Foreword

The Muddled Understanding of Brain Death

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What is brain death? Does declaring a patient “brain-dead” really actually mean they are dead? As medical professionals, we are taught that satisfying criteria for the declaration of brain death equates to actual death despite the continued existence of a heartbeat. However, most of the rest of the population have not been taught this and why should they believe this? Death can be defined as the end of life and vital functions. A beating heart does not convey death. It is easy to understand why the general public questions death by neurological criteria.

It is been almost 50 years since the concept of an irreversible coma culminating in brain death was introduced.¹ The ad hoc committee of the Harvard Medical School did not fully define brain death but did describe an unresponsive, apneic, areflexic patient with an isoelectric electroencephalogram as being essentially dead.² Interestingly, many of the same issues still exist today that surrounded the ad hoc committee of the Harvard Medical School when they labeled the patient with an irreversible coma. As of April 21, 2017, more than 118,000 people await organ donation on the transplant list. Considering there were 33,610 organs transplanted in 2016, there is a continued shortage of donor organs as an average of 22 people die each day awaiting transplant.³ Even in 1968, there was a need for organ donation with kidney transplantation already in existence for over a decade and the first heart transplant performed the previous year. In addition, caring for a patient in an irreversible coma in 1968 created a financial burden for the family and consumed considerable medical resources.

In 1981, a task force of physicians, philosophers, religious officials, ethicists, and lawyers produced the Uniform Determination of Death Act (UDDA), which defined brain death as the legal equivalent to cardiopulmonary death.⁴ The UDDA requires brain death to be determined through current accepted medical standards allowing for guideline updates as technology advances. Guidelines surrounding the diagnosis of brain death are periodically reviewed, updated, and subsequently endorsed by national medical societies. In the United States, despite the presence of nationally accepted guidelines for the medical

diagnosis of brain death, there are inconsistent state laws around this issue. Similar to laws surrounding marijuana use and the death penalty, laws differ between states in relation to neurological death. As of 2007, states had either adopted the UDDA as written, adopted a modified version of the act, written their own statutes, or not adopted legislation but incorporated the concept of determining death by neurological criteria in case law or regulations.⁵

Religious objections to the declaration of death by neurological criteria exist including certain Orthodox Jews, Buddhists, Muslims, Japanese Shinto, and Native Americans.⁶ Only California, Illinois, New Jersey, and New York have laws that address religious objections to brain death, but even these are not consistent. Although California, Illinois, and New York require hospitals to make reasonable efforts to accommodate religious beliefs, New Jersey allows personal religious beliefs to trump neurological brain death declaration, and in this situation, death must be solely based on cardiorespiratory criteria.⁷ Therefore, a patient satisfying brain death criteria could live on for years in New Jersey, which now happens to be the state of residence of Jahi McMath, a patient declared brain dead in California in 2013.⁵ It is been suggested that all states should adopt a similar “reasonable accommodation” clause surrounding religious objections to brain death.⁶ But what is the definition of the nonspecific term “reasonable accommodation?” Is it related to timing of brain death testing, time for the family to spend with the deceased patient, or does it mean avoidance of brain death testing altogether?

As health care providers, we are repeatedly told that our system is broken and health care spending is out of control. Yet, state law supports futile care of a brain-dead patient for religious reasons. Futile and potentially inappropriate are terms used to describe treatments that have no chance versus at least some chance of accomplishing an intended physiologic goal.⁸ As there is no physiologic goal in supporting a brain-dead patient, this is futile medical care by definition. The costly expense of caring for a patient in an intensive care unit or eventually at home must be weighed against the accommodation of a family's

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religious beliefs. Drs. Rubin and Truog state, “futile treatments should never be provided, regardless of the availability of the resources or the values of the clinicians, patient, or family.⁹” Futile care of the brain-dead patient is not just a financial burden to the system, but a psychological burden to health care providers caring for the dead patient as if they are alive. Does this not cross the line of doing things for patients versus doing things to a patient?

Despite the work of the ad hoc committee of the Harvard Medical School nearly 50 years ago and continued guideline updates supported by numerous medical societies, the concept of death by neurological criteria continues to be a hot topic. This issue on pediatric brain death contains articles focusing on all aspects around this subject. We have included reviews on the diagnosis of brain death as well as the ancillary tests available to assist with the diagnosis. In addition, there is an article focused on ethical considerations and an article on cultural beliefs surrounding brain death. Finally, there is a case report where a legal injunction resulted in a legal conflict over the acceptance of the diagnosis of brain death with a family with more than usual vested interest in the case, a father’s eventual criminal charge of assault versus murder.

References

- 1 A definition of irreversible coma. Report of the ad hoc committee of the Harvard Medical School to examine the definition of brain death. *JAMA* 1968;205(06):337–340
- 2 De Georgia MA. History of brain death as death: 1968 to the present. *J Crit Care* 2014;29(04):673–678
- 3 UNOS. 2017. Available at: <https://www.unos.org/>. Accessed April 21, 2017
- 4 Lewis A, Pope TM. Physician power to declare death by neurologic criteria threatened. *Neurocrit Care* 2017;26(03):446–449
- 5 Luce JM. The uncommon case of Jahi McMath. *Chest* 2015; 147(04):1144–1151
- 6 Pope TM. Brain death: legal duties to accommodate religious objections. *Chest* 2015;148(02):e69
- 7 Lewis A, Varelas P, Greer D. Controversies after brain death: when families ask for more. *Chest* 2016;149(02):607–608
- 8 Bosslet GT, Pope TM, Rubenfeld GD, et al; American Thoracic Society ad hoc Committee on Futile and Potentially Inappropriate Treatment; American Thoracic Society; American Association for Critical Care Nurses; American College of Chest Physicians; European Society for Intensive Care Medicine; Society of Critical Care. An Official ATS/AACN/ACCP/ESICM/SCCM Policy Statement: responding to requests for potentially inappropriate treatments in intensive care units. *Am J Respir Crit Care Med* 2015;191(11):1318–1330
- 9 Rubin MA, Truog RD. What to do when there aren’t enough beds in the PICU. *AMA J Ethics* 2017;19(02):157–163