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Targeting inflammation to treat depression

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Researchers at Emory University have found that a medication that inhibits inflammation may offer new hope for people with difficult-to-treat depression. The study was published Sept. 3 in the online version of *Archives of General Psychiatry*.

"Inflammation is the body's natural response to infection or wounding, says Andrew H. Miller, MD, senior author for the study and professor of Psychiatry and Behavioral Sciences at Emory University School of Medicine. "However when prolonged or excessive, inflammation can damage many parts of the body, including the brain."

Prior studies have suggested that depressed people with evidence of high inflammation are less likely to respond to traditional treatments for the disorder, including anti-depressant medications and psychotherapy. This study was designed to see whether blocking inflammation would be a useful treatment for either a wide range of people with difficult-to-treat depression or only those with high levels of inflammation.

The study employed infliximab, one of the new biologic drugs used to treat autoimmune and inflammatory diseases such as rheumatoid arthritis and inflammatory bowel disease. A biologic drug copies the effects of substances naturally made by the body's immune system. In this case, the drug was an antibody that blocks tumor necrosis factor (TNF), a key molecule in inflammation that has been shown to be elevated in some depressed individuals.

Study participants all had major depression and were moderately

resistant to conventional antidepressant treatment. Each participant was assigned either to infliximab or to a non-active placebo treatment.

When investigators looked at the results for the group as a whole, no significant differences were found in the improvement of depression symptoms between the drug and placebo groups. However, when the subjects with high inflammation were examined separately, they exhibited a much better response to infliximab than to placebo.

Inflammation in this study was measured using a simple blood test that is readily available in most clinics and hospitals and measures C-reactive protein or CRP. The higher the CRP, the higher the inflammation, and the higher the likelihood of responding to the drug.

"The prediction of an antidepressant response using a simple blood test is one of the holy grails in psychiatry," says Miller. "This is especially important because the blood test not only measured what we think is at the root cause of depression in these patients, but also is the target of the drug."

"This is the first successful application of a biologic therapy to depression," adds Charles L. Raison, MD, first author of the study. "The study opens the door to a host of new approaches that target the immune system to treat psychiatric diseases." Raison, formerly at Emory, is now associate professor in the Department of Psychiatry at the University of Arizona College of Medicine – Tucson.

Provided by Emory University