

Transcript Details

This is a transcript of an educational program. Details about the program and additional media formats for the program are accessible by visiting: <https://reachmd.com/programs/frontlines-schizophrenia/genetics-in-schizophrenia-management-emerging-technological-strategies/30034/>

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Genetics in Schizophrenia Management: Emerging Technological Strategies

Announcer:

Welcome to *On the Frontlines of Schizophrenia* on ReachMD. On this episode, we'll hear from Dr. Aaron Besterman, who's a Health Sciences Associate Clinical Professor at UCSD Department of Psychiatry, Clinical Investigator at Rady Children's Institute for Genomic Medicine and Child & Adolescent Psychiatrist at Rady Children's Hospital San Diego. He'll be discussing the role of genetics in schizophrenia management. Here's Dr. Besterman now.

Dr. Besterman:

So one of the most prominent ways that genetics currently can inform schizophrenia management is through genetic testing. Although it is not formally an evidence-based practice per guidelines, there's growing evidence that it can be helpful. When we perform genetic testing in people with schizophrenia, sometimes we're able to identify a rare genetic change associated with the disorder. So in a small percentage of people, we can identify what's known as a rare variant, meaning it's not very common in the general population. And because it's rare, it tends to have a larger effect size, meaning that it can have a pretty big impact on brain function and behavior just based on that change alone. So it can provide us with some information about what's going on.

So for an example of those types of changes, one well-known one is 22q11 deletion syndrome, also known as velocardiofacial syndrome or DiGeorge syndrome. If individuals are identified to have this specific condition, there is a range of other medical conditions that may need to be screened for. And then also there's a growing evidence base that certain antipsychotic medications, which are the medications that are used to treat schizophrenia, may be more helpful than others, and in using certain antipsychotic medications, we need to be especially careful with certain side effects like seizures. It can also be helpful in trying to identify how quickly or slowly individuals might metabolize medications that are involved in treating schizophrenia. Again, it's not currently considered standard clinical practice, but there is a growing research base and promise that these sorts of investigations and tests can be helpful in the clinical management of schizophrenia.

There are some very interesting emerging technologies from the field of genetics when it comes to all of psychiatry, and especially for schizophrenia. One of the most interesting and potentially fruitful areas of research is the use of these genetic changes to model the disease in a culture—what we're calling organoids. So these are cellular cultures that are being grown to mimic miniature brain cells or parts of the brain and so that we can use human-derived models of genetic psychiatric disorders to test new treatments and drugs for treatment in a human population. In the past, early drug discovery efforts were in animal models of psychiatric disease, and what we've learned over the years and decades is these animal models have a lot of limitations and may not be the best models of human psychiatric disorders. So the fact that we're able to take actual cells from humans with these disorders—either who have these genetic changes already or we can artificially put these genetic changes into them—grow them in a dish, make them into either clumps of cells or miniature organs, and use that to test treatments is really exciting and surprising. It has the potential to really transform our field and hopefully help us identify useful treatments in a much more rapid fashion than we've ever been able to accomplish in the past.

Announcer:

That was Dr. Aaron Besterman talking about a genetics-guided approach to schizophrenia management. To access this and other episodes in our series, visit *On the Frontlines of Schizophrenia* on ReachMD.com, where you can Be Part of the Knowledge. Thanks for listening!