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THE VARIOUS ETIOLOGIES OF ATTENTION DEFICIT HYPERACTIVITY DISORDER IN CHILDREN

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Abstract: Introduction: Attention Deficit Hyperactivity Disorder (ADHD) is the most common neuropsychiatric disorder of childhood and there is no single etiology established for it. **Objective:** To describe the factors already established as etiology for ADHD, such as genetic and environmental factors. **Result:** Some environmental and genetic conditions have been implicated in changes in brain development, culminating in the onset of ADHD, such as hypertension during pregnancy (toxemia), complicated labor, smoking and alcoholism during pregnancy, and genetic mutations. **Conclusion:** Greater surveillance of children exposed to these etypogenic factors is needed to allow for early interventions that may improve their neurodevelopmental outcome.
Keywords: Attention Deficit Hyperactivity Disorder; Etiology; Pediatrics.

INTRODUCTION

Attention Deficit Hyperactivity Disorder (ADHD) is the most common neuropsychiatric disorder of childhood and is estimated to affect approximately 5% of children and 2.5% of adults. It is more frequent in males, usually in a two-to-one ratio (Thapar A, et al., 2015).

As much as it is the most prevalent disorder in this age group and the most studied, there is no single etiology established for it (Thapar A, et al., 2015).

It is considered a disease established on three main clinical pillars: inattention, impulsivity and inappropriate motor hyperactivity for the age group and onset before the age of twelve. For these combined characteristics to be considered as defining a "disease", it is not enough just to identify them in the child. It is necessary that there is a functional impairment of the individual, that is, difficulties with family and social life or a drop in academic or work performance for these aspects of behavior to gain a

"pathological" connotation (Krull KR, et al., updated in 2023).

The diagnosis of ADHD is eminently clinical, as is the case with most psychiatric illnesses. There are three main clinical forms of presentation of ADHD: Mixed form – one in which six or more symptoms of inattention and hyperactivity/impulsivity are present; Inattentive predominant form – one in which six or more symptoms of inattentiveness are present only; Hyperactive/impulsive predominant form – six or more symptoms of hyperactivity are present (Krull KR, et al., updated in 2023).

ADHD treatment involves pharmacological and non-pharmacological actions. Psychotherapy, psychopedagogical guidance and cognitive behavioral therapy help children to control their deleterious actions and organize themselves better (Cordioli AV, et al., 2015).

The objective is to describe the factors already established as etiology for ADHD, such as genetic and environmental factors.

MATERIAL AND METHODS

The search was carried out in the PubMed database and was limited to articles between 2019 and 2023 that met the criteria of being literature reviews and case reports.

Then, the keywords of the titles of the articles were analyzed and those whose theme best fits our objective were selected.

Six articles were selected for full reading.

DISCUSSION

Greater surveillance of children exposed to these etipathogenic factors is needed to allow for early interventions that may improve their neurodevelopmental outcome.

CONCLUSION

Some environmental and genetic conditions have been implicated in changes in brain development, culminating in the onset of ADHD. For example, hypertension during pregnancy (toxemia) was associated with an increased risk for autism (OR = 1.35) and ADHD (OR = 1.29). Preeclampsia, specifically, was associated with higher odds of autism (OR = 1.50) and ADHD (OR = 1.28).

From the findings, the researchers concluded that greater surveillance of children exposed to gestational hypertension is needed to allow early interventions that can improve the neurodevelopmental outcome (MAHER GM, et al., 2018).

Another factor that can trigger ADHD is complicated labor, which, as we know, can cause cerebral hypooxygenation in the baby and have several clinical repercussions (MAHER GM, et al., 2018).

Smoking and alcoholism during pregnancy are factors that may be related to ADHD in childhood, respectively by increasing the resistance of the uteroplacental and fetal-placental circulation, associated with a concomitant decrease in the resistance of the Middle Cerebral Artery, mimicking a tendency for smoking to lead to hypoxia fetus chronicle (PINTO and BOTELHO, 2000).; and fetal growth restriction, with female fetuses apparently more susceptible to the effects of alcohol (FREIRE TM, et al., 2005).

Some alterations in the dopamine transporter gene (DAT1) or in its receptor 4 (DRD4) corroborate genetics in the etiology. According to magnetic resonance studies of the brains of children with ADHD, there was a reduction in the volume of the prefrontal cortex (responsible for planning actions) and basal nuclei (responsible for the fine control of movements and their modulation). Both regions are rich in dopamine receptors, and this fact associated with the finding

of improvement in ADHD symptoms with dopaminergic action drugs form the arguments of the dopaminergic theory, which argues that ADHD is the expression of a disorganization of dopaminergic synaptic transmissions in certain brain regions (MAHER GM, et al., 2018).

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