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Emotion regulation, emotion lability, attachment, and structural brain abnormalities in patients with Anorexia Nervosa and Borderline Personality Disorder

Summary

Anorexia nervosa (AN) and Borderline Personality Disorder (BPD) currently account for a significant percentage of clinical diagnoses made in the young population and are among the most difficult disorders to treat due to their complex etiopathogenesis, comorbidity and multiple stages. Structural changes of specific areas of the cerebral cortex occurring in both of these disorders are, despite a considerable number of neuroimaging studies, still incompletely investigated regarding the role of neurobiological factors in the course and treatment of the aforementioned disorders.

The present study is part of a larger research project involving 119 subjects (N=119), of which 41 subjects were healthy (ZK), 32 subjects with anorexia nervosa (AN) and 46 subjects with borderline personality disorder (BPD). Non-invasive magnetic resonance imaging was used for brain imaging, surface morphometric analysis was performed using T-1 weighted images. The Freesurfer 7.3 tool was used to make morphometric measurements of cortical and subcortical gray matter volume (GMV) and thickness (cortical thickness, CT) of the cerebral cortex in the subjects. The study also used psychological tests and scales to assess the intensity of such symptoms and clinical features as anxiety, depression (HADS), borderline traits (Borderline Personality Disorder Checklist), eating disorder symptoms (EAT-26) as well as scales measuring such aspects of emotion regulation and dynamics as the general emotion dysregulation scale (EDS), emotional lability scale (ALS-18), cognitive emotion regulation scales (RESS, KPRE) and scales examining attachment styles (KSP, PBI). The final stage of the study was intra-group comparisons using the correlation method for clinical groups of morphometric data with data from scales and questionnaires.

The results indicated the presence of statistically significant differences among the study groups in terms of emotion dysregulation, emotional lability and emotion regulation strategies of attachment styles, as well as the severity of such clinical features as anxiety, depression, borderline traits and eating disorder symptoms: the clinical groups presented significantly higher levels of emotion dysregulation, emotional lability and more often used maladaptive emotion regulation strategies than the healthy group, and also presented overall significantly higher levels of severity of the studied clinical features than the healthy subjects. Negative associations were observed between secure bond type and emotion dysregulation and positive associations were observed between secure bond and adaptive emotion regulation strategies and negative with non-adaptive emotion regulation strategies in the clinical group study. The results of the analyses of brain morphometric data indicated a number of structural differences in the study groups, especially for the group of people with AN, the structural differences observed were mainly in the prefrontal cortex, temporal cortex and the cingulate cortex, as well as in thalamus and the nucleus accumbens. A number of significant correlations were also found for variables related to emotion dysregulation and attachment and the volume of gray matter in brain structures in the clinical groups: the observed relationships were primarily between structures located in the frontal, temporal, and cingulate cortex, and such subcortical structures as the amygdala, thalamus, caudate nucleus, basal nuclei, among others.

In summary, this dissertation performs an important verification of the interrelationships between emotional patterns, family conditions, symptomatic variables and biological changes in two clinical groups and a group of healthy individuals. The results obtained help to deepen the existing knowledge of how the brain structures of the limbic system and areas of the cerebral cortex look like in people suffering from anorexia and having a diagnosis of borderline personality, and how morphometric differences are linked to the abnormal functioning of these people. The work may have significant clinical implications for those treating these disorders and the patients themselves and also provides a good starting point for further research in psychology and medicine.

Keywords: anorexia nervosa, borderline personality disorder, emotion regulation and dynamics, attachment, MRI.

