



Alexander Niculescu

NEJM Journal Watch



SUMMARY AND COMMENT | PSYCHIATRY

ON THE HORIZON

September 6, 2017

Genetic Testing May Improve Suicide Risk Prediction

Peter Roy-Byrne, MD reviewing Niculescu AB et al. *Mol Psychiatry* 2017 Sep.

A group of genes expressed in blood may, when combined with clinical data, help predict both generic and even person-specific risk for suicide.

Suicide, an extraordinarily difficult public health problem, is challenging to predict due to its low frequency and large number of social and psychological risk factors. These researchers conducted a complex, multistep genetics study.

Using a powerful within-subjects study design, they identified large changes in gene expression (biomarkers from blood assays) associated with large changes in suicidal ideation over time in 66 individuals with various diagnoses and identified suicidal-ideation subtypes (psychotic, anxious, depressed, and mixed). Genetic findings were "prioritized" by agreement with genes previously linked to suicide and were validated in 45 people who had died by violent suicide.

The 12 most consistently predictive biomarkers and 148 promising biomarkers were then validated in 226 individuals with various diagnoses. Biomarkers were associated with suicidal ideation and hospitalization for suicidality, both universally (predictions, 90% and 77%, respectively) and within patient subtypes and, more personally, based on symptoms and individual history (with special focus on ≈50 men with bipolar disorder). "Universal" gene predictors were involved in neurogenesis, programmed cell death, inflammation, and insulin signaling. Some person-specific genes were modulated by suicide and depression treatments (lithium, clozapine, omega-3 polyunsaturated fatty acids) and by other compounds that might provide leads for antisuicide drug development. The combination of symptom and life history data with genetic expression best predicted suicide risk.

COMMENT

Because patients' suicide risks change over time, these authors could conduct a powerful within-subject longitudinal analysis, identify gene-expression changes associated with changing suicidality levels, and rely on the relatively reliable phenotype for suicide — yielding results much superior to those in genetic studies of psychiatric diagnosis or treatment outcome for predicting suicide risk. Linkage of these genes with familiar suicide risk factors (e.g., social isolation and anxiety symptom severity) and with effective suicidality treatments (lithium and clozapine) reinforce the validity of this approach and these preliminary findings.

EDITOR DISCLOSURES AT TIME OF PUBLICATION

Disclosures for Peter Roy-Byrne, MD at time of publication

Equity	Valant Medical Solutions
Grant / Research support	NIH—National Institute of Mental Health
Editorial boards	Depression and Anxiety; UpToDate
Leadership positions in professional societies	Anxiety Disorders Association of America (Ex-Officio Board Member); Washington State Psychiatric Society (Immediate Past-President)

CITATION(S):

Niculescu AB et al. Precision medicine for suicidality: From universality to subtypes and personalization. *Mol Psychiatry* 2017 Sep; 22:1250. (<http://dx.doi.org/10.1038/mp.2017.128>)



YOUR COMMENT

Name * Alexander Niculescu

Genetic Testing May Improve Suicide Risk Prediction - NEJM Journal Watch

Email *

(will not be published)

Professional Category Professional Specialty Place of work Comment: * Do you have any conflict of interest to disclose? Yes Notify me of follow-up comments via email

This question is for testing whether you are a human visitor and to prevent automated spam submissions.



* Required

SUBMIT

Reader comments are intended to encourage lively discussion of clinical topics with your peers in the medical community. We ask that you keep your remarks to a reasonable length, and we reserve the right to withhold publication of remarks that do not meet this standard.

PRIVACY: We will not use your email address, submitted for a comment, for any other purpose nor sell, rent, or share your e-mail address with any third parties. Please see our [Privacy Policy](#).

Peter Roy-Byrne, MD

Editor-in-Chief
NEJM JOURNAL WATCH
PSYCHIATRY



[Biography](#) | [Disclosures](#) | [Summaries](#)

NEJM
Journal Watch

Guideline Watch 2017
New clinical guideline summaries to inform your practice.

DOWNLOAD NOW >

NEW PDF COLLECTION

ADVERTISEMENT

NEJM
CareerCenter

PHYSICIAN JOBS

September 8, 2017

Internal MedicineBC/E Internal Medicine/Family Practice Physician
VIRGINIA**Allergy & Clinical Immunology**

[Allergy and Immunology](#)
PENNSYLVANIA

Urology
[General Urologist](#)
NEW YORK

Urology
[Hiring BC/BE Urologists, Greater Dayton](#)
DAYTON

Hospitalist
[Hospitalist needed - Coastal Maine - block schedule](#)
MAINE

Pediatrics, General
[Pediatrics - \\$300K+ Potential](#)
IOWA

[nejmcareercenter.org](#)

[Help & FAQs](#)

[Terms of Use](#)

[Privacy Policy](#)

[Cookie Information](#)

[Copyright Information](#)

[NEJM Group](#)

[NEJM Knowledge+](#)

[NEJM Catalyst](#)

[NEJM Resident 360](#)

[About NEJM Journal Watch](#)

[Product Information](#)

[Specialties & Topics](#)

[Institutions](#)

[Advertisers](#)

[Editorial Policies](#)

[Archive of PDF Issues](#)

[RSS](#)

[Activate Print Subscription](#)

[Subscribe](#)

[Renew](#)

[Create Account](#)

[Sign Up for Email Alerts](#)

[Pay A Bill](#)

[Contact Us](#)

FOLLOW US:   

NEJM Journal Watch is produced by **NEJM Group**, a division of the Massachusetts Medical Society.



Copyright ©2017 Massachusetts Medical Society. All rights reserved.