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**Antidepressant Use During Pregnancy and The Risk of Autism Spectrum  
Disorder in Children**

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## **Abstract:**

Autism, or Autism spectrum disorder (ASD) is a complex neurobehavioral condition that includes impairments in social interaction and developmental language and communication skills combined with rigid, repetitive behaviors.<sup>(1)</sup> Whether the high rates of autism today are due to increased diagnosis and reporting, changing autism's definition, or an actual increase in development of this disorder is unknown. Regardless, researchers and worried parents alike have speculated about causes of autism, and the issue has been studied for many years. The association between the use of antidepressants during gestation and the risk of autism spectrum disorder (ASD) in children is still controversial. The etiology of ASD remains unclear, and the role of ADs along with other possible risk factors, has been questioned. There are some studies showing correlation between Antidepressant and ASD, but there are contradictory studies too. In this report two researches concerning this topic has been reviewed. The first study was not that significant, and the second study only half the case-control studies and 2 out of 8 cohort studies showed positive association.

## **Introduction:**

Antidepressants (ADs) are widely used during gestation for the treatment of depression. In the United States, the prevalence of AD use during pregnancy increased from 5.7% in 1999 to 13.3% in 2003; in Canada, 4.5% of pregnant women reported using ADs between 2001 and 2006. However, there is continued confusion regarding the appropriate use of ADs during this critical period. Gestational exposure to ADs has been associated with an increased risk of spontaneous abortion, major congenital malformations, prematurity, and low birth weight.<sup>(2)</sup> Autism spectrum disorder (ASD) is a neurodevelopmental syndrome detected in early childhood and characterized by alterations in communication, language, and social interaction and by particular patterns of interests and behaviors. The estimated prevalence of ASD has increased from 0.04% in 1966 to approximately 1% today in the United States. Although this increase is explained mainly by widening diagnostic criteria, improved detection, and the recoding of intellectual disability in ASD, environmental risk factors may also play a role. Accordingly, any factor that modifies spontaneous mutation rates (eg, parental age) or affects synaptic plasticity (eg, exposure to valproic acid during pregnancy), including in utero exposure to medications, may result in neurodevelopmental alterations included in the autistic phenotype. Although the causes of ASD remain unknown, both genetic and environmental factors are probably involved.<sup>(3)</sup>

## **Discussion:**

For a long time the cause of autism spectrum disorder (ASD) had been questioned, researches & worried parents questioned all the possible causes; genetics, bacterial & viral infections, many drugs, and even vaccines. Studies have investigated the risk of ASD in children exposed in utero to antidepressants, with inconsistent results. The first study was register-based of an ongoing population-based cohort, the Québec Pregnancy/Children Cohort, which includes data on all pregnancies and children in Québec from January 1, 1998, to December 31, 2009. A total of 145,456 singleton full-term infants born alive. The mean age at first ASD diagnosis was 4.6 years (median, 4.0 years), and the mean age of children at the end of follow-up was 6.2 years (median, 7.0 years). The study's objective was to examine the risk of ASD in children associated with antidepressant use during pregnancy according to trimester of exposure and taking into account maternal depression. Children with ASD were defined as those with at least 1 diagnosis of ASD between date of birth and last date of follow-up. Data analysis was conducted from October 1, 2014, to June 30, 2015. Of the 145,456 kids born into this cohort, only 0.7% of them had ASD, meaning only 1054 kid were positive for the disorder. And out of those 1054 kids, only 46 were exposed to antidepressants. Keep in mind that the total number of kids who were exposed to

antidepressants was 4724 (3.2%), so a total of 4678 (99%) who were exposed to antidepressants did not develop ASD. And most of the kids who were exposed to antidepressants & developed ASD were exposed during the second and/or third trimester.<sup>(3)</sup> In the second study Researchers did a systematic literature search of Cochrane Library, EMBASE, PsycINFO, and PubMed databases conducted in July 2017, using the combination of Medical Subject Headings and relevant keywords as: autism/autistic/autism spectrum disorder/ASD and antidepressant. Researchers first analyzed the overall impact of any antidepressant exposure and second analyzed the specific impact of SSRIs to investigate whether the association between SSRI exposure and ASD would be influenced by other antidepressants. Briefly, 213 records were retrieved from our systematic literature search. After removing duplicates and irrelevant titles, 23 articles remained for full-text screening. Eight studies that did not report original investigations and one study did not address the outcome of interest were excluded. Finally, 14 studies met the eligibility criteria were included. After careful review of the reported data from the original publications, the exposure period of prepregnancy, first trimester, second and/or third trimester, and the whole pregnancy, 3 out of 6 case-control studies, 2 out of 8 cohort studies reported a positive association. In conclusion, this meta-analysis based on current best evidence and conducted with an appropriate approach quantitatively concluded that maternal antidepressant exposure may not be associated with ASD.<sup>(4)</sup>

## **Conclusion:**

In conclusion, the association between the use of antidepressant drugs during pregnancy and the risk of autism spectrum disorder in children, is yet unclear. Furthermore the percentage of kids who had been exposed to antidepressant during fetal life and developed ASD in the first study was not that significant, and in comparison with the other kids who were not exposed to any antidepressants and developed the disorder, the numbers are very low. And in the second one only half the case-control studies, & 2 out of 8 cohort studies reported a positive association. Based on the those numbers we can not determine if antidepressant drugs had any actual relation with the kids developing the disorder. Finally pregnant women diagnosed with severe depression are not suggested to discontinue their antidepressant use for fear of an uncertain risk.

## **References:**

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