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THE IMPACT OF PRENATAL RISK FACTORS IN ADHD: POTENTIAL FOR GENE X ENVIRONMENT INTERACTIONS

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The intrauterine environment is likely to play a key role in the etiology of psychopathology because the brain is particularly sensitive during the entire gestation as it undergoes the most rapid period of development. Neurodevelopmental deficits, such as attention problems, are a manifestation of these brain disturbances, which can in the end be linked to disorders, the most common being Attention Deficit Hyperactivity Disorder (ADHD). Animal models provide strong evidence in support for programming. Human studies present added complexity as genetic predisposition in mothers can increase the risk of e.g. pregnancy smoking or distress, thus, the effect may be carried entirely or in part by genetic transmission. However, neither genes nor environment operate in isolation, but rather in a complex interplay. Although ADHD has been the focus of intense research, little is known about the gene-environment interaction because such studies require very large sample sizes to be sufficiently statistically powered, thus necessitating multi-site collaborations. This presentation covers methodological difficulties associated with gene-environment studies and some of the ways in which our team has tackled these challenges. Data is presented on common maternal lifestyle factors during pregnancy and their relation to mental health problems in children, particularly ADHD, in a backdrop of genetic predisposition.