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Stress, coping and biological vulnerability in suicide attempters

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There are reasons to believe that maladaptive coping strategies are related to brain areas fundamental to learning, memory, and thinking. Brain-derived neurotrophic factor is located in these brain areas and has an important role in the regulation of neuroplasticity. We have observed an association between BDNF Val66Met gene polymorphism and avoidant coping strategies, suggesting a genetic predisposition for vulnerability to stress in a subgroup of suicide attempters. Interestingly, we have also observed an association between low BDNF levels and high impulsiveness, a trait related to increased suicide risk. Furthermore, we have observed associations between low BDNF levels and hypothalamic pituitary adrenal (HPA) axis hyperactivity in female suicide attempters. As the HPA-axis regulates different reactions to stress, for example mood and emotions, our results suggest that increased stress is associated with low BDNF levels in female suicide attempters. Another biomarker of interest when studying stress and cellular damage is mitochondrial DNA (mtDNA). Animal studies have suggested that chronic stress causes cellular damage, mitochondrial dysfunction and possibly a release of mtDNA into the peripheral circulation. We have reported significantly increased levels of free-circulating mtDNA in suicide attempters compared to healthy controls and a significant correlation between mtDNA and cortisol after a dexamethasone challenge. This suggests an association between mitochondrial dysfunction and HPA-axis hyperactivity in suicide attempters. We conclude that further studies should explore subgroups of suicide attempters with maladaptive coping strategies and biomarkers of cellular damage, in order to find new strategies to recognize and treat suicidal patients.

Biography

Asa Westrin is a Senior Consultant in Psychiatry in Southern Sweden. She is a University Lecturer and is an Associate Professor at Lund University. She is the Head of Clinical Psychiatric Research Center (VKP), Region Skåne. She is the Head of the Unit for Clinical Suicide Research, Lund University. She has published more than 35 papers in reputed journals and has been serving as an Editorial Board Member of repute.

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