Attention-Deficit/Hyperactivity Disorder and Very Preterm/Very Low Birth Weight: A Meta-analysis


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Abstract

CONTEXT: Although very preterm (VP), extremely preterm (EP), very low birth weight (VLBW), and extremely low birth weight (ELBW) newborns seem to have a higher risk of later attention-deficit/hyperactivity disorder (ADHD), the magnitude of the risk is not well-defined.

OBJECTIVE: To systematically review and meta-analyze the risk of VP/VLBW and EP/ELBW individuals to develop a ADHD categorical diagnosis or dimensional symptomatology compared with controls with normal weight and/or birth age.

DATA SOURCES: We used PsycINFO, Medline, Embase, and Cochrane databases.

STUDY SELECTION: We selected cross-sectional, prospective, or retrospective studies with no time or language restriction.

DATA EXTRACTION: Independent reviewers screened and extracted data using predefined standard procedures.

RESULTS: In 12 studies (N = 1787), researchers relying on a categorical diagnosis showed that both VP/VLBW and EP/ELBW subjects have a higher ADHD risk (odds ratio [OR] = 3.04 higher than controls; 95% confidence interval [CI] 2.19 to 4.21). In subgroup analyses, we demonstrated that the more extreme the cases, the higher the ORs (VP/VLBW: OR = 2.25 [95% CI 1.56 to 3.26]; EP/ELBW: OR = 4.05 [95% CI 2.38 to 6.87]). We drew data from 29 studies (N = 3504) on ADHD symptomatology and found significant associations with inattention (standardized mean difference [SMD] = 1.31, 95% CI 0.66 to 1.96), hyperactivity and impulsivity (SMD = 0.74, 95% CI 0.35 to 1.13), and combined symptoms (SMD = 0.55, 95% CI 0.42 to 0.68) when compared with controls.

LIMITATIONS: Heterogeneity was significantly high for all analyses involving the 3 ADHD dimensions.

CONCLUSIONS: With our results, we provide evidence that VP/VLBW subjects have an increased risk of ADHD diagnosis and symptomatology compared with controls, and these findings are even stronger in the EP/ELBW group. Future researchers should address which risk factors related to prematurity or low birth weight lead to ADHD.