Antidepressants may increase hippocampal volume

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Treating depressed patients with the approved antidepressant citalopram may increase grey matter volume in the hippocampus, according to a study published this week in Molecular Psychiatry. The research suggests that the reduction of hippocampal grey matter in depressed patients can be reversed with treatment. It also indicates that grey matter reduction could serve as a potential biomarker for a depressive episode.

Brain abnormalities have previously been described in patients diagnosed with depression, and hippocampal volume is consistently found to be reduced in depressed subjects. Danilo Arnone, Shane McKie, and colleagues investigated whether changes in the size and shape of brains of patients with depression relate to treatment response and clinical improvement using an improved version of a current neuroimaging technique. The results indicate that patients with current depression have bilaterally reduced grey matter in the hippocampus compared with both healthy controls and patients who have recovered from depression. The degree of grey matter loss is related to the duration of untreated depressive symptoms and successful treatment with citalopram leads to an increase in hippocampal grey matter. The authors suggest that one mechanism contributing to this effect could be through proteins known as brain-derived neurotrophic factor (BDNF), as low levels of BDNF are associated with a depressive state, and treatment with antidepressants leads to normalized levels of BDNF, which previous studies have shown to influence hippocampal neuronal sprouting.
Further work is needed to determine the role of morphometric changes in relation to improvement from depression itself and to other therapeutic approaches, and how specific this effect is for unipolar depression compared with other psychiatric disorders.

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