

Prenatal Lead Exposure and Postpartum Depression: An Exploratory Study of Women in Mexico

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Abstract : Introduction: Postpartum depression is a prevalent mood disorder that is detrimental to the mental and physical health of mothers and their newborns. Lead (Pb) is a toxic metal that is associated with hormonal imbalance and mental impairments. The hormone changes that accompany pregnancy and childbirth may be exacerbated by Pb and increase new mothers' susceptibility to postpartum depression. To the best of the author's knowledge, this is the only study that investigates the association between prenatal Pb exposure and postpartum depression. Identifying risk factors can contribute to improved prevention and treatment strategies for postpartum depression. Methods: Data was derived from the Programming Research in Obesity, Growth, Environment and Social Stress (PROGRESS) study which is an ongoing longitudinal birth cohort. Postpartum depression was identified by a score of 13 or above on the 10-Item Edinburg Postnatal Depression Scale (EPDS) 6-months and 12-months postpartum. Pb was measured in the blood (BPb) in the second and third trimester and in the tibia and patella 1-month postpartum. Quantile regression models were used to assess the relationship between BPb and postpartum depression. Results: BPb in the second trimester was negatively associated with the 80th percentile of depression 6-months postpartum (β : -0.26; 95% CI: -0.51, -0.01). No significant association was found between BPb in the third trimester and depression 6-months postpartum. BPb in the third trimester exhibited an inverse relationship with the 60th percentile (β : -0.23; 95% CI: -0.41, -0.06), 70th percentile (β : -0.31; 95% CI: -0.52, -0.10), and 90th percentile of depression 12-months postpartum (β : -0.36; 95% CI: -0.69, -0.03). There was no significant association between BPb in the second trimester and depression 12-months postpartum. Bone Pb concentrations were not significantly associated with postpartum depression. Conclusion: The negative association between BPb and postpartum depression may support research which demonstrates lead is a nontherapeutic stimulant. Further research is needed to verify these results and identify effect modifiers.

Keywords : depression, lead, postpartum, prenatal

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