Neurocognitive Function and Psychological Health

Military Personnel with Chronic Symptoms Following Blast TBI have Differential Expression of Neuronal Recovery and Epidermal Growth Factor Receptor Genes

Researchers at the NICoE investigated the mechanisms of persistent blast-related symptoms, focusing on the gene expression profiles likely to be involved in chronic symptomatology after blast injury. Thirty-four transcripts were identified in 29 genes that were differentially regulated after blast TBI in comparison to control participants. Upregulated genes included epithelial cells transforming sequence and zinc finger proteins. Down-regulated genes included tensin-1, and protein ubiquination genes. Participants included 36 military Service Members, with 19 individuals with a history of blast-TBI matched to 17 individuals based on age, gender, race, and diagnoses of sleep disturbance, PTSD and depression. Transcripts were identified by microarray analysis of peripheral samples of whole blood. These results suggest the existence of a gene-expression pathway of delayed neuronal recovery in military personnel who have suffered a blast-TBI and experience chronic symptoms. A more complete understanding of these genetic changes could lead to more effective treatments of chronic posttraumatic symptoms.