A clinical trial at Oklahoma State University Center for Aerospace and Hyperbaric Medicine is evaluating whether hyperbaric oxygen therapy (HBOT) might ease traumatic brain injury. Traumatic brain injury (TBI) affects an estimated 600,000 veterans of wars in Iraq and Afghanistan. Other causes include vehicle accidents, sports injuries, assaults and abuse. OSU is one of 15 sites in an International Hyperbaric Medicine Foundation study of 1,000 volunteer research subjects 18 to 65 who have mild to moderate traumatic brain injury, post-concussion syndrome or post-traumatic stress disorder. The study, Hyperbaric Oxygen Therapy in Chronic Traumatic Brain Injury or Post-Traumatic Stress Disorder, examines whether hyperbaric oxygen therapy can repair brain injuries safely and effectively.

The Federal Drug Administration has approved HBOT for treatment of 13 medical conditions. HBOT works by saturating the body with pure oxygen under greater than atmospheric pressure – like being 16.5 feet below sea level. Each volunteer undergoes a minimum 40 sessions or “dives.” Volunteers who do not meet trial endpoint criteria may complete 40 more sessions. The chamber is equipped with an entertainment system and technicians accompany volunteers in the chamber during sessions.

Results are obtained from testing conducted at various times during the trials. The volunteers serve as their own control. The testing is comprised of psychological testing (automated neuropsychological assessment metrics and central nervous system vital signs) and quality of life questionnaires.

Two volunteers have completed 40 sessions. One is a veteran whose history includes being knocked unconscious several times, sustaining head injuries in a car wreck and having post-traumatic stress disorder. He says he is making progress. “My memory has returned and my short-term memory is better. I can remember where I parked my car,” he said. “It has helped with my PTSD.” He said his blood sugar shows a 70 to 80 point drop. He feels well enough that he plans go to back to school. “I’m not as depressed or tired anymore.”

Moyers said the national cohort of 1,000 could solidify the usefulness of hyperbaric treatment for TBI. “If 50 percent of the subjects get better, it’s hard to argue with that. We would have something to offer and for the military; this is outstanding.”

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