

Traumatic brain injury complications common among US combat soldiers

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U.S. soldiers in combat often suffer constricted blood vessels and increased pressure in the brain—significant complications of traumatic brain injuries, according to research presented at the American Stroke Association's International Stroke Conference 2013.

"Research shows that [traumatic brain injury](#) is a hallmark of recent military conflicts, affecting nearly a third of all [wounded soldiers](#)," said Alexander Razumovsky, Ph.D., lead researcher and director of Sentient NeuroCare Services in Hunt Valley, Md.

Constricted blood vessels in the brain are cerebral vasospasm.

Abnormally high pressure in the brain is intracranial [hypertension](#).

A transcranial Doppler ultrasound is a non-invasive, inexpensive and portable way to assess these complications.

To better understand how common these complications are among soldiers, Razumovsky and colleagues analyzed data of 122 traumatic brain injury patients who had transcranial Doppler testing. Among them, 88 had penetrating [head injuries](#) and 34 had closed head injuries.

Researchers found:

- In anterior circulation vessels: 66 percent of patients in the

penetrating head injury and 13 percent in the closed head injury groups had transcranial Doppler signs of posttraumatic vasospasm.

- In posterior circulation vessels: 64 percent of patients in the penetrating head injury and 14 percent in the closed head injury groups had transcranial Doppler signs of posttraumatic vasospasm.
- More than 40 percent of all the traumatic brain injury patients had high intracranial pressure.

"What we've found is applicable and important to civilian traumatic [brain injury patients](#), given that a significant number of them will have posttraumatic bleeding that will lead to vasospasm and intracranial hypertension," Razumovsky said. "Tracking and managing these patients is important, and therefore daily transcranial Doppler studies are recommended for recognition and subsequent management of these secondary complications."

Provided by American Heart Association

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