

## Hippocampal Size Predicts Antidepressant Response

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Nov 16, 2012

Larger hippocampal volume predicts antidepressant treatment response in individuals with late-life depression, new research suggests.

Results of the 12-week study showed that smaller pretreatment hippocampal volumes significantly predicted a slower rate of change in Montgomery-Åsberg Depression Rating Scale (MADRS) scores from baseline to the end of the 12-week study.

In addition, the researchers found that slower cognitive processing speed significantly predicted a slower rate of change in depression scores.

"Studies have shown that late-life depression may be associated with certain structural changes in the brain, including shrinkage in certain regions," Dr. Murali Doraiswamy, MD, Duke University School of Medicine, Durham, North Carolina, told *Medscape Medical News*.

"But it has never been tested as to whether these structural changes alter response to antidepressant therapy or not. In this study, we found that they did."

The study is published in the November issue of the *American Journal of Psychiatry*.

### Slower Response Rate

A total of 158 patients with late-life depression were recruited from the National Institute of Mental Health–sponsored Treatment Outcome in Vascular Depression study.

In addition, 57 control participants who were matched for vascular risk factor profiles but who had no history of depression were recruited from the community.

The study's primary outcome measure was the change in MADRS scores; MADRS scores were tracked weekly from baseline for 12 weeks.

Patients were initially treated with sertraline 25 mg for 1 day, after which the dose was slowly titrated up to a maximum dose of 200 mg a day on the basis of treatment response and adverse effects.

The investigators first compared patients with depression to the comparator group to generate regions of interest in the brain for testing the effects on treatment outcome.

After adjusting for all possible confounders, "only smaller hippocampal volume predicted a slower rate of response to antidepressant treatment," they write.

In a confirmatory analysis, investigators also examined which baseline volume and thickness variables differed between depressed patients who achieved remission and those who did not.

"Patients who did not achieve remission had significant smaller hippocampal volumes and thinner front poles than those who did achieve remission," they add.

### Table: MRI Volumes

	Did Not Achieve Remission (n = 94)	Achieved Remission (n = 64)
Hippocampus volume (mm <sup>3</sup> )	7942.3	8298.2
Frontal pole thickness (mm)	5.5	5.8

"The clinical implication of this study is that patients with late-life depression who have small hippocampal volumes and slow cognitive processing speed are likely to have a slower as well as a less complete recovery," investigators conclude.

### **Essential Next Step**

In an accompanying editorial, Susan Schultz, MD, University of Iowa College of Medicine, Iowa City, said that in order to gain a greater understanding of late-life depression, studies must "reach beyond examining a confluence of risk factors and [move] toward an understanding of pathogenesis." She added that the current study "represents one step in doing just that, but additional work exploring specific pathogenic processes affecting the hippocampus in late life may be the essential next step."

*The study was funded by a collaborative grant for Clinical Studies of Mental Disorders. Dr. Doraiswamy reports receiving research support or honoraria from a number of pharmaceutical companies. The other investigators have disclosed no relevant financial relationships. Dr. Schultz reports receiving research funding from the Alzheimer's Disease Cooperative Study, Baxter Healthcare, and the Nellie Ball Trust Fund.*

*Am J Psychiatry.* 2012;169;1185-1193; 1133-1136. [Abstract](#), [Editorial](#)

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Cite this article: Hippocampal Size Predicts Antidepressant Response. *Medscape*. Nov 16, 2012.