

Nearly half of veterans found with blast concussions might have hormone deficiencies

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Up to 20 percent of veterans returning from Afghanistan and Iraq have experienced at least one blast concussion. New research suggests that nearly half these veterans may have a problem so under-recognized that even military physicians may fail to look for it. A new study conducted by Charles W. Wilkinson, Elizabeth A. Colasurdo, Kathleen F. Pagulayan, Jane. B. Shofer, and Elaine R. Peskind, all of the VA Puget Sound Health Care System and the University of Washington in Seattle, has found that about 42 percent of screened veterans with blast injuries have irregular hormone levels indicative of hypopituitarism.

Many conditions associated with hypopituitarism mimic other common problems that [veterans](#) can suffer, including [post-traumatic stress disorder](#) (PTSD) and depression, explains study leader Wilkinson. However, unlike those other conditions, those under the banner head of hypopituitarism can be can often be well-controlled by replacing the deficient hormones. "This could be a largely missed opportunity for successful treatment," Wilkinson says.

The team will discuss their study, entitled, "Prevalence of Chronic Hypopituitarism After Blast Concussion," at the [Experimental Biology](#) 2013 meeting, being held April 20-24, 2013 at the Boston Convention and Exhibition Center, Boston, Mass. The poster presentation is sponsored by the [American Physiological Society](#) (APS), a co-sponsor of the event. As the findings are being presented at a scientific conference, they should be considered preliminary, as they have not undergone the peer review process that is conducted prior to the data being published in

a scientific journal.

A Simple Screen

Wilkinson explains that researchers have recently recognized that traumatic brain injuries (TBIs) can cause hypopituitarism—a decrease in the concentrations of at least one of eight hormones produced by the pituitary, a gland seated at the base of the brain. Studies in the last few years have suggested that between 25 and 50 percent of people who receive TBIs have low pituitary hormone levels. However, these early studies have focused on injuries that civilians are more likely to receive, such as an automobile accident.

As a research physiologist who works for the Department of Veterans Affairs, Wilkinson decided to investigate whether veterans returning from Afghanistan and Iraq who suffer [blast injuries](#) show a similar frequency of hypopituitarism.

He and his colleagues collected blood samples from 35 veterans coming home from these wars and diagnosed with a blast concussion about a year prior—enough time for hormone changes to become evident. They then did a screen to compare blood concentrations of the eight hormones produced by the pituitary with the documented normal levels of these hormones.

Missed Opportunity for Treatment

The researchers found that about 42 percent of these veterans showed abnormally low levels of at least one of these hormones. The most common low hormone was human growth hormone, which can cause behavioral and cognitive symptoms similar to [PTSD](#) and depression, along with increases in blood lipids and changes in metabolism and

blood pressure that can increase the risk of heart attack and stroke. The second most common problem was hypogonadism, changes in sexual hormones that can affect body composition and sexual function.

The researchers also saw that some veterans had abnormally low levels of vasopressin and oxytocin, hormones that have been linked to psychiatric problems and bonding. Problems with these hormone levels, in addition to growth hormone, could lead to personality changes that affect relationships with loved ones, Wilkinson explains.

He notes that the prevalence of hypopituitarism in the general population is estimated at 0.03 percent. The 42 percent prevalence that these results suggest is cause for further investigation, he says.

"We're not diagnosing definite disorders in this study—these individuals would still need a clinical evaluation," he explains. "But if even 10 percent of these veterans have hypopituitarism, it's a problem that physicians should be aware of."

Wilkinson adds that many veterans who suffer blast injuries may never see an endocrinologist—and a neurologist or a psychiatrist, whom they're more likely to see for post-concussion follow-up, is unlikely to screen for hormonal deficiencies. Because low [hormone levels](#) can often be successfully treated, he says, it's a missed opportunity to help veterans. The work was supported by the Departments of Defense and Veterans Affairs.

Provided by American Physiological Society

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