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Psychobiology of suicidal behavior among military veterans
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Study Closure

Summary of the primary findings of the study

1) In combat veterans with a history of suicide attempt, suicide risk remains elevated even when the veteran is not acutely acutely suicidal. That is, the propensity for suicide is a trait as well as a state. We learned this, among other things, by noting that suicide attempters had higher levels of suicide ideation as measured by the Beck Scale at the time of evaluation compared to non-attempters. The time of evaluation was not based on proximity to the suicide attempt. In fact, the attempt could have occurred anytime within the last five years. The fact that suicide attempters had higher Beck suicide ideation scales scores at the time of evaluation compared to non-attempters suggests that suicide risk remains elevated in veteran suicide attempters even when they are not acutely suicidal. We also learned that combat veterans with a history of suicide attempt have more childhood trauma compared to combat veterans without a history of suicide attempt.

2) The major biological findings of the study were:

   a. Suicide attempters have lower levels of steroid hormone dehydroepiandrosterone (DHEA) in comparison to non-attempters. DHEA affects brain function and plays a role in the production of stress hormones. DHEA is a neurosteroid which is needed for cell proliferation and neurogenesis in the brain. Dr. Sher hypothesized that reduced level of DHEA may be lead to an increased vulnerability to neurotoxic effects of stress. Stress related psychiatric conditions are associated with suicidality.

b. Endogenous cannabinoid levels were higher in veteran suicide attempters compared to non-attempters. Endogenous cannabinoids are substances synthesized in the human body which are similar to biologically active substances contained in marijuana. This is consistent with reports that the use of cannabis/marijuana is associated with increased suicidality.

These findings are significant because they suggest possible biological correlates of suicidality as well as potential target areas of interest for suicide prevention in combat veterans as well as the general population. The finding of lower DHEA in suicide attempters may suggest that DHEA could be a therapeutic target for biological suicide prevention. Additionally, it could indicate a biological marker associated with lower coping skills and lack of symptom improvement even with appropriate therapy. The finding that endogenous cannabinoid levels were higher in veterans with suicide attempts suggest that the endocannabinoid system may also be a potential target for suicide prevention. The use of marijuana for psychiatric symptoms is controversial but findings like these suggest that it is appropriate to further investigate potential positive or negative effect of cannabis on suicidal behavior. These findings indicate that the use of cannabis may influence the suicide rate among these veterans in an adverse manner.

As a result of these findings, future projects would be warranted to determine how these factors identified could be operationalized. Future investigations should explore the prescreening of combat veterans to detect suicidal risk. The mechanisms that link suicidality and biological alterations such as DHEA and endogenous cannabinoid levels warrant particular exploration. This could ultimately lead to potential biological manipulations that could affect suicidality by targeting the endocannabinoid and stress systems. The link between cannabis use and suicidality among veterans and the biological basis of that link also require additional study and may represent a significant area of suicide prevention. Finally, the treatments and biological changes associated with comorbid psychiatric disorders and the manner in which they influence the biological factors associated with suicide attempter should be a significant point of future investigation, since treating one disorder may exacerbate the symptoms of the others. This suggests the need for integrative treatments specialized to the unique needs of each patient.