Brain Imaging Machine Can Diagnose Post-Traumatic Stress

January 28, 2010

A brain mapping technology from the 1960s might have a new use in the 21st century: Magnetoencephalography (MEG) is able to accurately identify post-traumatic stress disorder (PTSD) in about 90 percent of people with the condition, according to a study published in the *Journal of Neural Engineering* and reported by CNET. The machine could substantially increase the likelihood of figuring out whether returning soldiers might need treatment.

PTSD is often caused by a traumatic event, particularly one in which a person feels a strong threat of injury or death. People with PTSD usually have relentless recurring thoughts and memories of the traumatic event; they avoid the people, places and things that remind them of the traumatic event; and they respond exaggeratedly to things that are startling. Experts estimate that up to one in five soldiers returning from Iraq and Afghanistan has PTSD and that the condition frequently goes undiagnosed.

Currently, diagnosing PTSD requires a behavioral screening. To determine whether an MEG could identify patterns of neurological activity associated with PTSD, Apostolos Georgopolos, MD, PhD, from the University of Minnesota and his colleagues performed MEG scans on 74 veterans diagnosed with PTSD and 250 volunteers who were not diagnosed with PTSD. Study volunteers were asked to stare at a dot for one minute, without moving, while the MEG scan measured neuronal activity.

Georgopolos's team found "a pattern of miscommunication that was nearly unique to PTSD patients" and that was present 90 percent of the time in people diagnosed with PTSD.

"The main challenge with PTSD—with the military, emergency services or journalists—isn't diagnosing it, it's with getting people who might have the condition to come forward and have an assessment and treatment," said Neil Greenberg, a researcher in military psychiatry at King's College London, who was quoted by CNET from an interview he gave to BBC News.

Georgopolos and his colleagues said they hope to do a much larger study to confirm their results.