



US DEPARTMENT OF DEFENSE

BLAST INJURY RESEARCH PROGRAM COORDINATING OFFICE

Brain Injury Diagnostics

Plasma Phospho-Tau, Total Tau, and Phospho-Tau–Total Tau Ratio as Acute and Chronic Traumatic Brain Injury Biomarkers

Researchers at the State University of New York, Downstate Medical Center (Brooklyn, New York) explored the question: What is the association between plasma phospho-tau and total-tau levels and traumatic brain injury (TBI) presence, severity, type of pathoanatomic lesions, and patient outcome?

To answer this question, they conducted a cohort study using plasma samples from the Transforming Research and Clinical Knowledge in Traumatic Brain Injury pilot study collected at a single time point from 196 patients with acute TBI and 21 patients with severe TBI admitted to receive inpatient rehabilitation (Yue *et al.* 2013). Plasma phospho-tau levels and phospho-tau:total tau ratio during the acute phase and chronic TBI were superior to total-tau levels for discriminating the severity and status of neurotrauma patients from healthy controls.

Based on these findings, plasma phospho-tau levels and phospho-tau:total tau ratio might be useful diagnostic and prognostic biomarkers for both acute and chronic TBI (Rubenstein *et al.* 2017).

In summary, clinicians will benefit from utilizing biomarker profiling to guide therapeutic intervention and monitor therapeutic efficacy in Service members with acute or chronic TBI.

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