

Publication

Altered negative BOLD responses in the default-mode network during emotion processing in depressed subjects

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Studies using functional magnetic resonance imaging (fMRI) show predominant negative blood oxygenation level-dependent (BOLD) responses (NBRs) in regions of the default-mode network such as the pregenual anterior cingulate cortex, the ventromedial prefrontal cortex, and the posterior cingulate cortex. Patients with major depressive disorder (MDD) show emotional-cognitive disturbances, which have been associated with alterations within the default-mode network. However, it remains unclear whether these default-mode network alterations are related to abnormalities in NBRs. We therefore investigated neural activity in the default-mode network during different emotional tasks in patients with MDD in an event-related fMRI design. MDD patients showed significantly reduced NBRs in several regions of the default-mode network. Decreased NBRs in MDD patients correlated with depression severity and feelings of hopelessness. In sum, our findings demonstrate that default-mode network NBRs are reduced in MDD and modulate these patients' abnormally negative emotions.

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