Maternal, Delivery and Neonatal Outcomes in Women with Cervical Cancer. A Study of a Population Database

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Abstract : Importance: Cervical cancer is the fourth most common cancer among women globally and a significant cause of cancer-related deaths. Understanding the impact of cervical cancer diagnosed during pregnancy on maternal, delivery, and neonatal outcomes is crucial for improving clinical management and outcomes for affected women and their children. Objective: The goal is to determine the effects of cervical cancer diagnosed during pregnancy on maternal, delivery, and neonatal outcomes using a population-based American database. Design: This study is a retrospective analysis of the Healthcare Cost and Utilization Project Nationwide Inpatient Sample (HCUP-NIS) database. The study period spans between 2004-2014, and the analysis was conducted in 2023. Setting: The study used the HCUP-NIS database, which includes data from hospital stays across the United States, covering 48 states and the District of Columbia. Participants: The study included all women who delivered a child or had a maternal death from 2004-2014, with pregnancies at 24 weeks or above. The population was comprised of 9,096,788 pregnant women, including 222 diagnosed with cervical cancer prior to delivery. Exposures: The exposure was a diagnosis of cervical cancer during pregnancy, identified using International Classification of Diseases 9th Revision codes 180.0, 180.1, 180.8, and 180.9. Main Outcomes and Measures: Primary outcomes included maternal, delivery, and neonatal complications including preterm delivery, cesarean section, hysterectomy, blood transfusion, deep venous thrombosis, pulmonary embolism, congenital anomalies, intrauterine fetal demise, and small-for-gestational-age neonates. Logistic regression analyses were conducted to evaluate the association between cervical cancer diagnosis and these outcomes, adjusting for potential confounding factors. Results: Women with cervical cancer were older (25.2% ≥35 years vs. 14.7%, p=0.001, respectively); more likely to have Medicare insurance (1.4% vs. 0.6%, p=0.005, respectively); use illicit drugs (4.1% vs. 1.4%, p=0.001, respectively); smoke tobacco during pregnancy (14.9% vs. 4.9%, p=0.001, respectively); and have chronic hypertension (3.6% vs. 1.8%, p=0.046, respectively). These women also had higher rates of preterm delivery (OR = 4.73, 95% CI (3.53-6.36), p=0.001); cesarean section (OR = 5.40, 95% CI (4.00-7.30), p=0.001); hysterectomy (OR = 390.23, 95% CI (286.43-531.65), p=0.001); blood transfusions (OR = 19.23, 95% CI (13.57-27.25), p=0.001); deep venous thrombosis (OR = 9.42, 95% CI (1.32-67.20), p=0.025); and pulmonary embolism (OR = 20.22, 95% CI (2.83-144.48), p=0.003). Neonatal outcomes, including congenital anomalies, intrauterine fetal demise, and small-for-gestational-age neonates, were comparable between groups. Conclusions and Relevance: Cervical cancer during pregnancy is associated with significant maternal and delivery risks; however, neonatal outcomes are largely unaffected. These findings highlight the need for a multidisciplinary approach to managing pregnant cervical cancer patients involving oncological, obstetrical, and neonatal care specialists.

Keywords : cervical cancer, maternal outcomes, neonatal outcomes, delivery outcomes

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