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BIOLOGICAL ALTERATIONS DURING REMISSION OF MAJOR DEPRESSIVE DISORDER

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Introduction: The natural course of Major Depressive Disorder (MDD) encompasses the occurrence of alternating intervals of major depressive episodes and remission. While several abnormalities in neural circuits related to acute MDD have been identified, the neural mechanisms underlying stable remission remain obscure.

Objectives: Acute MDD is characterized by increased amygdala and subgenual anterior cingulate cortex (sACC) activation and decreased connectivity between the amygdala and the sACC. Consequently, we expect those regions to be affected during remission.

Aims: To determine whether active counter-regulatory mechanisms are implicated in the maintenance of full remission once antidepressant treatment has been discontinued.

Methods: Functional and structural magnetic resonance imaging was used to measure brain activation and volume of the amygdala and the sACC. Images were obtained from 38 healthy subjects without any psychiatric life-time diagnosis and 38 gender-matched drug-free remitted MDD patients. Furthermore, correlation analyses were performed with clinical variables.

Results: Patients with rMDD exhibited lower activation in the amygdala and the sACC and increased functional coupling between the amygdala and sACC compared to controls. This connectivity was particularly pronounced in patients characterized by a long cumulated time of depressive episodes. Similarly, structural connectivity results showed increased association between the amygdala and sACC volume in rMDD patients compared to controls.

Conclusions: Remitted MDD is related to neural alterations within a neural circuit encompassing the amygdala and the sACC compared to controls. These findings suggest active counter-regulatory mechanisms likely contributing to the maintenance of remission once treatment has been discontinued.