Examination of cognitive function and cognitive bias for the prediction and prevention of suicidal behaviors in individuals with traumatic experiences

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Summary:

This research project aimed to develop methods for objectively and quantitatively predicting and effectively preventing suicidal behaviors in people with trauma, focusing on cognitive function and cognitive style. We continued to enroll PTSD patients and healthy controls throughout the 2-year study period. We evaluated suicide risk, cognitive style, cognitive function, and cognitive bias in these subjects, and also collected blood samples to measure the blood concentration of inflammatory substances and to analyze genes involved in inflammation using DNA extracted from blood. Statistical analyses confirmed that PTSD patients had a significantly higher risk of suicide than healthy controls, as well as significantly lower cognitive function and significantly greater negative memory bias. Among the patient group, those with negative cognitive styles and those with poor cognitive functions such as memory and attention were shown to have a higher risk of suicide. Furthermore, in the patient group, the extent of childhood traumatic experience was significantly correlated with negative cognitive style. A multiple regression analysis revealed that negative cognitive style, low cognitive function, and childhood trauma in the patient group were significant predictors of suicide risk, while age and PTSD severity did not significantly predict suicide risk. These results suggest that cognitive problems are prominent in patients with PTSD, especially those with childhood traumatic experiences, and that treatments that target these cognitive problems may reduce suicide risk. Furthermore, we examined the relationship between suicide risk and blood levels of high-sensitivity CRP and IL-6 and also explored the influence of inflammatory genes. We found a positive correlation between suicide risk and inflammatory substance levels and an association of single nucleotide polymorphisms in the CRP gene and IL6 gene, which affect their respective protein concentrations, with suicide risk. It is therefore expected that investigating inflammatory gene polymorphisms will lead to early detection of suicide risk in PTSD patients.