DIOPSYS®

Advancing the Science of Vision Testing

A NEW, OBJECTIVE WAY TO ASSESS VISUAL FIELDS: VISUAL EVOKED POTENTIALS
Fast, Office Based VEP Overcomes Problems with Traditional Visual Field Testing

PINE BROOK, N.J. – A new visual evoked potential method has been developed to objectively assess visual field defects in patients with ocular and/or neurological conditions. The research team of Kenneth Ciuffreda, OD, PhD, Diana Ludlam and Naveen Yadav at the SUNY State College of Optometry, Department of Vision Sciences (New York, NY) presented a scientific poster called "Effect of Different Stimulus Configurations on the Visually Evoked Potential (VEP)" at the *2011 Association for Research in Vision and Ophthalmology (ARVO) Annual Meeting*. The purpose of the study was to assess the effect of different stimuli on VEP results, with the future goal of using the method as an objective form of visual field testing.

Traditionally, visual field tests consist of a patient looking into the center of a concave dome and pressing a button when they see a flash of light. This is meant to help map the patient's peripheral and central vision. However, the visual field test is a subjective exam because it requires the patient to understand the test instructions and fully cooperate to obtain accurate results. The process may be difficult and time consuming for some patients, often leading to poor repeatability and reliability. It is especially difficult for special patient populations such as those with cognitive impairments or attention deficits like Alzheimer's, ADHD, and acquired brain injury (ABI). Dr. Ciuffreda, a Distinguished Teaching Professor at SUNY and an optometrist says, "I rarely rely on the first visual field test I give a patient. I need to see the results repeated at least once to make sure that the patient fully understood what they were supposed to do, and that they were paying attention during the entire duration of the test."

The new VEP method overcomes many of the downfalls of traditional visual field testing. The device, called the Diopsys® NOVA VEP Vision Testing System, is an objective, rapid, repeatable and non-invasive method to quantify the integrity and functionality of the retina and visual pathway. Patients simply watch a monitor that uses a black and white pattern that appears to "flip" back and forth to stimulate the vision system. Patients do not have to verbally respond nor press any buttons, which helps the doctor to be more confident in the results. Testing may take as little as five minutes, and results may be used to correlate with other conventional vision tests.

"This VEP technique also shows promise for assessing and documenting the visual status of troops pre- and post deployment. Bomb blasts from IED's frequently cause injuries to the brain resulting in mild to severe cognitive impairment. These impairments often preclude the use of other testing methods as poor patient response renders certain tests ineffectual," says Dr. Ciuffreda.

VEP vision testing covers a wide range of visual and neurological conditions such as glaucoma, macular degeneration, Alzheimer's disease, and visual problems associated with stroke and traumatic brain injury (TBI). The results of this study will be used to develop specific protocols for objectively assessing residual visual field functionality in ocular and neurological conditions, as well as the disorders already mentioned.

Diopsys, Inc. (http://www.diopsys.com) is a medical instrumentation company dedicated to delivering high quality, cost-effective preventative health care solutions. The company specializes in the development and marketing of patient-friendly, non-invasive vision testing equipment utilizing Visual Evoked Potential. Diopsys developed and markets the patented ***Enfant® Pediatric VEP Vision Testing System***, a device used by pediatricians to test for visual deficits, including amblyopia, in children as young as six months. Diopsys also provides the ***Diopsys® NOVA-VEP Vision Testing Systems*** utilized by eye care professionals to aid in the detection, diagnosis and treatment of vision disorders.

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