International Journal of Public Health Asia Pacific

*Open Access: e-Journal*
*ISSN: 2822-0587(Online)*

# Hyperemesis Gravidarum: fetal and maternal complications in a Tertiary Hospital in Nepal

Sweta Mahato[1*], Abha Shrestha [2], Sanjeev Younjan[3], Anamika Mahato[4], Adarsha Mahaseth[5], Resham Gautam[6]

[1]Department of Obstetrics and Gynecology, Dhulikhel Hospital, Nepal.
[2] Department of Obstetrics and Gynecology, Dhulikhel Hospital, Nepal.
[3] Department of Obstetrics and Gynecology, Scheer Memorial Adventist Hospital, Nepal.
[4] Department of Pediatrics, Dhulikhel Hospital, Nepal.
[5] Department of Orthopedics, Armed Police Forces Hospital, Nepal.
[6] Department of Internal Medicine, Lumbini Medical college, Nepal.

**Corresponding author:** Dr. Sweta Mahato, swetakusms@gmail.com

## ABSTRACT

**Background**: Hyperemesis gravidarum (HG) is a syndrome that occurs in the first half of pregnancy and is manifested by severe vomiting. The vomiting can cause weight loss, dehydration, ketonuria and electrolyte imbalances. Several studies have evaluated the outcome of pregnancies complicated by nausea and vomiting. The purpose of the present study was to evaluate the association between the clinical course, obstetric complications and birth outcome in pregnant women with HG, and to determine the epidemiological characteristics of these women.

**Objective:** To evaluate maternal characteristics and pregnancy outcomes among women with hyperemesis gravidarum.

**Methods:** A total of 75 (case) i.e., pregnancy with hyperemesis and 75(control) i.e., women with normal pregnancy without hyperemesis were studied. A case control study was conducted in Dhulikhel hospital in Nepal. It was a hospital-based study and the data were collected during 10th August 2022 to 1st May 2023. The pre-structured questionnaire was used for history taking and examination of all participants.

**Result**: This study identified that maternal and fetal complications were higher in women with hyperemesis gravidarum. The maternal complications like Hypertensive Disorders (OR 2.49, 95%CI :1.04-5.94, *P=0.031*), Anemia (OR 2.07, 95%CI:1.07-4.02, *P=0.031*), Preterm Labor (OR 2.28, 95%CI:1.15-4.52, *P=0.018*) and PPH (OR 2.65, 95%CI:1.07-6.54, *P=0.036*) were associated more with the pregnancies complicated with hyperemesis gravidarum. The fetal complications like low birth weight (OR 2.42, 95%CI :1.07-5.43, *P=0.03*), NICU admission (OR 3.27, 95%CI:1.48-7.25, *P=0.003*), low APGAR score (OR 2.32, 95%CI:1.05-5.11, *P=0.034*) and Neonatal Death (OR 3.72, 95%CI:1.15-12.01, *P=0.04*) were associated more with pregnancies complicated with hyperemesis gravidarum.

**Conclusion**: The women with hyperemesis gravidarum were found to have increased risk of maternal and fetal complications. Thus, timely identification and management of hyperemesis is recommended to prevent long term complications.

**Keywords**: complications; hyperemesis gravidarum

## 1. Introduction:

Hyperemesis gravidarum (HG) is a syndrome that occurs in the first half of pregnancy and is manifested by severe vomiting. The vomiting can cause weight loss, dehydration, ketonuria and electrolyte imbalances [1]. Nausea and vomiting are common during pregnancy and are present in over 80% of pregnant women while HG is relatively rare and occurs in only about 0.5% of pregnancies [2]. Several studies have evaluated the outcome of pregnancies 'complicated' by nausea and vomiting. These studies demonstrated that pregnancies characterized by nausea and vomiting have more abortions stillborn fetuses, premature delivery [3]. Hyperemesis gravidarum mostly occurs more often among young women in their first pregnancy. It is the most common indication for hospitalization during the first half of pregnancy [4]. There are many complications of HG that may affect both maternal health status [5]. There are currently no official hospitalization criteria or clinical guidelines for diagnosis or treatment of HG [6]. The purpose of the present study was to evaluate the association between the clinical course, obstetric complications and birth outcome in pregnant women with HG, and to determine the epidemiological characteristics of these women. In particular, we aimed to assess whether the presence of HG had any detrimental impact on the outcome of pregnancy.

## 2. Methods:

A total of 75(case)i.e. pregnancy with hyperemesis and 75(control)i.e. women with normal pregnancy without hyperemesis were studied. A case control study was conducted in Dhulikhel hospital in Nepal. It was a hospital-based study and the data were collected during 10th August 2022 to 1st May 2023. The questionnaire was used for history taking and examination of all participants. those participants who gave written consent were included. The participants in the study were included after excluding the exclusion criteria. For each case the control was taken after matching the parity.

**2.1 Data collection:** During the time of admission, the cases and controls were informed about the study and consent was taken. the relevant history was taken and examinations were done. These findings were filled in the preformed questionnaire. Then the relevant investigations were sent. Every case was followed thereafter. Maternal complications compared between the groups were Hypertensive Disorder of Pregnancy, Postpartum Haemorrhage, p-v leaking, and mode of delivery. The fetal complications

compared were NICU admission, Neonatal death, LBW, Low APGAR.

**2.2 Data Entry and Analysis:** Data were entered into a Microsoft Excel spreadsheet. Data analysis was made using SPSS-21 and was depicted in tables. Odds Ratio and its 95% CI was calculated by using conditional logistic regression. P-value of<0.05 was considered as significant. During the study period, 150 cases were enrolled

**3. Results:**

This study identified that majority of women with hyperemesis belonged to age group 26-30 years. Majority of them were Primigravida. This study identified that maternal and fetal complications were higher in women with hyperemesis gravidarum. The maternal complications like Hypertensive Disorders (OR 2.49, 95%CI :1.04-5.94, *P=0.031*), Anemia (OR 2.07, 95%CI:1.07-4.02, *P=0.031*), Preterm Labor (OR 2.28, 95%CI:1.15-4.52, *P=0.018*) and PPH (OR 2.65, 95%CI:1.07-6.54, *P=0.036*) were associated more with the pregnancies complicated with hyperemesis gravidarum.

The fetal complications like low birth weight (OR 2.42, 95%CI :1.07-5.43, *P=0.03*), NICU admission (OR 3.27, 95%CI:1.48-7.25, *P=0.003*), low APGAR score (OR 2.32, 95%CI:1.05-5.11, *P=0.034*) and Neonatal Death (OR 3.72, 95%CI:1.15-12.01, *P=0.04*) were associated more with pregnancies complicated with hyperemesis gravidarum

Table 1: Age grouping of hyperemesis and non-emetic pregnant females

| | **Hyperemetic female** | **Non emetic female** | **Total** | **P-value** |
|---|---|---|---|---|
| < 20 | 22(29.3%) | 16(21.30%) | 38 (25.3%) | 0.025 |
| 21-25 | 9(12%) | 16(21.30%) | 25 (16.7%) | |
| 26-30 | 38(50.70%) | 27(36%) | 65 (43.30%) | |
| 31-35 | 6(8%) | 16(21.30%) | 21 (14.70%) | |

Table 2: Parity of Hyperemetic and non-emetic females

| | **Hyperemetic Female** | **Non emetic female** | **Total** | **OR** | **P-value** |
|---|---|---|---|---|---|
| Primi Gravida | 9(12%) | 22(29.30%) | 31(20.70%) | 3.04 (1.29-7.16) | 0.009 |
| Multi Gravida | 66(88%) | 53(70.70%) | 119(79.30%) | | |

Table 3: Demographic description of hyperemetic and non-emetic females

| | | **Hyperemetic female** | **Non emetic female** | **Total** | **p-value** |
|---|---|---|---|---|---|
| Education | Illiterate | 25(33.30%) | 22(29.30%) | 47(31.30%) | 0.868 |
| | Primary | 28(37.30%) | 30(40%) | 58(38.70%) | |
| | secondary | 22(29.30%) | 23(30.70%) | 45(30%) | |

| | | | | | |
|---|---|---|---|---|---|
| Occupation | House wife | 50(66.70%) | 41(54.70%) | 91(60.70%) | 0.232 |
| | service | 9(12%) | 11(14.70%) | 20(13.30%) | |
| | Student | 6(8%) | 4(5.30%) | 10(6.70%) | |
| | No job | 10(13.30%) | 4(25.30%) | 29(19.30%) | |
| Mensuration history | irregular | 19(25.30%) | 18(24%) | 37(24.70%) | 0.850 |
| OBS presentation | cephalic | 63(84%) | 59(78.70%) | 122(81.33%) | 0.613 |
| | breech | 10(13.30%) | 12(16%) | 22(14.70%) | |
| | transverse | 2(2.70%) | 4(5.30%) | 6(4%) | |
| ANC visit | ≤3 | 35(46.70%) | 24(32%) | 59(39.30%) | 0.66 |
| | ≥4 | 40(53.30%) | 51(68%) | 91(60.70%) | |

Table 4: Maternal complication of hyperemetic and non-emetic pregnant female

| Factors | Hyperemetic female | Non emetic female | Total | OR | P-Value |
|---|---|---|---|---|---|
| PIH | 18(24%) | 8(10.70%) | 26(82.70%) | 2.49(1.04-5.94) | 0.031 |
| PPH | 19(25.30%) | 9(12%) | 28(18.70%) | 2.65(1.07-6.54) | 0.036 |
| Leaking | 10(13.30%) | 11(14.70%) | 21(14%) | 0.89(0.36-2.25) | 0.814 |
| Preterm labour | 34(45.30%) | 20(26.70%) | 54(36%) | 2.28(1.15-4.52) | 0.018 |
| Anemia | 37(49.30%) | 24(32%) | 61(40.70%) | 2.07(1.07-4.02) | 0.032 |
| **Mode of delivery** | | | | | |
| Vaginal | 33(44%) | 46(61.30%) | 79(52.70%) | 2.02(1.05-3.87) | 0.034 |
| c/s+ instrumental | 42(56%) | 29(38.70%) | 71(47.30%) | | |
| **Indication of c/s** | | | | | |
| Fetal distress | 11(35.50%) | 8(28.60%) | 19(32.20%) | | 0.023 |
| Meconium | 4(12.90%) | 0(0%) | 4(6.8%) | | |
| Non progress of labor | 4(12.90%) | 0(0%) | 4(6.8%) | | |
| Failed induction | 4(12.90%) | 4(14.30%) | 8(13.60%) | | |
| Mal presentation | 8(25.80%) | 16(57.10%) | 24(40.70%) | | |

Table 5: Fetal complication of hyperemetic and non-emetic pregnant female

| | Hyperemetic Female | Non emetic female |
|---|---|---|
| NICU admission | 27 (36.00%) | 11 (14.70%) |
| Neonatal death | 13 (17.30%) | 4 (5.30%)) |
| LBW | 22(29.30%) | 11(14.70%) |
| LOW APGAR | 23(30.70%) | 12 (16%) |

## 4. Discussion:

The aim of the present study was to summarize the available evidence regarding complications in HG. Observations from the majority of the studies included in the present review demonstrated that certain complications of HG could occur in cases of inadequate therapy or even lack of medical support [7]. In a meta-analysis completed by Veenendaal and colleagues, pregnant women with hyperemesis gravidarum were more likely to deliver babies who were born small for gestational age [8]. A recent cohort study, showed that women who had been admitted to hospital for HG were more likely to be induced, have a caesarean section and deliver

preterm [9]. Canadian cohort study of 156,000 singleton pregnancies reported that women with HG gaining less than 7 kg during pregnancy had a threefold increase in risk for PTB, an almost threefold increase in risk for LBW and a fivefold increase in risk for a 5-minute Apgar score < 7 [10].

## 5. Conclusion:

The women with hyperemesis are at increased risk of having medical, obstetric complications during pregnancy as well as a higher rate of maternal and fetal complications. Timely identification and management of hyperemesis is needed to prevent long term complications. This condition is accompanied by a significant reduction in quality of life for the patient and high costs to the healthcare system, obstetricians should ensure that they are well informed about this condition so that they are able to provide advice, counselling and effective medication to pregnant women and thus prevent the complications of this disease.

## Acknowledgement:

We are grateful to all the staff of OBGYN department of Dhulikhel Hospital for helping us conduct this study.

## References:

[1] Fairweather DVI. Nausea and vomiting in pregnancy. Am J Obstet Gynecol 1968: 102:135 175.
[2] Chin RKH, Lo TT. Low birth weight and hyperemesis gravidarum. Eur J Obstet Gynecol Reprod Biol 1988: 28:179 183.
[3] Klebanoff MA, Koslowe PA, Kaslow R, Rhoads GG. Epidemiology of vomiting in early pregnancy. Obstet Gynecol 1985; 66: 612 616.
[4] Castillo MJ, Phillippi JC (2015) Hyperemesis Gravidarum. J Perinat Neonatal Nurs 29: 12-22.
[5] Lee N, Saha S (2011) Nausea and vomiting of pregnancy. Gastroenterol Clin North Am 40: 1-27.
[6] Laitinen L, Polo-Kantola P. Hyperemesis gravidarum. (in Finnish.). Duodecim. 2019; 135: 1385- 1392.
[7] Katz VL, Farmer R, York J, Wilson JD. Mycobacterium chelonae sepsis associated with long-term use of an intravenous catheter for treatment of hyperemesis gravidarum. A case report. J Reprod Med. 2000;45:581–584.
[8] Veenendaal MV, van Abeelen AF, Painter RC, et al. Consequences of hyperemesis gravidarum for offspring: a systematic review and meta-analysis. BJOG. 2011;118:1302–1313.
[9] Fiaschi, L., Nelson-Piercy, C., Gibson, J., Szatkowski, L. & Tata, L. J. Adverse maternal and birth outcomes in women admitted to hospital for hyperemesis gravidarum: a population-based cohort study. Paediatr. Perinat. Epidemiol. 32, 40–51
[10] Dodds L, Fell DB, Joseph KS, Allen VM, Butler B: Outcomes of pregnancies complicated by hyperemesis gravidarum. Obstet Gynecol. 2006, 107: 285-292.