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Never Say Never: Limitations of Neuroimaging for Communicating Decisions After Brain Injury

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Patients with brain injury have benefitted tremendously from advances in neuroimaging that have improved clinical diagnosis (Hirschberg and Giacino 2011) and the ability to distinguish between disordered states of consciousness (Cruse et al. 2012; Fins and Illes 2008; Monti et al. 2010). An accurate diagnosis is tantamount to improving patient prognosis. In the target article “Communicating With the Minimally Conscious,” published in this issue of *AJOB Neuroscience*, Bendtsen (2013) addresses the unalienable need to respect autonomy with minimally conscious patients in whom responsive cognition—sometimes interpreted as deliberate communication—may be detected with functional magnetic resonance imaging (fMRI) or electrophysiology (EEG). For these cases, Bendtsen argues in favor of assent for guiding patient involvement in health care decisions. The author asserts that the understanding of the patient’s response can only be inferred and not interpreted directly, however, much like a child’s response when involved in decisions regarding medical treatment (Bendtsen 2013).

New capabilities may indeed offer the potential to give otherwise noncommunicative patients a voice, whether it is ultimately for consent or assent. However, we argue that there is a limit to the use of these capacities, given the complexity and heterogeneity of neurotechnological systems and the range of possible interpretations of functional signals. Neuroscience has yet to reveal the still uncertain meaning of blood oxygenation level-dependent (BOLD) response or electrical signals in the nonlaboratory real-world context unconstrained by paradigms and highly controlled stimuli. These limitations extend further to consideration of possible fluctuations in prefrontally mediated executive function, such as decision making that even healthy, unaffected people regularly experience, and to consciousness itself. Therefore, while neurotechnology may powerfully enable discrete expressions of preferences about room temperature, food choice, or even levels of pain, we draw the line at its application for matters of life and values. Here we think specifically about matters such as succession, that is, legal matters such as codicils, and end-of-life decision making.

Respecting the autonomy of these patients will require an indelible new approach customized for such central nervous system conditions that restrict the expression of will, but assigning priority to a patient’s autonomy for decisions that are irreversible or irrevocable seems imprudent, at best, and certainly does not meet the standard of best interest. Information gained from images is simply a far cry from getting the whole story (Lanoix 2008). The current state of neuroimaging research is insufficient to answer fundamental questions concerning these patients’ moral standing, which are vital components for such decisions.

Bendtsen (2013) considers many important ethical questions around communication with minimally conscious patients. Contextual limitations of involving them in decisions about their future and direction of care are absent from the author’s discussion, however. We raise these issues here with the goal of advancing the most realistic and beneficial application of technology given the state of the art today.

REFERENCES

- Bendtsen, K. 2013. Communicating with the minimally conscious: Ethical implications for end-of-life care. *AJOB Neuroscience* 4(1): 46–51.
- Cruse, D., S. Chennu, C. Chatelle, et al. 2012. Bedside detection of awareness in the vegetative state reply. *Lancet* 379(9827): 1702.
- Fins, J. J., and J. Illes. 2008. Lights, camera, inaction? Neuroimaging and disorders of consciousness. *AJOB Neuroscience* 8(9): W1–W3.
- Hirschberg, R., and J. T. Giacino. 2011. The vegetative and minimally conscious states: Diagnosis, prognosis and treatment. *Neurologic Clinics* 29: 773–786.
- Lanoix, M. 2008. The implications of caring for the injured brain. *AJOB Neuroscience* 8(9): 35–36.
- Monti, M. M., A. Vanhaudenhuyse, M. R. Coleman, et al. 2010. Willful modulation of brain activity in disorders of consciousness. *New England Journal of Medicine* 362(7): 579–589.

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