

## VA studies prompt better diagnosis of TBIs, PTSD

By RICK ROGERS - For the North County Times | Posted: Friday, May 6, 2011 12:00 am

A project begun three years ago in San Diego to discern post-traumatic stress disorder from traumatic brain injury is blossoming into a landmark study drawing national attention.

Back then, the most widely used brain-scanning devices of the time couldn't reliably tell the two apart more than half the time, which complicated treatment, since the separate conditions require distinct care.

Now, through research arising from the VA San Diego Healthcare System, the correct diagnosis is possible 90 percent of the time, said medical researcher Mingxiong Huang.

The research findings are so promising that Huang, from UC San Diego, was scheduled to brief officials in Washington this week to explain how two advanced brain-imaging techniques can detect mild traumatic brain injuries more accurately and earlier than ever before.

And that's just one of hundreds of research projects showcased this week at the San Diego Healthcare System, which funds one of the largest VA research programs in the country at about \$52 million annually.

All told, 185 investigators are collaborating on 530 projects that broadly fall into nine areas the VA has targeted for research from 2010 to 2014. They range from blast-related TBI and congestive heart failure to amyotrophic lateral sclerosis (Lou Gehrig's disease) and restoring hand function.

"We have a wide array of research studies including mental health, addiction, combat stress, diabetes, spinal cord injury, memory, cardiology, HIV/AIDS, oncology, stroke and traumatic brain injury," said Gerhard Schulteis, acting associate chief of staff for research.

Huang and Roland Lee, both researchers at UCSD, began their pilot program in 2008 to determine whether magnetoencephalography, or MEG, and diffusion tensor imaging could better detect traumatic brain injuries than other techniques in use.

Back then, Huang said 70 percent of traumatic brain injuries were missed by magnetic resonance imaging, then the most common procedure used for finding such injuries.

Identifying certain TBIs can be difficult because conventional brain imaging equipment made it easy to mistake them for stroke damage or post-traumatic stress.

But Huang and Lee discovered that damaged areas of the brain appeared on MEG scans as having slower-than-normal brain waves, while diffusion tensor imaging recorded those areas as black holes or as frayed or weakened fibers.

Those findings have now been confirmed, Huang said, allowing doctors to now distinguish brain trauma from post-traumatic stress disorder in about 90 percent of the cases.