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Gut leakage as a source of systemic and neuro-inflammation in veterans in studies focusing on PTSD

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Statement of the Problem: Post-Traumatic Stress Disorder (PTSD) is diagnosed by the criteria in the DSM (manual of mental disorders), which focus on the psychological features of the illness. However, an abundant list of comorbidities involve self-destructive or at least a lack of common health measures and those frequently lead to cyclic health degradation or serious illnesses, such as cardiovascular disease, metabolic syndrome (eventually diabetes), immune dysfunction and other effects. The metabolic basis for many of these problems affect the brain in addition to the systemic nature for which they are known.

Methodology & Theoretical Orientation: Our human studies consist of Combat-exposed Veterans (Discovery set=82 cases/82 controls; filter set=30/28 and a validation set=28/28). We also have a mouse model simulating features of PTSD (resident intruder/defeat) and have carried out systemic global metabolomics, epigenetic, miRNA, limited protein studies, physiological and clinical studies for both the human and animal studies. One feature which has emerged in both human and the animal model is the overwhelming presence of inflammation; even auto-immune disorders in human PTSD are elevated. We have recently reviewed the literature addressing systemic inflammatory responses, their relationship and comorbidities of metabolism, metabolomics and inflammation in individuals with PTSD and in animal models which may contribute to somatic pathology.

Results & Conclusions: PTSD, at least eventually, results in a systemic illness and data support the thesis that tackling some of these sever somatic health problems has potential to improve the lives of chronic PTSD suffers. The gut-brain axis has a significant impact on the overall health and efforts to understand and eventually treat the resultant illness offers a means to diminish the chronic health problems of PTSD.

Biography

Marti Jett is the Army Chief Scientist (ST) for Systems Biology. Her expertise is the focus of multi-molecular analyses, integrated with physiological and clinical data in order to obtain a clear picture of the illness.

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