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Association of Maternal Diabetes and Autism Spectrum Disorders

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ABSTRACT

This abstract provides a concise overview of the association between maternal diabetes and autism spectrum disorder (ASD), highlighting the key findings of our experimental research in rodent model of autism in addition to a comprehensive review of existing literature. The objective is to examine the potential correlation between maternal diabetes during pregnancy and the risk of ASD development in offspring.Maternal diabetes is associated with an increased risk of adverse neurodevelopmental outcomes in offspring, including ASD. The prevalence of both maternal diabetes and ASD has been steadily increasing over the past few decades. Several studies suggest a significant association between maternal diabetes and an increased risk of developing ASD in offspring, but the exact mechanisms underlying this correlation remain unclear. Exposure to hyperglycemia in utero due to any type of maternal diabetes may increase the potential risk of ASD in offspring through different biological mechanisms: oxidative stress, neuroinflammation, and glutamate excitotoxicity. The topic explores various hypotheses, including the role of gestational hyperglycemia, maternal obesity, inflammation, metabolic dysfunction, and genetic factors in mediating the association between maternal diabetes and ASD. While the exact mechanisms are not fully understood, potential mechanisms such as oxidative stress, altered fetal brain development, and abnormal epigenetic modifications have been proposed.Understanding the association between maternal diabetes and ASD is crucial for early identification, intervention, and prevention strategies. It can help improve prenatal care for mothers with diabetes and contribute to the development of targeted interventions aimed at reducing the risk of ASD in offspring.In conclusion, while the evidence suggests a potential association between maternal diabetes and increased risk of ASD in offspring, further research is needed to establish causality and identify the precise mechanisms involved. Nevertheless, recognizing the link between maternal diabetes and ASD supports the need for intensified prenatal care and close monitoring of metabolic health during pregnancy to optimize maternal and child outcomes.

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