RESEARCH LETTER

Association of Nausea and Vomiting in Pregnancy With Prenatal Marijuana Use

Use of marijuana, an antiemetic, is increasing among pregnant women, and data from 2 small surveys indicate that women self-report using marijuana to alleviate nausea and vomiting in pregnancy (NVP). To date, only 1 epidemiologic study has examined whether women from January 1, 2009, through December 31, 2016, to test whether prenatal marijuana use is elevated among females with a diagnosis of NVP.

Methods | Kaiser Permanente Northern California (KPNC) is a multispecialty health care system serving more than 4 million members representative of the Northern California area. The sample consisted of pregnant females 12 years or older in KPNC who completed a self-reported substance use questionnaire and urine toxicologic test in the first trimester (at approximately 8 weeks gestation) during standard prenatal care. All positive toxicologic test findings were confirmed with a laboratory test result. The institutional review board of KPNC approved this study and waived the need for informed consent.

Nausea and vomiting during the first trimester of pregnancy (90 days from last menstrual period) was based on International Classification of Disease, Ninth Revision, Clinical Modification, and Tenth Revision, Clinical Modification, diagnostic codes in the electronic health record and categorized as severe (hyperemesis gravidarum [codes 643.00, 643.03, 643.10, 643.13, O21.0, and O21.1]), mild (other NVP diagnoses [codes S36.2, 643.80, 643.90, 643.93, 787.01, 787.02, 787.03, G43.00, O21.9, R11.0, R11.1, and R11.2]), or none. We estimated the adjusted odds of prenatal marijuana use among females with NVP using multilevel logistic regression, controlling for age, race/ethnicity, median neighborhood household income, year, and self-reported marijuana use in the year before pregnancy from the universal screening questionnaire for prenatal substance use. We used in the PROC GLIMMIX procedure in SAS software (version 9.3; SAS Institute, Inc) for all analyses, and 2-sided P < .05 was considered statistically significant.

Results | Of 279,457 screened pregnancies from 2009 through 2016, 220,510 (78.9%) underwent screening in the first trimester. The sample was 36.7% white, 27.1% Hispanic, 16.8% Asian, 5.7% black, and 13.7% other. Age distribution included 1.2% aged 12 to 17 years; 15.3%, 18 to 24 years; 62.7%, 25 to 34 years; and 20.9%, 35 years or older. A total of 17.9% of participants had more than 1 pregnancy from 2009 through 2016. The mean (SD) median neighborhood household income was $74,651 ($30,650), and 8.3% self-reported marijuana use in the year before pregnancy. Among pregnant females with a positive self-report or toxicologic test finding, 0.7% were positive on self-report only, 3.1% were positive on toxicologic test finding only, and 1.5% were positive on both.

The prevalence of severe NVP was 2.3%; of mild NVP, 15.3%. The prevalence of prenatal marijuana use by self-report or toxicologic test findings was 5.3%, and was greater among pregnant females with severe NVP (580 of 5140 [11.3%]) and mild NVP (2817 of 33,691 [8.4%]) vs no NVP (8248 of 181,679 [4.5%]). Relative to females without NVP, those with severe (adjusted odds ratio, 3.80; 95% CI, 3.19-4.52; P < .001) and mild (adjusted odds ratio, 2.37; 95% CI, 2.17-2.59; P < .001) NVP had increased odds of marijuana use (Table).

Discussion | In a large, diverse sample of pregnant females from 2009 to 2016 who underwent universal marijuana screening in California, those with severe NVP had nearly 4 times greater odds of prenatal marijuana use, and those with mild NVP had more than 2 times greater odds of prenatal marijuana use than females without NVP. Although results are consistent with the hypothesis that women use marijuana to self-medicate for NVP, marijuana use may also contribute to NVP, or clinicians may diagnose NVP more frequently among women who report using marijuana to treat it.

Table. Adjusted Odds for Marijuana Use Among Females Undergoing Screening in the First Trimester of Pregnancya

<table>
<thead>
<tr>
<th>NVP Category</th>
<th>No. (%) of Participants (n = 220,510)</th>
<th>Marijuana Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>181,679 (82.4)</td>
<td>1 [Reference]</td>
</tr>
<tr>
<td>Mild</td>
<td>33,691 (15.3)</td>
<td>2.37 (2.17-2.59)</td>
</tr>
<tr>
<td>Severe</td>
<td>5140 (2.3)</td>
<td>3.80 (3.19-4.52)</td>
</tr>
</tbody>
</table>

Abbreviations: aOR, adjusted odd ratio; NA, not applicable; NVP, nausea and vomiting in pregnancy.

a Analyses are controlled for standard covariates based on prior literature and availability in electronic health records, including age group, race/ethnicity, median neighborhood household income, year, and self-reported marijuana use in the year before pregnancy. The median sample size across years was 27,017 (range, 26,451-28,149).

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This study was limited to pregnant females in KPNC who were screened for marijuana use at approximately 8 weeks gestation, and results may not generalize to females without health care coverage or with late entry to prenatal care. Clinicians may not diagnose very mild NVP, and our sample may reflect a subset of patients with more severe NVP. We could not distinguish prenatal marijuana use before vs after participants knew they were pregnant, and misclassification is possible given variability in the time that marijuana is detectable in urine.

The health effects of prenatal marijuana use are unclear, and national guidelines recommend that pregnant women discontinue use. Patients with NVP should be screened for marijuana use and educated about effective and safe NVP treatments.

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