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## **Moderate to severe brain injuries significantly increase risk for brain cancer in post-9/11 veterans**

***Here's the good news: No brain cancer link to common concussions***

**Bethesda, Md.** – Service members who have had a moderate, severe, or penetrating traumatic brain injury, or TBI, are at a greater risk for subsequently developing brain cancer, according to a collaborative study led by researchers at the Uniformed Services University (USU) published February 15, 2024, in JAMA Open Network. On the other hand, those who have suffered mild TBI, or concussion – which is much more common – may not be associated with later brain cancer diagnoses, the study finds.

Brain cancer is relatively uncommon – occurring in less than one percent of people in the U.S. – so when study co-author Dr. Michael Dore, a USU alum, treated two patients at Naval Medical Center Portsmouth with brain cancer, who each had a history of TBIs, he thought there might be a connection. Since little is known about the risk for brain cancer and the impact of traumatic brain injury exposures, Dore, now a Navy reservist at Duke University, reached out to colleagues at USU, knowing they had access to relevant data. This led to their collaborative efforts with several military and civilian universities and organizations, and ultimately, these latest findings.

The study, “Traumatic Brain Injury and Subsequent Risk of Brain Cancer in Veterans of the Iraq and Afghanistan Wars,” followed retrospective data from more than 1.9 million veterans in the Departments of Defense and Veterans Affairs over the course of about 7.2 years on average. The researchers used data from a joint DoD/VA effort, focusing on TBI as the main variable. They categorized TBI by severity: mild, moderate/severe, and penetrating based on self-reported loss of consciousness, alteration of consciousness, or post-traumatic amnesia and billing codes.

The researchers found that service members who had a moderate or severe TBI were at a 90 percent increased risk for developing malignant brain cancer. Those with penetrating TBI had more than three times the risk of brain cancer, compared to those without a TBI. Mild traumatic brain injury – which is much more common – was not associated with an increased risk of brain cancer.

“Traumatic brain injury is not only common in the military, but also in the general population as well,” said Air Force Col (Dr.) Ian Stewart, first author on the study and professor of Medicine at USU. “While these results may not be generalizable to the population at large, given that military cohorts are different from the general population in many ways, it is possible that more severe TBI increases risk in the civilian population as well.”

Stewart added it is comforting to know mild TBI – which is far more common than moderate, severe, or penetrating TBIs – does not appear to be associated with an increased risk of a later brain cancer diagnosis.

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