

Prenatal Exposure to Acetaminophen and Risk for Attention Deficit Hyperactivity Disorder and Autistic Spectrum Disorder: A Systematic Review, Meta-Analysis, and Meta-Regression Analysis of Cohort Studies.

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Abstract

Acetaminophen is the most commonly used analgesic and antipyretic during pregnancy. Evidence of neuro-disruptive properties is accumulating. Therefore, we sought to evaluate the risk for attention deficit hyperactivity disorder (ADHD) and autistic spectrum disorder (ASD) in the offspring of women exposed to acetaminophen during pregnancy. We searched MEDLINE, EMBASE, and Cochrane up to January 2017. Data were independently extracted and assessed by two researchers. Seven eligible retrospective cohorts included 132,738 mother and child pairs and with a follow-up period of 3-11 years. Pooled risk ratio (RR) for ADHD was (RR=1.32, 95% CI 1.18,1.45, I2=61%), for ASD (RR=1.23, 95% CI 1.13,1.32, I2=17%), and for hyperactivity symptoms (RR=1.23, 95% CI 1.01,1.49, I2=94%). In meta-regression analysis, the association between exposure and ADHD increased with child's age upon follow-up and with the mean duration of exposure ($\beta=0.0354$, 95% CI 0.001,0.07), ($\beta=0.006$, 95% CI 0.009,0.01). The available data is of observational nature only. Studies differed gravely in exposure and outcome assessment. Acetaminophen use during pregnancy is associated with an increased risk for ADHD, ASD and hyperactivity symptoms. These findings are concerning, however, results should be interpreted with caution as the available evidence consists of observational studies and susceptible to several potential sources of bias.