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ATTENUATION OF THE HYPOTHALAMIC-PITUITARY-ADRENAL AXIS AS A CONSEQUENCE OF CHILDHOOD ADVERSITY - A POSSIBLE MECHANISM OF SEX-SPECIFIC VULNERABILITY FOR PSYCHIATRIC DISORDERS IN ADOLESCENCE?

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Introduction: Alterations of the Hypothalamic-Pituitary-Adrenal Axis (HPAA) may be related to the development of psychiatric disorders, especially in the context of childhood adversity. The “attenuation hypothesis” postulates that chronic childhood adversity leads to initial hyperactivation of the HPAA, which subsequently may turn into hypoactivation during adolescence, and support the development of emotional and behavioural problems. However, studies investigating this hypothesis during the course of adolescence are rare.

Methods: The sample comprised 49 adolescents (f/m 19/30), subsampled from a larger longitudinal study on adolescent development. Assessments were performed at three points in time (T1-T3). Pituitary Gland Volume (PGV) as an estimate of chronic HPAA activity was measured by MRI at T1 (mean age 12.5) and T3 (mean age 16.5). HPAA functioning was assessed via multiple salivary cortisol measures at T2 (mean age 15.5). The Cortisol Awakening Response (CAR) was calculated as a measure of HPAA activity. Additionally, childhood adversity was assessed at T2 using the Childhood Trauma Questionnaire (CTQ).

Results: There was a significant sex-specific association of PGV at T1 and HPAA activity at T2. While PGV was positively predicting HPAA activity in boys, girls showed a reverse pattern (attenuation of the HPAA). A blunted CAR in girls was significantly related to their report of childhood adversity.

Conclusions: The results show that girls may have a higher tendency of attenuation of the HPAA in the context of childhood adversity and initial hyperactivation of the HPAA. This may contribute to their higher risk for diverse psychiatric disorders during adolescence.

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