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An effectiveness study to guide the treatment of depression in adolescents

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A study in the *Journal of the American Academy of Child and Adolescent*

Psychiatry (*JAACAP*), published by Elsevier, reports that, combinatorial pharmacogenetics-guided treatment did not demonstrate improved outcomes for adolescents with depression compared to those who received treatment as usual. Further research however is needed to determine how single medication-gene pairs may affect clinical outcomes for youth struggling with depression.

There has been a lack of literature evaluating the use of these combinatorial panels to enhance outcomes in adolescents with depression, however lead author, Jennifer Vande Voort, MD, Associate Professor at the Mayo Clinic, Rochester, MN, said: "Our study sought to evaluate the clinical impact of combinatorial pharmacogenetics testing in a double-blind, randomized, controlled effectiveness study."

The findings, based on the Adolescent Management of Depression study, included 176 adolescents aged between 13 to 18 years of age, already diagnosed with moderate to severe major depressive disorders.

Participants were randomized to one of two groups: 84 participants were randomized to the guided treatment (or GENE arm), where the treating psychiatrist had the testing results before the participant started a medication; and 92 were randomized to the treatment as usual (TAU) arm, where the treating psychiatrist did not have the testing results until an 8-week follow-up visit.

The results showed that depressive symptoms improved with treatment in participants throughout the duration of the study regardless of treatment arm assignment. There was no statistical difference in improvement between the GENE or TAU arms on depression rating scales, or side effect scales. Interestingly, there was a statistically significant difference in prescribing practices for the various medication classes between the GENE and TAU arms. This suggests that testing results may influence physician decision-making.

"The results of this study may reflect an actual outcome that pharmacogenetics testing does not impact the treatment of depression, but it is possible that the results in this study were diluted by patients in the treatment as usual arm who were incidentally prescribed a medication in the 'use as directed' category, said Paul Croarkin, DO, MS, Professor at the Mayo Clinic.

"It is possible that pharmacogenetics testing may be useful in certain cases where individuals have genes that significantly interact with particular medications. More research is needed regarding specific medication-gene pairs and how these individual pairs, rather than a combinatorial panel, impacts clinical outcomes," Dr. Croarkin concluded.

In support of these findings, Dr. Vande Voort added: "Depression is a very complex disorder with potentially many underlying mechanisms for illness and treatment response. Antidepressant response is not only dictated by gene-drug interactions. It is important to talk to families about what this testing may and may not mean beforehand, to have a clear understanding of their testing results, and how it may impact their clinical care."

More information: Jennifer L. Vande Voort et al, A Randomized Controlled Trial of Combinatorial Pharmacogenetics Testing in Adolescent Depression, *Journal of the American Academy of Child & Adolescent Psychiatry* (2021). DOI: 10.1016/j.jaac.2021.03.011

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