

Monoclonal antibody holds promise of reducing learning, memory problems in schizophrenia

January 26 2016



Dr. Brian J. Miller. Credit: Augusta University Senior Photographer Phil Jones

Chronic learning and memory problems that plague patients with schizophrenia may have a worthy foe in a monoclonal antibody that also holds promise in the fight against cancer and is already used to treat a rare disorder similar to lymphoma, researchers say.

Siltuximab directly targets interleukin 6, or IL-6, a protein and cytokine that is a key regulator of [inflammation](#), which is often elevated in patients with schizophrenia, said Dr. Brian J. Miller, psychiatrist and schizophrenia expert in the Department of Psychiatry and Health Behavior at the Medical College of Georgia at Augusta University.

There's mounting evidence from researchers such as Miller that inflammation has a pathological role, including contributing to impaired cognition, in as many as 40 percent of patients with schizophrenia.

The new MCG study, funded by the nonprofit Stanley Medical Research Institute, is exploring the powerful anti-inflammatory drug's ability to improve cognition in stable patients with schizophrenia or related schizoaffective disorder whose blood tests show evidence of elevated inflammation.

Researchers are enrolling 30 patients; half will receive three infusions of siltuximab over nine weeks in addition to their usual antipsychotic drug regimen and half a placebo infusion.

"Cognitive impairment in schizophrenia is a huge area of unmet need that persists despite treatment with our existing antipsychotic medications and is a real driver of overall level of functioning and quality of life," Miller said.

Many patients with schizophrenia, even those considered well controlled, have problems with memory, attention, learning, and executive function, which means they often have problems functioning.

"If somebody calls you about a job interview and you can't remember the 10 digits of the phone number long enough to write it down, it's hard to call back to set up that job interview," Miller said. He likens it to having a chronic flu that makes it super tough to concentrate.

In a previous study of 64 patients, higher blood levels of the cytokine IL-6 was a significant predictor of greater cognitive impairment. And Miller's small pilot study of the anti-inflammatory arthritis drug tocilizumab, which targets the IL-6 receptor, found some "robust" improvements in cognition. He's hopeful that directly targeting IL-6 with the new drug will yield even more benefit to patients.

High IL-6 levels have been correlated with a smaller hippocampus, a center for learning and memory in the brain, as well as other psychiatric symptoms. Keeping IL-6 from binding with its receptor could be particularly beneficial since binding can form and activate a complex that ultimately boosts IL-6 signaling, which generally means more inflammation, Miller said. He notes that IL-6 can both boost and reduce inflammation.

Anti-inflammatory medications are not yet considered standard treatment for patients with schizophrenia, Miller said. However, his own findings and others' about the role of inflammation at least in some patients, means Miller often measures levels of C-reactive protein as an inflammatory marker in those not responding well to traditional drug therapy. He often also prescribes anti-inflammatory agents for patients with increased C-reactive protein levels. C-reactive protein levels are a cheaper inflammatory marker to measure than the research protocol he's using to measure IL-6 levels. In fact, cardiologists already use [C-reactive protein levels](#) as a measure of cardiovascular risk in their patients. That cardiovascular benefit could be good for patients with schizophrenia as well since some antipsychotics used to treat their condition come with side effects that include weight gain and additional cardiovascular risk.

Miller's also hopeful that by directly targeting IL-6, siltuximab has no "off-target" effects, in contrast to more common anti-inflammatory agents such as aspirin and the arthritis drug Celebrex. If the drug works as well as he suspects it will, it also will provide more evidence that

inflammation is part of what's driving cognitive dysfunction in these patients, Miller said.

Cytokines such as IL-6 can directly and indirectly modulate neurotransmission, which may contribute to an episode of worsening psychosis, Miller said. IL-6 levels also have been shown to be elevated in some [patients](#) with schizophrenia, and laboratory studies have provided similar support. In fact, when a pregnant woman is infected with any number of agents, from viruses to parasites, at a key point in her baby's development, it confers a two- to threefold risk of schizophrenia on her offspring, Miller said. Patients with autoimmune disorders also are at increased risk of schizophrenia and vice versa.

The Maryland-based Stanley Medical Research Institute supports research in [schizophrenia](#) and bipolar disease.

Provided by Medical College of Georgia at Augusta University

Citation: Monoclonal antibody holds promise of reducing learning, memory problems in schizophrenia (2016, January 26) retrieved 25 April 2024 from <https://medicalxpress.com/news/2016-01-monoclonal-antibody-memory-problems-schizophrenia.html>

<p>This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.</p>
--