

# Studies look at how genes affect antipsychotic drug response

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Researchers at the University of Illinois at Chicago College of Pharmacy are attempting to discover how genes determine how well an antipsychotic medication works in adults and children and the side effects it will cause.

Risperidone, a popular "atypical" antipsychotic medication, is used to treat mental illnesses such as schizophrenia and bipolar disorder.

Jeffrey Bishop, assistant professor of pharmacy practice, is examining the effects of one gene, catechol-o-methyltransferase, on brain activity, cognition and symptom response to the drug.

The study is being done in adults who are experiencing their first episode of schizophrenia who are treated with risperidone for six weeks as part of UIC's First Episode Program.

"Allowing patients with schizophrenia an increased chance at medication response literally could change their lives," Bishop said.

"While we know a great deal about the pharmacology of antipsychotics like risperidone, there is still much to learn about their influence on cognition and brain function, as well as how genetics affect overall medication response," he said.

Bishop says the project will serve as a first step toward a comprehensive pharmacogenetic analysis of metabolic pathways affecting response to

the drug. He was presented with an award for new investigators from the American College of Clinical Pharmacy for the project.

The UIC Center for Cognitive Medicine's First Episode Program, directed by Dr. John Sweeney, has been studying patients with first-episode schizophrenia for the past five years.

Bishop is also beginning a second project to study how risperidone may elevate prolactin levels and cause weight gain in children ages 8-18 who suffer from pediatric bipolar disorder. An increase in prolactin (a pituitary hormone that may affect bone development) or weight gain occurs in some but not all of these young patients.

"We are trying to determine if some kids are at a greater risk than others for these problems by analyzing genetic markers," Bishop said.

Bishop said if children are to receive long-term drug therapy, clinicians need to make sure they are appropriately monitored and treated as safely as possible.

"Understanding risperidone pharmacogenetics and whether some individuals are at a higher risk for side effects is an important step in this process," he said.

Risperidone is widely prescribed to treat bipolar disorder in children, accounting for half of all atypical antipsychotic prescriptions in pediatric psychiatry. Adverse drug effects, such as weight gain and the possibility of prolactin elevation, are often dose-limiting and affect medication compliance.

Source: University of Illinois at Chicago

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