Blood biomarkers may help predict suicide

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Blood biomarkers that may be associated with suicidal states are identified in *Molecular Psychiatry* this week. The findings may provide clues about the biological mechanisms that underlie suicidal thinking and behavior, and may help identify those at risk. However, the results are based on a relatively small sample of men, focusing on bipolar and schizophrenic disorders, and how the findings relate to a broader range of individuals remains to be seen.

Although suicidal behavior is a leading cause of injury and death worldwide, there are no reliable, objective tools to assess and track changes in suicidal risk. Alexander Niculescu and colleagues identify possible blood biomarkers associated with suicidal behavior in nine men with bipolar disorder who switched from having no thoughts about suicide to having high suicidal ideation during the course of the study. Using a convergent functional genomics approach, they prioritized 41 top biomarkers that are expressed differently between the two states including an enzyme called SAT1, which was the top scoring biomarker. To verify the biomarkers, the authors measured their expression levels in the blood of nine age-matched suicide completers from the general population, collected from the Coroner’s Office. The authors find that 13 out of the 41 biomarkers showed even stronger changes in the suicide completers than in the high suicidal ideation group. SAT1 and five other markers survived stringent statistical tests. Subsequently, the investigators showed that levels of these biomarkers predicted future and past hospitalizations due to suicidal behavior in 42 men with bipolar disorder. A similar but weaker trend was observed in a group of 46 men with schizophrenia.
Given that some individuals may deny suicidal thoughts or choose not to share them with clinicians, the authors note that objective tools are needed to track suicidal behavior risk and response to treatment. However, they acknowledge limitations of their study group; they suggest that further testing and validations should be performed in various at-risk populations including individuals with major depressive disorders, and more work should be done to examine potential gender and ethnicity differences.

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