IOSR Journal of Nursing and Health Science (IOSR-JNHS)
e-ISSN: 2320–1959.p- ISSN: 2320–1940 Volume 10, Issue 5 Ser. V (Sep. – Oct. 2021), PP 01-07
www.iosrjournals.org

Effect of Ice food for Pregnant Women with Hyperemesis Gravidarum

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Abstract:
Background:
Hyperemesis gravidarum is a complication of pregnancy that has significant relation with malnutrition, especially deficiencies of certain vitamins and minerals that have been associated with negative pregnancy outcomes for both the mother and the fetus. ***Aim of this study*** *to evaluate the effect of ice food regarding malnutrition for pregnant woman with hyperemesis gravidarum.* ***Research design****: A Quasi-experimental design* ***Setting:****study conducted in Helwan General Hospital, Ain Shams Hospital and MCH of EizbatAlwilada in Egypt.* ***Sample****: purposive sample (60 women) was selected according to inclusion and exclusion criteria.* ***Tool:*** *Data was collected through two tools: first tool used with women that includea structured interviewing questionnaire, and Follow up sheet.* ***Result:****near the half of the study mentioned that the vomiting frequency of pregnant women with Hyperemesis Gravidarum reducing after ice food consumption and increase their food tolerance.* ***Conclusion:****Ice food during pregnancy was effective method to reduce the frequency of vomiting of pregnant woman with HyperemesisGravidarum.****Recommendations****: shed light on the importance of modified diet as using ice food for pregnant woman with Hyperemesis Gravidarum*

Keywords: *Ice food, Hyperemesis Gravidarum, malnutrition.*

Date of Submission: 15-09-2021 Date of acceptance: 30-09-2021

I. Introduction

Pregnancy is the period of dynamic change for a mother requiring a lot of care. During pregnancy the pregnant women's body goes some profound anatomical, physiological changes to adapt and support the entire pregnancy, which ultimately support the growing fetus. Although these physiological changes are normal, can be misinterpreted as disease because the pregnant women's body can't adequately adapt to the changes of pregnancy. Significant physiological adaptations during pregnancy contribute to its successful outcome. These occur early in the pregnancy and continue throughout gestation **(Priya et al., 2016).**

Hyperemesis graviderum affects approximately 0.3% to 3.6% of pregnancies in USA. Where reported HG recurrence rates vary from 15.2% in a Norwegian hospital registry study to 81% if using self-reported diagnosis. In the light of a study conducted by Mahmoud (2012), this can be concluded that the overall hospital rate of hyperemesis graviderum at the Woman's Health Center, Assiut University, Egypt was 4.5% which was considered a high prevalence in relation to the universal prevalence of hyperemesis graviderum. However, the diagnosis is usually made clinically following the exclusion of other causes **(Farg&Hassan.,2019).**

The actual cause of hyperemesis in pregnancy is unknown, although some biological, physiological and psychological as well as sociocultural factors are thought to be contributory factors. Some theories are favored more than others. In general, the cause is thought to be multifactorial, with the placenta playing a large role in the disorder. Several placental hormones have been explored as causal components including human chorionic gonadotropin (hCG), estrogen, progesterone, human growth hormone, prolactin, and leptin. HCG of these is most often implicated as a cause **(Judith & Karin., 2018).**

Malnutrition during pregnancy has significant relation with hyperemissgravidarum, especially deficiencies of certain vitamins and minerals that have been associated with negative pregnancy outcomes for both the mother and the fetus. Severe iron-deficiency anemia has been linked to preterm labor, poor anthropometric measures and birth asphyxia Pregnant women with Emesis normally find it difficult to swallow a wide range of food that gastric acid increase will obviously occur and enables nausea and vomiting to appear so that nutritional balance is impaired. Delicious and sweet ice cream orfood also solves nausea during thepregnancy**(Lonnie, M. et al.,2018).**

Cold sensation happens in the throat cause vasoconstriction which impedes the production of gastric acid. Thus, ice cream consumption especially in the first period of pregnancy is not forbidden. However, pregnant women still have to consider the portion of the ice cream to consume. Pregnant women would rather avoid consuming cold and sweet beverages such as cold and sweet as it contains too much glucose**(Kiswati, 2017).**

Aim of the study:

The aim of the present study was to evaluate the effect of ice food regarding malnutrition for pregnant woman with hyperemesis gravidarum.

Subjects and Methods

Research Design:A quasi-experimental design.**Setting**:study was carried at Helwan General Hospital in Helwan – Egypt. As regard to Coronavirus pandemic the hospital was chosen as quarantine the researcher added another two setting (Ain Shams for Obstetrics and Gynecology university hospital and MCH of EizbatAlwilada.
Sampling:purposive sample**(60 women)** was selected according to inclusion and exclusion criteria.

Tools of Data Collection

Two tools were used for data collection**:**

I- A structured interviewing questionnaire: include three parts;

This tool was developed by the researcher used to assess the studied women regard the following:

Part 1: **Socio-demographic characteristics** included: (Name, age, address, educational level, residence and occupation).

Part 2:Obstetric history included: Age of menarche, age of marriage, number of deliveries, Type of previous deliveries, previous contraceptives, Number of pregnancy, previous complications and previous hyperemesis gravidarum.

Part 3: Current pregnancy:

- Gestational age, Present complications during pregnancy, Weight at admission, previous weight before pregnancy, BMI and number of vomiting per day according to PUQE grades (PUQE-N., 2015) which added to the tools according to expertise opinion.

II- Follow up sheet that was constructed by the researcher for pregnant women which include a three point Liker scale (worse, same, better) was used at follow up visit to assess woman's subjective responses to intervention.

Preparatory phase:

It includes reviewing of literature, different studies and theoretical knowledge of various aspects of the research topic using books, articles, internet, periodicals and magazines. This also helped in designing the study tools.

Validity and reliability:

The questionnaire sheet was developed by the researchers after reviewing the related literature. Tools were tested for content validity by 3 experts in the field and they were structured interview questionnaire sheet

Administrative design:

After explanation of the study aim and objectives, an official permission was obtained from the Dean of faculty of nursing and the general manager of Helwan hospital, Ainshams hospital and MCH asking for cooperation and permission to conduct the study before starting the study.

Ethical considerations

An official permission to conduct the proposed study was obtained from the Scientific Research Ethics Committee. Participation in the study is voluntary and a subject was given complete full information about the study and their role before signing the informed consent. The ethical considerations was include explaining the purpose and nature of the study, stating the possibility to withdraw at any time, confidentiality of the information where it was not be accessed by any other party without taking permission of the participants. Ethics, values, culture and beliefs was respected.

A pilot study:

A pilot study was conducted on a sample of 10% of cases, to test the feasibility of different and help in time planning necessary modifications were carried out and tools finalized, so they were excluded in the study sample.

Field work:

Field work started at the beginning of October, 2019 to the end of August 2020, the study was consuming 8 months. The study was conducted in difficult circumstances, which was the period of the Corona Virus pandemic, where the collection of data stopped for a period of three months, then the collection resumed, and in this period the researcher did the following:

- The researcher visited the study setting; the researcher meet the nurse director of setting and introduced herself and the aim of the study was explained and gave them a complete background about the study and sheet format which used to collect the required data.
- After the approval to conduct the study, the director nurse help the researcher to interview with the head nurse of the obstetrics and gynecological departments andinterviewed pregnant women at inpatient word and outpatient unit according to the criteria.
- The aim of the study was explained to each womanto gain their confidence and agreement to participate in the study and obtained their consent to participate in the study.
- The researcher visiting study setting three day in the weak.
- The researcher encourage pregnant women to increase their food tolerance by using iced drink prepared by researcher without sugar from fresh fruits to suck out as ice cream that help pregnant women to replace fluids and nutrients lost as a result of continuous vomiting, and also knew how to prepare it at home.This method was well received by pregnant women and was supported by the physician.
- The researcher provided the iced foodwhere possible according to their condition.

As regards Evaluation : the researcher evaluate the effect of ice food regarding malnutrition for pregnant woman with hyperemesis gravidarum by Follow up sheet that was constructed for pregnant women which include a three point Likert scale (worse, same, better) was used at follow up visit to assess woman's subjective responses to intervention **.**

For in patient women; after two weeks from the patient discharge of the hospital.

For outpatient women, the researcher done follow up after provided all nursing management and this period different from woman to woman according to their condition.

Statistical design

The collected data in pretest and post test were organized, categorized, tabulated according to the type of each data

Statistical analysis:

The Statistical Package for the Social Sciences (SPSS, version 17.0) was used for data analysis. Descriptive statistics were employed to summarize the demographic data, which was presented using frequency tables and expressed as percentages, mean and standard deviation. Chi-square test was used to test the associations among the under studied qualitative variables. Statistical significance was considered at P-value < 0.05 and highly significance at P-value < 0.001.

III. Results

Table (1) showed that, more than half 55% of the studied pregnant women aged between 18 to 25 years with mean of 24.8 ± 5.1 years. One third of them were illiterate /R&W (30%), while 45% of them had secondary school or a technical diploma and only their quarter (25%) had University education. As regards marital status, 90% of them were married and 3.3% were divorced.

Table (2) revealed distribution of the studied pregnant women according to their Obstetric history. More than half of them had a menarche age of 13-15 years (51.6%) with a mean age of menarche of 13.5 ± 2.1 years, and had age of marriage of 20-29 years (53.3%) with a mean age of marriage of 26.2 ± 4.3 years. Approximately one third of them were primigravida (28.3%),13.3% had abortion,majority delivered 1-2 deliveries (58.3%), and 41.7% delivered by CS. A quarter studied Pregnant women suffered from previous HG (25%) and, were admitted to hospital for this reason.

Table (3)showed that the distribution of the studied pregnant women according to their current pregnancy. Half of them were in first trimester (51.7%), and had no complications during current pregnancy (63.3%). Three quarters of them claimed that the current pregnancy was wanted (75%).The mean weight of studied pregnant women before pregnancy was 64 ± 10 Kg, while the mean weight of studied pregnant women in current pregnancy was 62.6 ± 7.9 Kg.

Fig.1 show that11.7% mild hyperemesis 68.3% moderate hyperemesis and 20% sever hyperemesis before management.

Fig.2:show that more than the third of studied pregnant mothers with hyperemesis gravidarum reported that iced food was effective in managing their HG (41.7%). Approximately one quarter mentioned ginger biscuit (23.3%). and Acupressure on point 6 in the hand mentioned Fifteen percent.

Table (4): demonstrated the effect of iced food intervention regarding hyperemesisgravidarum.In first and second week revealed a highly significant improvement ($p<0.000$) in the number of vomiting per day,Weight and Food tolerance: Number of meals per day.

IV. Discussion

The current study reveals more than half of the studied pregnant women aged between 19 to 25 years with mean of 24.8 ± 5.1 years, and third of themwere illiterate /R&W . As regards residence and their income, two third of them from urban area and have enough income. This finding supported with **Jasline.M.(2019)**in a study "A Study to Assess the Effectiveness of self-Instructional Module on Knowledge Regarding Home Care Management of Hyperemesis Gravidarum among PrimiGravida Mothers in a Selected Community Areas in Dehradun, India" who mentioned that 25% of the study subject are uneducatedwith mean age of 25.2 ± 4.3 years.

Regarding the obstetric history of the studied pregnant women, the results of the present study revealed that, Majority of them had a menarche age of 13-15 years and had age of marriage of 20-29 years with a mean age of marriage of 26.2 ± 4.3 years. Approximately one third of them were primigravida 13.3% had abortion, more than half delivered 1-2 deliveries, and near the half delivered by CS. this result agree with **(Aminu MB et al.,2020)** in the study title"Prevalence of hyperemesis gravidarum and associated risk factors among pregnant women in a tertiary health facility in Northeast, Nigeria" who mentioned that, The mean age of marriage 27 years and more than half was delivered by CS.

In same line the current study show that, one quarter of studied pregnant women suffered from previous HG and were admitted to hospital for this reason. this result agree with **(Hassan et al.,2019)** whom study"Nursing Role in Application off Nutritional Guidelines During Hyperemesis Gravidarum and Its Effect On Patients Outcomesin Egypt " who mentioned that, one third of study subjects had previous hyperemesis gravidarum and More than half of the morning sickness.

According to **Pregnancy Unique-Quantification of Emesis (PUQE)scale**, the current study revealed two third of studied women have moderate hyperemesis and 20% sever hyperemesis before management. These findings are near to congruent with**Farg.D, Hassan.E (2019)** who mentioned that one-tenth (10.0%) of HG group have a mild PUQE grade, one half of them have a moderate degree and two-fifths (40.0%) have a severe degree.

As regards of the effect of the iced food, the current study revealed that there was highly significant in women's condition regarding number of vomiting , weight increasing and number of meals after implementing nursing management, this finding agree with **Kiswati, (2017)** who study The Benefit of Ice Cream to Reduce Emesis Gravidarum of Pregnant Woman in Indonesia who mentioned that a significant reduction in the frequency of vomiting in the first trimester pregnant women who experience emesis gravidarum after the 5th day of administration of ice cream. Thus consuming ice cream is effective in reducing nausea and vomiting in pregnant women.

V. Conclusion

The present study concluded that the majority of pregnant women have moderate hyperemesis gravidrum in the pretest in which decreased in the posttest. Ice food during pregnancy was effective method to reduce the frequency of vomiting of pregnant woman with Hyperemesis Gravidarum.

VI. Recommendations

In the light of the present study findings, the following were recommended:

- Shed light on the importance of modified diet as using ice food for pregnant woman with Hyperemesis Gravidarum.
- Heath educational program should be provided to women and nurses about theGuideline for Management of Hyperemesis Gravidarum.
- Generalization of ice food in the meals of pregnant womenwith Hyperemesis Gravidarum in hospitals.

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Table (1): Distribution of the studied pregnant women according to the Socio -demographic characteristics (N = 60)

Socio demographic characteristics	N0.	%
Age (Years)		
18 – 25 years	33	55
26 – 35 years	27	45
Mean ± SD	24.8 ± 5.1 years	
Educational Level		
Illiterate/Read & Write	18	30
Secondary school or technical diploma	27	45
University	15	25
Marital status		
Married	54	90
Divorced	2	3.3
Widow	4	6.7
Residence:		
Rural	22	36.7
Urban	38	63.3
Occupation:		
Work	34	56.7
Housewives	26	43.3
Income:		
Enough	39	65
Not enough	21	35
Total	60	100

Table (2): Distribution of the studied pregnant women according to their Obstetric history (N = 60).

Obstetric history	N0.	%
Age (Years) of menarche: 10- 12 years	25	41.7
13-15 years	31	51.6
16 – 17 years	4	6.7
Mean ± SD	**13.5 ± 2.1 years**	
Age of marriage: < 20 years	24	40
20-30 years	32	53.3
>30 years	4	6.7
Mean ± SD	**26.2 ± 4.3 years**	
N0. Of pregnancy:primigravida	17	28.3
2-3 pregnancies	29	48.3
> 3 pregnancies	14	23.4
N0. Of abortions: Yes	8	13.3
No	52	86.7
N0. Of deliveries: Zero	20	33.3
1-2 deliveries	35	58.3
3 -4 deliveries	5	8.4
Types of previous deliveries: Zero(None)	20	33.3
Normal delivery	15	25
CS	25	41.7
Previous contraception: No	20	33.3
Yes	40	66.7
Previous complications: Non	20	33.3
Abortion	8	13.3
Hypertension	10	16.7
Delivery complications	7	11.7
Previous HG	15	25
Previous admission to hospital for history of HG: No	45	75
Yes	15	25
Total	60	100

Table (3): Distribution of the studied pregnant women according to their current pregnancy (N = 60)

Current pregnancy	N0.	%
Gestational age):		
First trimester	31	51.7
Second trimester	27	45
Third trimester	2	3.3
Complications during current pregnancy:		
Non	38	63.3
Hypertension	14	23.3
Gestational diabetes	4	6.7
Pre -eclampsia&eclampsia	4	6.7
Current pregnancy is wanted? No	15	25
Yes	45	75
Pre – pregnancy weight : **Mean ± SD**	**64 ± 10 Kg**	
Current pregnancy weight : **Mean ± SD**	**62.6 ± 7.9 Kg**	
Total	**60**	**100**

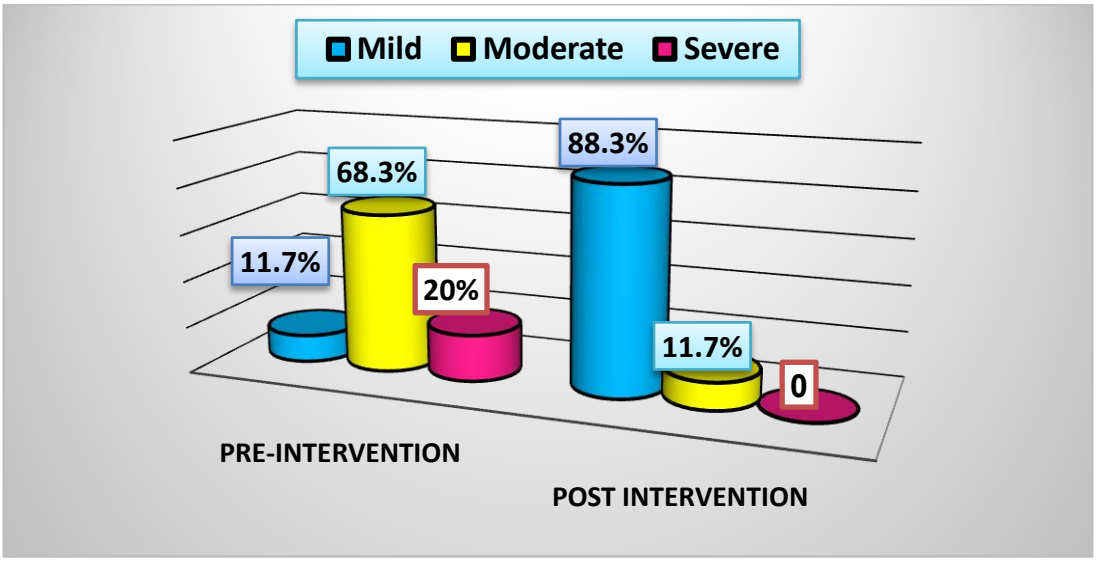

Fig.1: Distribution of the study subjects according toPregnancy-Unique Quantification of Emesis and Nausea(PUQE) grades

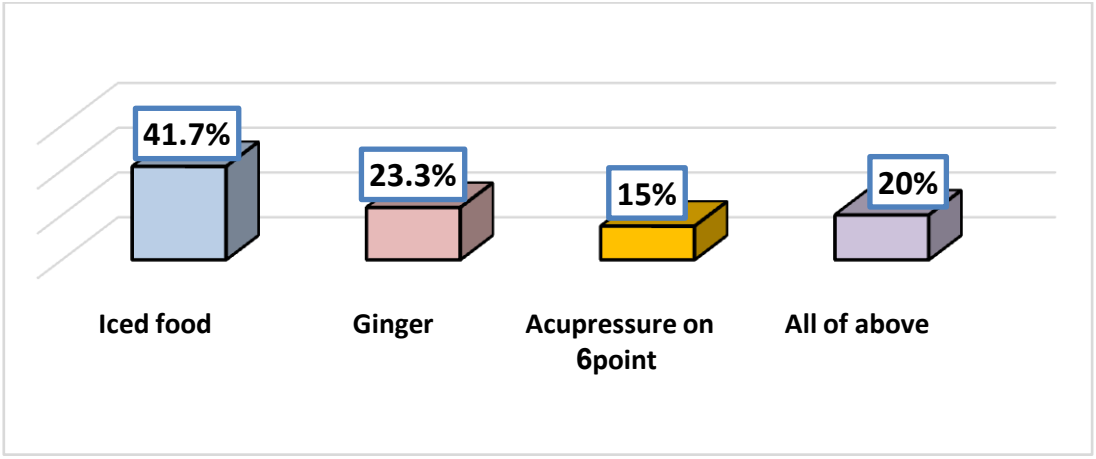

Fig.2: the most effective methods used with mothers to relief hyperemesis gravidarum

Table (4): Evaluating the effect of the iced food regarding hyperemesis gravidarum in first and second weeks post intervention for pregnant women with hyperemesis (N=60).

Items	First weeks			Second weeks			P value
	Worse N0. (%)	Same N0. (%)	Better N0. (%)	Worse N0. (%)	Same N0. (%)	Better N0. (%)	
Number of vomiting per day	0	7 (11.7)	53 (88.3)	0	53 (88.3)	7 (11.7)	X2=69.9, P<0.0001
Weight increase or not	0	45 (75)	15 (25)	0	11 (18.3)	49 (81.7)	X2=38.9, P<0.0001
Food tolerance : Number of meals per day	0	1 (1.7)	59 (98.3)	0	7 (11.7)	53 (88.3)	X2=4.8, P<0.02

EnasEbrahim Abbas Badr, et. al. "Effect of Ice food for Pregnant Women with Hyperemesis Gravidarum."*IOSR Journal of Nursing and Health Science (IOSR-JNHS)*, 10(5), 2021, pp. 01-07