Research Update

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PHI Announces 2013 Research Award Recipient

Post-Polio Health International (PHI) awarded a $25,000 grant to study the effects of using an innovative machine that has shown early promising results with frail elders and people with various neurologic conditions in pain reduction, strengthening and bone density improvement.

The study – Effects of Whole Body Vibration on People with Post-Polio Syndrome – will be led by Carolyn Kelley, PT, DSc, NCS, from Texas Woman's University, Houston, Texas. Carlos Vallbona, MD, TIRR-Memorial Hermann Rehabilitation & Research, is part of the research team.

Power Plate® pro5™

The team will study the possible negative, as well as positive, effects of two innovative machines (Power Plate® pro5™ and Soloflex), machines with a platform that a person can stand or sit on, that vibrates the entire body. "Whole body vibration" is being used in fitness clubs, people's homes, and nursing homes to either enhance exercise protocols or as an exercise substitute.

The study will recruit 40 people who have post-polio syndrome. Participants who qualify will use each of the machines for a month, with the order randomly assigned. People who walk full-time, part-time, and not at all can qualify.

Kelley explains that because this is an interventional study, people will need to either reside in the Houston metropolitan area or be able to stay in Houston for about three months.

For more information about the project and inclusion/exclusion criteria, contact Carolyn Kelley, PT, DSc, NCS at ckelley@twu.edu or 713-794-2087.
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Updates from 2011 Recipients

■ **Isabella Schwartz, MD,** Head of Physical Medicine & Rehabilitation, Gait Laboratory and Post-Polio Medical Center, Hadassah-Hebrew University Medical Centers, Jerusalem, reports analysis of the data collected from about 195 polio patients is continuing. The team presented, "The Clinical and Demographic Parameters Associated with Developing Post-Polio Syndrome Among Polio Survivors in Jerusalem" at the Ninth Mediterranean Congress of Physical and Rehabilitation Medicine, Sorrento, Italy, October 2012, and at the recent Israeli Annual Physical Medicine and Rehabilitation Congress.

■ **Claire Z. Kalpakjian, PhD, MS,** Principal Investigator; Mark J. Ziadeh, MD, Co-Investigator, University of Michigan, Department of Physical Medicine and Rehabilitation, Ann Arbor, Michigan, report on their study, "The Role of Oral Glutathione in Improvement of Health Outcomes among Persons with Late Effects of Poliomyelitis." The team successfully enrolled 20 polio survivors. Participants took glutathione supplement by mouth for three months after an initial medical visit, blood draw and physical exam.

The study design included four time points during three months. Subjects filled out surveys and recorded food intake and sleep times in diaries for seven days. They wore a Sensewear monitor that records physical activity, body temperature and other measures for seven days. After the fourth time point they returned to the medical center for another physical exam and blood draw. A final report will be ready by the end of March.

■ **Daria A. Trojan, MD,** Montreal Neurological Institute and Hospital, McGill University, Montreal, Quebec, Canada, presented an abstract at the November 15–18, 2012 AAPM&R meeting held in Atlanta, Georgia.

Entitled *"Post-Poliomyelitis Syndrome Is Not Associated with Brain Atrophy,"* the cross-sectional study was designed to determine if post-poliomyelitis syndrome (PPS) patients have smaller brain volumes than normal control subjects.

A 1.5 T Siemens Sonata machine was used for magnetic resonance imaging (MRI) of the brain of the following participants: 49 ambulatory PPS patients, 28 normal controls, and 53 ambulatory multiple sclerosis (MS) patients.

Normalized brain volume (NBV) was assessed using the automated program SIENAx. This method does not assess the brainstem.

Technically adequate NBV's were available for 42 PPS patients (mean age 60.88 ± 7.62 years, mean ± SD), 27 normal controls (mean age 46.96 ± 14.56) and 49 MS patients (mean age 46.18 ± 9.45).

As previously reported, in a multi-variable regression analysis adjusted for age, NBV was significantly lower in MS patients than controls (p=0.0054). However, for PPS patients, in a multi-variable model adjusted for age, NBV was not significantly different from normal controls (p=0.28).

The authors stated that based on previous studies, acute paralytic poliomyelitis is associated with encephalitis in essentially all cases, and that it is possible that this early brain involvement can produce permanent neuronal injury with brain atrophy. Encephalitis due to other viruses (such as Herpes I and II) in children has been reported to produce permanent parenchymal abnormalities.

To date (2012), there have been no studies of brain volume in PPS patients. This study, conducted at the Montreal Neurological Institute and Hospital, McGill University, includes a relatively large number of PPS subjects as well as a control group of MS subjects who are known to have brain atrophy.

In this study, Trojan and team confirm the presence of brain atrophy in MS, but do not find a significant loss of brain volume in PPS subjects. Because the method used to assess brain volume excluded the brainstem, it is possible that brainstem atrophy was not noted in this study.

From PHI's Medical Advisory Committee

A few studies have been published regarding the use of IVIg for treatment of post-polio problems. (See Spring 2012, *Post-Polio Health,* Vol. 28, No. 2, page 9). PHI's Medical Advisory Committee states that as clinicians they are not ready to use it, or promote its use, based on the current evidence. The group enthusiastically supports a Randomized Placebo-Controlled (RPC) U.S. clinical trial of IVIg for post-polio syndrome. ■

Navigating the Seating and Mobility World with Post-Polio

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Funding and Access

Funding and access must also be considered. Unfortunately, neither cushions nor backrests are covered by insurance unless they are being ordered for a wheelchair. The average cost of cushions ranges from $300 to $500 and backrests from $300 to $600. The cost can be self-limiting depending on the person's resources.

Access, however, in the form of an evaluation by a seating and mobility specialist is covered by insurance. People who are having postural or pressure difficulties should seek the help of a seating and mobility specialist to problem solve their unique case. This may entail modifying their everyday seating systems including office chairs, home chairs, etc., or recommending customized cushions that will help with their issues.

Both physical and occupational therapists can be trained as seating and mobility specialists. The Rehabilitation Engineering and Assistive Technology Society of North America (RESNA) tests and certifies health professionals as assistive technology professionals (ATP). Seeking such qualified and certified health professionals is an important first step in determining solutions to the seating and mobility conundrum faced by people living with post-polio. ■