



US DEPARTMENT OF DEFENSE

BLAST INJURY RESEARCH PROGRAM COORDINATING OFFICE

Risk Assessment and Surveillance

A Multisite Study of the Relationships between Blast Exposures and Symptom Reporting in a Post-deployment Active Duty Military Population with mTBI

DVBIC researchers from SAMMC, WRNMMC, the National Medical Center San Antonio, Camp Pendleton, and DVBIC Headquarters sponsored by NICOE examined the effects of cumulative blast exposures (that did or did not result in TBI) on later postconcussive and posttraumatic symptom reporting after sustaining a mTBI. Service Members who sustained a mTBI ($n = 573$) were divided into four groups by number of blast exposures (1, 2, 3, and 4–10) and were compared to each other and to a non-blast control group. The NSI and PCL-C measured postconcussive and PTSD symptoms, respectively. Total NSI scores differed significantly, and the number of reported postconcussive symptoms increased with the number of blast exposures. Total NSI scores were significantly higher for the 3- and 4–10-blast groups than for the 1- and 2-blast groups, with effect sizes ranging from small to moderate. After controlling for PTSD symptoms using the PCL-C total score, NSI total score differences remained between the 4–10-blast group and the 1- and 2-blast groups, but were less pronounced. Analyses of NSI subscale scores using PCL-C scores as a covariate revealed significant between-blast group differences on cognitive, sensory, and somatic, but not affective symptoms. Regression analyses revealed that cumulative blast exposures accounted for a small but significant amount of the variance in total NSI scores (4.8%) and total PCL-C scores (2.3%). Among Service Members exposed to blast, postconcussion symptom reporting increased as a function of cumulative blast exposures. This work demonstrates that reports of postconcussive symptoms increase with cumulative blast exposures. These findings advance knowledge of the clinical implications of blast exposure and its effect on the manifestation of mTBI, and may help determine the relationship between cumulative blast exposures, symptom reporting, and neuropathological changes.