomiting and retching whereas in control group 15(30%) had mild symptoms, 11(36.6%) had moderate symptoms, 2(6.7%) had severe symptoms and 2(6.7%) had no nausea, vomiting and retching.

This study is in consistent with the findings of the study conducted by Renuka K [8] which showed that in experimental group 6(20%) had mild, 19(63.33%) had moderate and 5(16.66%) had severe morning sickness whereas in control group 12(40%) had mild, 16(53.33%) had moderate and 2(6.66%) had severe morning sickness.

In the present study, administration of ginger tea had a significant effect on reduction of nausea, vomiting and retching among antenatal mothers in the experimental group which is supported by a study conducted by Ozgoli G *et al*. [5] which found that the experimental group receiving (250mg ginger capsule 4 times daily) for 4 days demonstrated a higher rate of improvement than the control group.

In the same line, Purneswari *et al*. [9] conducted a study to evaluate the effectiveness of ginger tea on management of pregnancy induced nausea and vomiting among antenatal mothers, found that there was a significant reduction in pregnancy induced nausea and vomiting among antenatal mothers in experimental group as compared to the control group.

The findings of the present study revealed that ginger tea was very effective in reducing nausea, vomiting and retching after the 4 days of intervention. This finding is consistent with the study conducted by Aly S A [10] who found that intake of ginger capsule two times daily for 4 days significantly improved nausea and vomiting in 50 pregnant women in the experimental group.

Conclusion

A number of non-pharmacological approaches have been proposed, investigated and recommended for the treatment of pregnancy induced nausea and vomiting where ginger appears to be safe, effective and inexpensive solution. The present study also revealed that ginger tea had a significant effect on reduction of nausea, vomiting and retching among antenatal mothers. Thus, the health care professionals can take an important role in educating the antenatal mothers regarding the dosage, duration, preparation and benefits with the intake of ginger in treating nausea and vomiting during pregnancy.

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