Blood test may point to most effective antidepressant, Loyola study finds
By Steven Ross Johnson
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For about 9 million Americans, taking psychiatric medication for the treatment of a mood disorder can at times feel like a hit-or-miss proposition.

The U.S. Food and Drug Administration estimates that around 30 percent of the estimated 30 million who take an antidepressant do not respond to the first medication they are prescribed, often requiring them to take a second, third or fourth drug before the right one is found.

Now, a recent study provides the possibility of an alternative to the way antidepressants are selected by offering a blood test that could predict how well a medication will work on a patient before it is prescribed.

According to Dr. Angelos Halaris, the study's lead author, the discovery was made when patients who were being tested for amounts of a specific regenerative protein in their blood were either partially or fully alleviated from their depression when given an antidepressant.

"We were able to determine that patients who had the lowest levels of this substance (VEGF) in their bloodstream were the ones who were not responding either at all or very poorly to antidepressant drug therapy," said Halaris, a professor of psychiatry and behavioral neurosciences at Loyola University Chicago Stritch School of Medicine. "By contrast, those patients who had high levels were the ones who had the best responses to treatment."

The protein measured, called vascular endothelial growth factor, or VEGF, has the ability to create new blood vessels after injury as well as restore oxygen to tissues suffering from poor blood circulation.

As the findings of the study seem to indicate, those with high levels of VEGF in their blood may respond better to taking a specific type of antidepressant known as selective serotonin reuptake inhibitors, or SSRIs. The better-known SSRIs include Prozac, Zoloft and Paxil.

It is not known exactly why SSRIs work for some and not others. Halaris said one possible theory suggests that SSRIs coupled with high VEGF levels may have the ability to regenerate parts of the brain that have become inactive within depressed patients.

By measuring for VEGF, Halaris said, researchers were able to determine the antidepressant's effectiveness within 85 percent of patients tested before a medication was prescribed.

"We haven't had anything like this ever in the history of psychiatry and drug therapy for depression or stress-related disorders," Halaris added.

Halaris cautioned that more research was needed to determine whether an actual blood test could be developed, but he believed the study's findings marked an important starting point.
"I think this is a very encouraging first step," Halaris said. "But clearly, a lot more work needs to be done over the next few years to reach the point where we can say Mr. Smith is going to respond to medication X, but not medication Y or Z."

Halaris acknowledged that a big problem right now with using VEGF to determine the efficacy of an antidepressant has to do with the high cost of testing for it, which makes it too impractical at this point for use on a wide scale. He estimated, however, that with further study, a practical blood test could be developed within five years.

"I think the cost of running this particular test will be handsomely offset by the savings," Halaris said. "It will be offset both in terms of actual dollars, but just as importantly — if not more importantly — the savings in terms of personal suffering and emotional pain."

A blood test could have huge implications for the ways in which depression is treated. According to a report released in October by the U.S. Centers for Disease Control and Prevention, the rate at which Americans used antidepressants rose nearly 400 percent over the last 20 years.

The typical method physicians use to determine the proper antidepressant entails analysis involving various factors, such as a patient's symptoms, possible side effects, interaction with other medications and other health conditions.

While remaining optimistic that advancements would eventually lead to the ability of biologically predicting how well an antidepressant works, physicians such as Dr. Philip Muskin, a Columbia University clinical psychiatry professor, said more needs to be done to answer the basic question of how antidepressants truly work in the brain before any kind of definitive test could be developed.

"I wish I knew why people got better. But we don't," Muskin said. "People have gotten better on antidepressants, but we know they won't work in everybody and that they work in different ways. We still don't know what the true biology is that's getting people better."