

P204 | The Association Between Maternal Occupation as a Cleaner/Maid/Janitor During Early Pregnancy and Selected Birth Defects in the National Birth Defects Prevention Study

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Cleaning work involves potential exposures to physical, chemical, biological, and psychosocial hazards that might increase the risk of birth defects. Yet, there is limited research focused on maternal occupation in cleaning jobs and the risk of birth defects. This study sought to investigate the association between maternal occupation in cleaning jobs during early pregnancy and selected birth defects in the National Birth Defects Prevention Study, a multi-site, case-control study from 1997–2011. Cases were live births, stillbirths, or terminated pregnancies with an eligible birth defect ascertained from state or regional surveillance systems; controls were live births without structural defects randomly selected from the same base population as cases. During telephone interviews, participants self-reported information about jobs held during one month before conception through the first trimester. After restricting to those who reported employment, expert raters classified reported primary jobs into non-cleaning and cleaning (maids, janitors, and other) occupations. We calculated adjusted odds ratios (ORs) with 95% confidence intervals (CIs) using logistic regression for the association between cleaning occupations and 19 selected birth defects, adjusting for age, race/ethnicity, education, smoking, body mass index, folic acid use, gravidity, and study site. In total, 1,109 participants (868 cases, 241 controls) reported a cleaning occupation during early pregnancy and 26,235 reported a non-cleaning occupation. For cleaning occupations combined, nine defects had elevated ORs (ORs > 1.5), of which six had CIs that excluded the null: anencephaly (1.98; 1.26–3.13), glaucoma (2.58; 1.24–5.36), anotia/microtia (2.34; 1.55–3.52), cleft lip and palate (1.64; 1.23–2.20), esophageal atresia (2.65; 1.76–3.98), and small intestinal atresia (2.10; 1.28–3.44). Among maids (677 cases, 191 controls), ORs were elevated for five defects: anencephaly (2.37; 1.47–3.81), holoprosencephaly (1.99; 0.83–4.74), glaucoma (2.65; 1.17–6.01), anotia/microtia (2.74; 1.78–4.23), and small intestinal atresia (2.71; 1.64–4.47). Among janitors (138 cases, 41 controls), ORs for two defects were elevated: anorectal atresia (3.31; 1.65–6.65) and esophageal atresia (3.75; 1.70–8.23). We observed that maternal occupation in cleaning-related jobs was associated with several specific birth defects in various body systems. The study provides valuable insights into the association between maternal occupation in cleaning jobs during early pregnancy and specific birth defects.

P205 | The Impact of First Trimester Ultrasound on Gestational Age at Diagnosis of Fetal Anomalies

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To determine if routine first-trimester screening ultrasound is associated with earlier diagnosis of significant fetal anomalies. This is a data-only retrospective cohort study comparing the timing of fetal anomaly diagnosis in pregnant women from 2019 and 2022, following a March 2020 institutional change limiting first-trimester ultrasounds to patients at increased risk for fetal anomalies during the Covid-19 pandemic. Patients aged ≥ 18 years with singleton pregnancies who presented for care ≤ 10 weeks gestational age (GA) were identified and included. Diagnosis of fetal anomaly was determined by the presence of ICD-10 diagnosis code and ultrasound results prior to or at the time of anomaly diagnosis; a chart review was conducted for each patient to determine eligibility. Fetal anomalies with less clinical significance were excluded (including single umbilical artery and pyelectasis). Statistical analysis was performed with Wilcoxon rank sum test for continuous variables and Fishers exact/Chi-square tests for categorical variables. 3339 women were screened to identify a cohort of 868 women who were diagnosed with a fetal anomaly in pregnancy, 432 in 2019 and 436 in 2022. There was a small but significant difference in GA at fetal anomaly diagnosis between the two cohorts. The median (interquartile range) GA in 2019 was 20.0 (18.4–21.0) and in 2022 was 20.1 (19.3–21.1), $p=0.03$. There was no significant difference in GA at the time of pregnancy termination between the two cohorts—20.4 (15.9–22.0) in 2019 and 19.6 (15.1–21.8) in 2022, $p=0.25$. The cohorts had no significant demographic differences including age, parity, race, or BMI. Compared to routine first-trimester ultrasound, a targeted approach of first-trimester ultrasound for high-risk patients did not lead to a clinically significant change in median gestational age at diagnosis of fetal anomaly. This approach did not delay the timing of termination in patients who elected to terminate anomalous pregnancies. These findings suggest that limiting first-trimester ultrasound to patients at increased risk for fetal anomalies can be safely implemented.

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