# Can new diagnostic approaches help assess brain function in unconscious, brain-injured patients?

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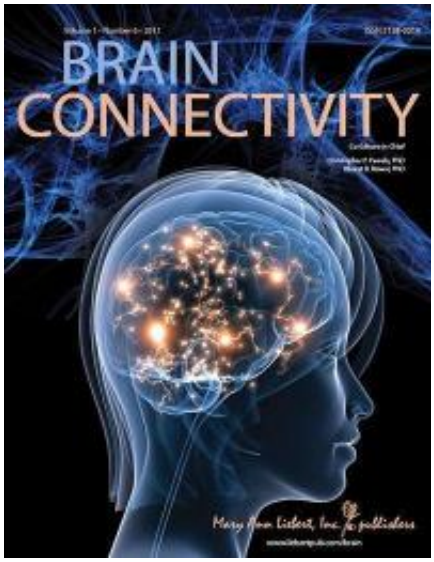


*Brain Connectivity* is the journal of record for researchers and clinicians interested in all aspects of brain connectivity. Credit: ©2012 Mary Ann Liebert, Inc., publishers

Disorders of consciousness such as coma or a vegetative state caused by severe brain injury are poorly understood and their diagnosis has relied mainly on patient responses and measures of brain activity. However, new functional and imaging-based diagnostic tests that measure communication and signaling between different brain regions may provide valuable information about the potential for consciousness in patients unable to communicate. These innovative approaches are described and compared in a Review article in the groundbreaking neuroscience journal *Brain Connectivity*.

Mélanie Boly and coauthors from University of Liège (Belgium), University of Milan (Italy), and University College London (UK) compare the benefits and limitations of three methods for studying the dynamics of brain communication and connectivity in response to internal and external stimulation: functional magnetic resonance imaging f(MRI); transcranial magnetic stimulation (TMS) combined with electroencephalograpy (EEG); and response to neuronal perturbation, measuring, for example, sensory evoked potentials (ERP). They report their findings and propose future research directions in the article "Brain Connectivity in Disorders of Consciousness."

"In recent years, there has been a tremendous interest in gaining a better understanding of the various disorders of consciousness. A variety of methods including fMRI and PET have been used to study these disorders," says Bharat Biswal, PhD, Co-Editor-in-Chief of *Brain Connectivity* and Associate Professor, University of Medicine and Dentistry of New Jersey. "This article provides a comprehensive analysis using three new and innovative methods to study disorders of consciousness."

**More information:** The article is available free on the *Brain Connectivity* website at http://www.liebertpub.com/brain.

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