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Attention-deficit/hyperactivity disorder - not only genetics

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Background & Aim: Attention-deficit/hyperactivity disorder (ADHD) is the most common neurodevelopmental childhood disorder affecting 5% of children and presenting with symptoms of inattention and/or hyperactivity/impulsivity. The genetic heritability is reported to be approximately 75% and environmental factors are estimated to account for 25% of the development of ADHD. This review describes the risks factors for ADHD, focusing on those that may have public health implications, because of their preventable nature.

Method: Literature review through PubMed, from 2011-2016, using the MeSH terms “Attention Deficit Disorder with Hyperactivity” and “Risk Factors”. It was included a total of 76 articles.

Results: During prenatal period, exposure to alcohol (even in binge pattern) and maternal/environmental tobacco smoke may be associated with ADHD. Untreated maternal thyroid dysfunction and gestational diabetes mellitus could also increase the risk of the disorder. Several studies have supported the association between perinatal factors (prematurity/poor fetal growth/low birth weight) and ADHD, suggesting that each gestational week has significance for neurodevelopment. Breastfeeding in the absence of parental psychopathology was a protective factor for the disease. Studies on psychosocial factors have associated the risk for ADHD with parental severe mental illness/maternal stress during pregnancy, postpartum depression, low socioeconomic position and changes in primary caretaker. A significant association between numerous comorbid conditions and the potential for ADHD development has also been identified in the literature, including mild traumatic brain injury, previous cardiac surgical procedure, epilepsy, asthma and allergic rhinitis, but the underlying mechanisms require further clarification.

Conclusions: Current data indicate that ADHD is the outcome of complex interactions between biological variants and environmental exposures. Longitudinal research aims to identify modifiable predictors of better developmental trajectories. Optimal ADHD care and prevention should include effective evaluation of co-existing disorders and modification of preventable factors with implementation of public health policies and careful follow-up of children at risk.