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Poster Presentation

Effect of Mother's Anxiety on Fetus

Leyla Bayan, Arezou Eshaghabadi*

Shefa Neuroscience Research Center, Khatam Alanbia Hospital, Tehran, Iran

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Abstract

The prenatal period is a critical time for neurodevelopment and is thus a period of vulnerability during which a range of exposures have been found to exert long-term changes on brain development and behavior with implications for physical and psychiatric health. During fetal life, neurons proliferate, migrate and form connections, providing the structure of the developing brain. Neurons reach their final destinations by the 16th week of gestation, while branching and making appropriate connections occur even before that time. The brain continues to develop during the entire pregnancy; with most of the synapse formation in the developing brain happens during the third trimester. During these complex neurodevelopmental events, the fetal brain is particularly vulnerable. There is accumulating evidence to indicate that exposure to psychiatric illness in the mother may also affect development of the fetal brain. Clinical studies link pregnant women's exposure to a range of traumatic, as well as chronic and common life stressors (i.e., bereavement, daily hassles, and earthquake), to significant alterations in children's neurodevelopment, including increased risk for mixed handedness, autism, affective disorders, and reduced cognitive ability. High levels of anxiety during pregnancy have been associated with an increased risk of developing preeclampsia, premature birth and low birth weight. It has been demonstrated that low birth weight in premature infants has been associated with changes in brain morphology. However, high levels of anxiety at 19 weeks of pregnancy were correlated with the volume reductions in several regions of the brain, including the prefrontal, lateral temporal and premotor cortex, medial temporal lobe and cerebellum. High pregnancy anxiety at 25 and 31 weeks gestation was not significantly associated with local reductions in gray matter volume. Pregnancy anxiety is related to specific changes in brain morphology. These findings are consistent with the body of literature which demonstrates that prenatal stress and associated anxiety may lead to delays in infant development, lower academic achievement, greater emotional reactivity and emotional/behavioral problems persisting through the adolescence.

Keywords: Mother's Anxiety, Clinical, Morphology

Corresponding Author: Arezou Eshaghabadi

E-mail: *a.eshaghabadi@gmail.com*

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