Original Study

Nausea and Vomiting in Early Pregnancy of Adolescents: Relationship with Depressive Symptoms

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A B S T R A C T

Study Objective: To determine the relationship between severity of nausea and vomiting during pregnancy (NVP) and depressive symptoms in pregnant adolescents.
Design: Prospective cross-sectional study.
Setting: A maternity research hospital outpatient clinic, Ankara, Turkey.
Participants: A total of 200 pregnant adolescents.
Interventions and Main Outcome Measures: Demographic features and obstetric histories of the participants were assessed. The Rhodes test was performed to determine nausea and vomiting severity in a face-to-face interview, and the self-reported Edinburgh Postnatal Depression Scale was administered with supervision.
Results: The Rhodes test results showed that 52/200 patients (26%) were classified with none, 83/200 patients (41.5%) with mild, 48/200 patients (24.0%) with moderate, and 17/200 patients (8.5%) with severe symptoms. The mean depression score in the severe vomiting group was significantly higher than that in the no NVP and mild NVP groups ($P = .028$ and .041, respectively). No differences were found between the other groups.
Conclusion: Severe nausea and vomiting was associated with greater depressive symptom severity in pregnant adolescents.
Key Words: Adolescent, Pregnancy, Nausea, Vomiting, Depression

Introduction

Nausea and vomiting during pregnancy (NVP) affects 70%-80% of all pregnant women.[1,2] In general, symptoms begin at weeks 4-6 of gestation, peak at 8-12 weeks, and resolve by weeks 16-20.[2,3] Approximately 20%-30% of these individuals experience symptoms throughout pregnancy.[4,5] Hyperemesis gravidarum (HG; a severe form of NVP) is a condition of intractable vomiting during pregnancy, one of the most frequent causes of hospitalization during the first few months of pregnancy, and is characterized by dehydration, electrolyte and acid-base imbalance, nutritional deficiency, and weight loss (loss of >5% of prepregnancy body weight).[6,7] Despite decades of research, the pathogenesis of NVP and HG remains unknown, but it is considered a multifactorial condition. Although the hypothesis that endocrine factors (ie, human chorionic gonadotropin) are the primary cause of HG, various biological, psychosocial, and socioeconomic factors have also been implicated in the pathogenesis.[6,8]

It has been commonly believed that NVP has a psychological component, because HG is particularly common in patients with an underdeveloped personality, an unplanned pregnancy, advanced addiction, pregnancy-induced anxiety, or symptoms of hysteria, conversion, neurosis, or depression. However, HG has more recently been blamed as the cause for psychological symptoms because of the mental and physical stress associated with persistent nausea and vomiting.[9]

Depression is the most frequently observed psychological disorder during pregnancy and an important public health issue, because it affects fetal and maternal health, is an important risk factor for postpartum depression, might cause complications during pregnancy (hypertensive disorder/preterm birth), and results in unfavorable fetal characteristics (lower birth weight and lower Apgar score) and childhood (behavioral and emotional) problems.[10–14] Although a relationship between NVP and antepartum depression has been shown in some studies,[15,16] the role of NVP and its severity and the risk factors that could lead to antepartum depression in pregnant adolescents who have NVP have received little attention. Adolescent pregnancy has increased, particularly in low- and middle-income countries, with an estimated 16 million adolescents aged 15-19 years who give birth each year.[17] Adolescent pregnancy is associated with adverse obstetric and neonatal outcomes, such as anemia, preterm birth, pre-eclampsia, low birth weight, and small for gestational age.[17,18] In this study, we determined the relationship between NVP severity and depressive symptoms in pregnant adolescents with NVP.

The authors indicate no conflicts of interest.

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Materials and Methods

This cross-sectional study was conducted from September 2013 to May 2014 at the antenatal clinic of the Maternity and Women's Health Training and Research Hospital, which is a major maternity hospital in Ankara, Turkey, a semiurban region with low to middle socioeconomic demographic characteristics. The study population consisted of 200 pregnant adolescents aged 16-19 years, who were in viable singleton pregnancies without congenital malformations, and who attended the antenatal clinic during their first trimester for routine antenatal follow-up visits. Patients with systemic disease (diabetes, thyroid dysfunction, acute urinary tract infection, or hepatobiliary or upper gastrointestinal system diseases) that could lead to nausea and vomiting, history of depression, threatened abortion, and patients with HG were excluded. This study was approved by the Ethics Committee, all participants were informed about the study, and informed written consent was obtained, and written informed consent was obtained from parents when the participant was younger than 18 years. The presence of NVP was confirmed by patient self-report and was classified according to severity using the Rhodes test, as no NVP, mild NVP, moderate NVP, and severe NVP. Severe NVP is not HG. It was considered as HG when ketonuria, dehydration, electrolyte imbalance, nutrient depletion, and the loss of at least 5% body weight were detected, and HG was used as exclusion criteria in this study.

Gestational age was determined using obstetric ultrasonography. Urinalysis, kidney, liver, and thyroid function tests, and a complete blood count were conducted and results were recorded. The sociodemographic characteristics of the participants were evaluated using a questionnaire containing questions, such as age, marital status, educational level, presence of health security, employment outside the house, educational level, and employment of the husband, total monthly income, family structure (number of individuals living at home and their associations), whether the baby was planned, and the mental disorder history of the mother and her first-degree relatives. After completing the sociodemographic questionnaire and the Rhodes test during a face-to-face interview, the participants were administered the self-report Edinburgh Postnatal Depression Scale (EPDS) with supervision.

The Rhodes test was developed by Rhodes et al in 1984[19] to determine the severity of nausea and vomiting in patients who received cancer chemotherapy, but the scale is often used for NVP.[19–21] Patients were asked 8 questions on their feelings of nausea, vomiting, and retching, the number, duration, and volume of vomit at any time, and their discomfort, with scores of 8-40. A score <8 was considered no NVP, 9-18 mild, 19-32 moderate, and 33-40 severe NVP.

Depressive symptoms were determined using the EPDS, which was developed by Cox et al in 1987.[22] The EPDS is the most widely used screening tool to assess antepartum and postpartum depression, and its validity and reliability have been confirmed in many countries.[23,24] The scale was adapted to Turkish by Engindeniz et al in 1996.[25] Its validity and reliability were demonstrated by the same group, and sensitivity and selectivity were 84.0% and 88.0%, respectively.[25] The EPDS consists of 10 questions that refer to depressive and dysphoric moods, loss of pleasure, sleep disorders, reduced performance, and thoughts of death, suicide, and guilt. Each item answer is assigned 0-3 points. Total scores are 0-30.

All data were analyzed using PASW statistics version 18.0 software (SPSS Inc, Chicago, IL). Results are presented as mean $\pm$ SD and n (%). Analysis of variance with Dunnett post hoc test was used to detect differences between groups of parametric variables. The Kruskal-Wallis test was used to compare nonparametric variables. Differences between groups of categorical variables were assessed using the χ^2 or Fisher exact test. Pearson correlation analysis was used to evaluate the associations between parametric variables. A P value $<.05$ was considered to indicate significance.

Results

The mean age of the 200 pregnant adolescents was 17.4 ± 1.1 years (range, 15-19 years), and mean gestational age was 8.5 ± 2.3 weeks (range, 5-14 weeks). The Rhodes test results showed that 74% of the patients had NVP; 41.5% (n = 83) had mild, 24% (n = 48) had moderate, and 8.5% (n = 17) had severe symptoms, and 26% of the patients did not have NVP. No differences were found between the groups in the sociodemographic characteristics, such as age, number of gestational weeks, body mass index, educational level, income, depression history, smoking, or the other sociodemographic factors (Table 1).

The lowest EPDS scores were found in the group with no NVP, and the highest scores were found in the severe NVP group ($P = .008$). The mean depression score in the severe NVP group was significantly higher than that in the no NVP and mild NVP groups ($P = .028$ and .041; Fig. 1). No difference was found between the other groups. The EPDS depression score was positively correlated with NVP severity (Pearson correlation coefficient = 0.268; $P < .001$).

Discussion

NVP is the most common medical condition during pregnancy and is a major health problem for pregnant women and their families with physiological, emotional, social, and economic consequences. Although many studies about NVP have been performed, the NVP frequency, risk factors, and outcomes in pregnant adolescents have received limited attention. In our study, 74% of the patients had NVP of different severities. Consistent with our results, other studies have reported that up to 80% of all pregnant women experience some form of NVP.[1,2,26]

Maternal health can be adversely affected during pregnancy, and it can be a period filled with emotional and psychological problems, particularly in adolescents.[27] Although a psychological origin has been considered in pregnant women who complain of severe fatigue and NVP during early pregnancy, and pregnancy-related stress, depression, and anxiety might be more significant findings in these patients, there is no consensus on exaggeration of these issues that might occur. Furthermore, the interactions