Hyperbarics

By Thomas M. Fox
When you mention the term bends to a physician, very few will not be able to answer back that the definitive treatment for this condition is hyperbaric oxygen. Its use in this condition is considered definitive. The bends is slang for a condition known as decompression sickness. This condition occurs when divers are exposed to increased pressure without taking special precautions to prevent bubbles from occurring when leaving pressure.

Treatment for divers may be the key to unlock the secret to addressing the war’s signature wounds. Hyperbaric oxygen therapy is identified by the Office of the Surgeon General of the U.S. Army as definitive treatment of neurological abnormalities in the blast casualty.
Treated with hyperbaric oxygen, the adverse consequences of these bubbles are avoided and the long-term effects of the injuries caused by them are prevented. Untreated, the injury caused by these bubbles may leave the individual with a lifelong disability, whose presentation is dictated by the final resting place of the bubbles.

Today, it is hard to not be aware of the term “the signature wound of the war on terror”. This label has been tossed around like some hard-to-find designer fashion by the press and physicians seeking to explain a set of symptoms exhibited by an overwhelming number of soldiers and veterans who have been exposed to combat in Iraq and Afghanistan. One of the hallmarks of this condition is the absence of obvious external injury. Labeled as shell shock in World War I, this condition was classified as having lack of moral fiber. Today, this injury can be classified as either mild traumatic brain injury or post traumatic stress disorder. Labeled as shell shock in World War I, this condition was classified as having lack of moral fiber. Today, this injury can be classified as either mild traumatic brain injury or post traumatic stress disorder. A lot of the time, in speaking with professionals, these two terms end up being used interchangeably as the set of symptoms they are attempting to describe are the same.

The truth is, those attempting to explain the signature wound are no closer to understanding this injury than they were 90 years ago. This label has been tossed around like some hard-to-find designer fashion by the press and physicians seeking to explain a set of symptoms exhibited by an overwhelming number of soldiers and veterans who have been exposed to combat in Iraq and Afghanistan. One of the hallmarks of this condition is the absence of obvious external injury. Labeled as shell shock in World War I, this condition was classified as having lack of moral fiber. Today, this injury can be classified as either mild traumatic brain injury or post traumatic stress disorder. A lot of the time, in speaking with professionals, these two terms end up being used interchangeably as the set of symptoms they are attempting to describe are the same.

Treated with hyperbaric oxygen, the adverse consequences of these bubbles are avoided and the long-term effects of the injuries caused by them are prevented. Untreated, the injury caused by these bubbles may leave the individual with a lifelong disability, whose presentation is dictated by the final resting place of the bubbles.

The truth is, those attempting to explain the signature wound are no closer to understanding this injury than they were 90 years ago. This label has been tossed around like some hard-to-find designer fashion by the press and physicians seeking to explain a set of symptoms exhibited by an overwhelming number of soldiers and veterans who have been exposed to combat in Iraq and Afghanistan. One of the hallmarks of this condition is the absence of obvious external injury. Labeled as shell shock in World War I, this condition was classified as having lack of moral fiber. Today, this injury can be classified as either mild traumatic brain injury or post traumatic stress disorder. A lot of the time, in speaking with professionals, these two terms end up being used interchangeably as the set of symptoms they are attempting to describe are the same.

Smoke and dust rises after an IED explodes in front of a TF 1-27 Inf. convoy. The IED detonated onto the convoy after soldiers were heading back to FOB McHenry following humanitarian missions. No one was injured in the explosion. (Sgt. Sean Kimmons)
The symptoms of this signature wound are brought about by the invisible subtle wounding of the primary blast injury as emboli are formed as a result of overpressure followed by an unchecked decompression that is well described by those subjected to these blast effects. This injury can be seen to worsen with evacuations that involve excursions from ambient pressure. The injuries are also more pronounced in the individual that has had more strenuous physical activity following exposure to blast overpressure. Additionally it can be suspected that the injury is more pronounced in the casualty that is dehydrated.

Physicians can not diagnose what they are not trained to recognize. The time is now to set aside misconceptions and preconceptions of physicians that were well founded and based on charlatans of past generations? It is time to train today’s physicians on a treatment option that can address the patients under their care and avoid long term neurological disabilities and costs. There are over 100 years of studies and investigations supporting the use of hyperbarics in treating emboli. Current investigations into this treatment modality, suggest that hyperbaric oxygen conveys neuroprotection for a period of several days following exposure.

The blast casualty presents the military physician with a very complex patient. The blast injuries they sustain are compound. The care of the primary blast injuries (insults created by overpressure) are usually subordinated to the care of secondary or tertiary blast injuries. Primary blast injuries are real, other than the most dramatic (ie., blast lung), which have been cited as the number one of immediate death following exposure to blast overpressure; these injuries are very subtle, usually with no evidence of external injury. They also present as long as 36 hours post exposure to the blast overpres-ure. The emboli created during the exposure to extreme pressure changes are definitively treated with hyperbaric oxygen.  

Thomas Fox is the staff physiologist with Centre Hyperbare de L’Ile in Pincourt Qc. His last assignment in the United States Army was as the chief of the Atmospherics Branch of the United States School of Aviation Medicine responsible for investigations, instruction and training of hyper/hypobaric environment. Fox is a graduate of United States Army Command and General Staff School and an aeromedical evacuation pilot with 10 years experience. Since leaving the service in 1994, Fox’s work experience has been in a number of positions in which he has performed as the technical director for hospitals as the hyperbaric service provider in the critical care setting.

For more information, contact SOTECH Editor Jeff McKaughan at jeffm@kmimedia.com or search our online archives for related stories at www.SOTECH-kmi.com.