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Editor's Note: Interviews can be arranged with PEMF President John Chamberlin, Dr. Suffoletto, Dr. Huang and Dr. Paris

Can Texting Lead to Better Monitoring of Concussion Treatment?

March 20, 2014, Pittsburgh, PA—Is text messaging a more effective way to get patients to help monitor their own concussion treatments? That's what Stephanie Huang from Rutgers Robert Wood Johnson Medical School plans to find out under the tutelage of Dr. Brian Suffoletto at the University of Pittsburgh School of Medicine and Department of Emergency Medicine. A better understanding of the effects of cognitive and physical activity on concussion recovery is necessary to determine the best method to treat post-concussive symptoms.

Thanks to a supporting grant from the Pittsburgh Emergency Medicine Foundation (PEMF), Huang will begin a study in late May that builds upon a pilot study by Suffoletto that successfully used text messaging to track symptoms and influence self-management of patients with concussions.

"Concussion is now one of the most challenging epidemics facing children and young adults with a huge need to understand better so that therapy can be tailored to allow the brain to heal and regain normal function," says Dr. Paul Paris, Chief Medical Officer for PEMF.

According to the Brain Injury Journal, although most patients with concussions can expect a full recovery, as many as 25% to 35% of patients with concussions in the United States report unrelenting complaints 3-to-6 months post injury, while 5% to 15% continue to have persistent disability and dysfunction.

Huang's study is unique because it will be the first prospective, observational study to gain a better understanding of the variability in cognitive and physical activity post concussion. Furthermore, her study will explore the effects of symptom exacerbations due to cognitive and physical activity during the initial recovery period from an acute concussion.

Research Methodology

Subjects for Huang's study will be recruited this June to August from both UPMC Mercy and UPMC Presbyterian emergency departments. Eligible patients must be at least 18 years old, able to speak English, meet the American College of Rehabilitation Medicine definition of a concussion, and

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have no other major confounding injuries. Those who do not own a personal cell phone equipped with text messaging will be excluded.

After consent is obtained, baseline assessments of demographics, pre-injury factors, post-injury symptoms, and cognition will be administered. All patients will receive the usual emergency department standard of care for concussions, including the provision of patient instruction handouts and outpatient referrals, as prescribed.

On the day the patient is enrolled in the study through the 14th day post-discharge, all participants will receive the same text message queries:

- How many minutes of cognitive activity have you been engaged today? (i.e. reading, online activity, crosswords)
- How many minutes of physical activity have you completed today? (i.e. brisk walking, bicycling, vacuuming, or anything else that causes small increases in breathing or heart rate.)

If > 0 is reported, each question is followed by:

- Did participation in this cognitive/physical activity result in or worsen an existing symptom such as headache or nausea? TXT Yes or No.

If Yes is reported:

- Did you continue despite this symptom? TXT Yes or No.

Evaluation

Responses to the text messaging queries will be used to characterize cognitive and physical activity levels, the effect of these activities on post-concussion symptoms, and the effect of perseverance, or continuing an activity, despite experiencing symptoms during the initial recovery period from a concussion.

Huang plans to conclude her research in November of this year. She hypothesizes that:

- Symptom exacerbation from cognitive and physical activity will decrease significantly over the first 14 days after a concussion.
- Both cognitive and physical activity will increase significantly over the first 14 days after a concussion.
- Perseverance, or continuing cognitive and physical activity despite symptoms, is predictive of accelerated recovery.

About PEMF: The Pittsburgh Emergency Medicine Foundation (PEMF) was created in 1985 to fund educational and research projects, primarily initiated by The Center for Emergency Medicine. Research that can trace its origins to PEMF grants is leading to significant changes in the practice of emergency medicine. For more information about Pittsburgh Emergency Medicine Foundation, visit www.pemf.net.

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