

Disorders of consciousness: Increasing awareness of advances in brain injury medicine

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Emerging trends and new developments in the care and management of patients with disorders of consciousness (DoC) are increasingly focused on a multidisciplinary approach that integrates evidence-based assessment, treatment, and ethical aspects.

A themed issue of the journal *NeuroRehabilitation* outlines advances in nosology and classification, understanding of covert consciousness and its assessment, neuromedical morbidity and prognostication, neurorehabilitation evaluation and treatment, use of neurotechnologies in assessment and treatment, as well as medicolegal and ethical challenges

Patients with severe brain injuries with DoC, such as coma, unresponsive wakefulness syndrome, and minimally conscious state, have better prognoses than previously believed, but each case is unique and requires careful assessment due to a high rate of misdiagnosis.

This compilation of articles from highly regarded experts in the field highlights a wide range of topics on the current state of our knowledge regarding DoC including nomenclature, diagnosis and prognosis, assessment techniques (such as behavioral scales, multi-modal assessment, and [brain-computer interface](#)), clinical management, and ethical as well as medicolegal issues. The outlook for neurological as well as [functional recovery](#) and improved quality of life are also covered.

"The development of novel rehabilitation treatments (particularly, neuromodulation and open label drugs), targeting specific brain areas or networks that are known to be key in consciousness recovery offers exciting hope for advancement of treatment approaches in persons with DoC," says co-Guest Editor of the issue Caroline Schnakers, Ph.D., Assistant Director of the Research Institute at Casa Colina Hospital and Centers for Healthcare, Pomona, CA.

An increasing number of studies on long-term outcomes emphasize the

potential for neurorehabilitation and neuroplasticity to promote recovery and improve outcomes in these patients. There is a growing emphasis on utilizing advanced assessment techniques, such as neuroimaging (e.g., functional MRI, PET scans) and electrophysiological methods (e.g., EEG, evoked potentials), to improve assessment of consciousness.

To enhance communication and interaction for patients with severe communication impairments due to DoC, technological advancements, such as brain-computer interfaces and assistive devices, are being explored as potential tools. This has the potential to accurately diagnose and assess the level of consciousness in patients with DoC, especially those who may have covert consciousness.

The article "[Prognosis and enhancement of recovery in disorders of consciousness](#)" reviews the challenges faced by medical professionals, researchers, and families who must make decisions about a patient with DoC—important decisions that require certainty.

The authors provide an overview of the current clinical landscape surrounding prognosis and optimizing recovery in DoC and the current and future research that could improve prognostic accuracy after severe brain injury. Improved understanding of these factors will aid health care professionals in providing optimal care, fostering hope, and advocating for ethical practices in the management of individuals with DoC.

Advocating for the rights of patients with DoC will be crucial to providing the best chances for optimizing rehabilitation outcomes. The issue also highlights the ramifications for attorneys involved with brain injury neuro litigation. They may be involved in cases in which civil rights of individuals with DoC are at stake, requiring an in-depth understanding of the legal and ethical framework surrounding these issues. It is therefore critical for attorneys to remain engaged with

advances in the field of DoC neuroscience and neurorehabilitation to advocate for their clients (whether in a plaintiff or defense context).

The article "[Brain injury, medical progress, and the disability paradox: Towards an Americans with Abilities Act](#)" assesses limitations to current disability law that contribute to ongoing segregation and marginalization of individuals with severe brain injury, and proposes instead to complement current legislation with the Americans with Abilities Act (AWAA). Instead of focusing on disabilities that need protection, the AWAA seeks to sustain and foster newfound abilities made possible by the fruits of medicine and neuroscience.

Co-Guest Editor Nathan Zasler, MD, DAAPM&R, FAAPM&R, FACRM, BIM, Concussion Care Centre of Virginia and Tree of Life (Richmond), Department of Physical Medicine and Rehabilitation at both Virginia Commonwealth University and University of Virginia (Charlottesville), adds, "Overall, there has been collaborative research initiatives and networks that have recently been established to facilitate the sharing of data, resources, and expertise in the field of DoC research, leading to a more coordinated and impactful approach to advancing knowledge and improving patient care."

Such advances in neurorehabilitation care are expected to lead to more tailored and effective treatments that may be driven by more personalized, multimodal assessment protocols. Access to specialized care and resources for patients with DoC can be limited, especially in some geographic areas or health care systems. It is therefore essential to advocate for improved access to care, as well as the development of telemedicine and other remote monitoring solutions to overcome such barriers.

There remain significant challenges to optimal diagnosis and care, but ongoing progress in research, technology, ethics, and interdisciplinary

collaboration holds promise for improving the assessment, treatment, and outcomes of patients with DoC.

"Finally, there is still a lack of awareness and understanding of DoC among [health care professionals](#) and the public at large, which can contribute to stigma and misconceptions that only promulgate suboptimal clinical decisions and ultimately suboptimal care," Dr. Schnakers concludes. "Maintaining (and intensifying) current public education campaigns and advocacy efforts will raise more awareness about patients with DoC and promote empathy as well as support for affected individuals and their families."

More information: Mary E. Russell et al, Prognosis and enhancement of recovery in disorders of consciousness, *NeuroRehabilitation* (2024). [DOI: 10.3233/NRE-230148](https://doi.org/10.3233/NRE-230148)

Joseph J. Fins et al, Brain injury, medical progress, and the disability paradox: Towards an Americans with Abilities Act, *NeuroRehabilitation* (2024). [DOI: 10.3233/NRE-230118](https://doi.org/10.3233/NRE-230118)

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