What is Death by Neurological Criteria, and What is it Not?

Michel T Torbey, MD, MPH, FNCS, FCCM
Professor, Neurology and Neurosurgery
Chief, Cerebrovascular and Neurocritical Care Division
The Ohio State University
Columbus, OH USA

Leslie M Whetstine, PhD
Associate Professor, Philosophy
Walsh University
North Canton, OH USA

Defining Death

- Complicated by technology
- Why is the death of the BRAIN important over any other organ?
- What is unique about the brain?

Language Matters

- “Brain death” vs. “heart death” is problematic
- Total Brain Failure is a criterion of death, not a special type of death
- Why is TBF said to be a criterion for death?
  - Traditional Premise: brain integrates the organism as a whole
  - Conclusion: Dead brain proves organism as a whole is dead

Definition of Death

- Irreversible cessation of integrated functioning of the organism as a whole

- Does a Dead brain prove the organism as a whole has permanently ceased integrated functioning?

No.

Objections

- Integrated functioning continues in TBF patients
- Brain is not the primary integrator of the organism as a whole
- If we want to keep the neurologic criterion then we need **more** than a biological model to uphold it

TBF: a breathing corpse

- Pink, warm
- Performs tasks that corpses cannot
- Are they REALLY dead?

The McMath child

- Secured the right to maintain their daughter's dead body *precisely because* there are inconsistencies in these arguments

Death with continued circulation and respiration?

- 1981 President's Commission: artificially maintained respiration & circulation in TBF are irrelevant[1]
- Controlled by mechanical intervention rather than the brain
- Therefore, body not functioning in integrated manner but being manipulated externally

1. President's Commission for the Study of Ethical Problems in Biomedical and Behavioral Research, *Defining Death: A Report on the Medical, Legal, and Ethical Issues in the Determination of Death* (Government Printing Office, 1981) 15.

Spontaneous life vs. assisted life?

- But a person isn't dead simply because she requires an artificial intervention[1]
- Reliance on an intervention doesn't make one alive or dead
- Why require loss of spontaneous breathing if spontaneous breathing isn't required for life?

1. Hans Jonas, "Against the Stream: Comments on the Definition and Redefinition of Death" in Philosophical Essays from Ancient Creed to Technological Man. (Chicago: University of Chicago Press, 1974) 135.

Integrative functions that may continue in TBF

- Homeostasis
- Energy balance
- Infection fighting
- Gestation of fetus
- These are not characteristics of the dead-but evidence that a body is integrated as an organism as a whole[1]

1. Amir Halevy, ‘Beyond Brain Death?” Journal of Medicine and Philosophy 26 no.5 (2001): 495.

Is A Brain Necessary for Biological Life?

- A functioning brain may not be necessary for the integrated functioning of the organism as a whole
- Paradox arises: The neurologic criterion of death (dead brain) may be satisfied but not the definition of death (irreversible cessation of integrated functioning)

1. Tom Tomlinson, "The Conservative Use of the Brain-Death Criterion-A Critique, "*Journal of Medicine and Philosophy* 9 (1984):380.

Px vs Dx

- TBF patients can continue on LST for much longer than initially thought making it prognostic of death but not diagnostic

- The dx is a self fulfilling prophecy since they usually go to donation or the morgue

Biological argument is flawed

- A patient who:
  - respires and circulates blood
  - can regain hemodynamic stability
  - metabolize and excrete waste
  - exhibit some brain function including measureable EEG output
  - retain an intact neurohormonal pathway
  - raise her temperature with the help of blankets
  - gestate a fetus to term
  - fight infection

Does not fulfill the definition of death on biological grounds

And, we can't expect families to accept this faulty rationale

2007 President's Council on Bioethics White Paper

- "Integration" is abandoned and the claim that the brain is the "integrator" of vital functions.
- Identify whether an organism is still a **whole**
- Persistence of the fundamental "vital work" of a living organism means it's a whole organism

New Rationale

- The work of self-preservation is achieved through the organism's need-driven commerce with the surrounding world.
- If consciousness is irreversibly lost
- *And* if spontaneous breathing is absent
- *And* if these cannot be reversed, the patient has now died.

Accordingly, TBF is still acceptable

- TBF is an acceptable criterion for declaring death, not because it proves the body lacks integration

- But because in TBF the organism can no longer engage in the **essential work** that defines living things.

Objections to the new rationale

- An improvement over the integration argument, which is untenable
- But, life support systems maintains life and can continue the essential work of an organism-the fact that it's not spontaneous is irrelevant
  - Absence of spontaneous breathing isn't sufficient to declare death (HSCI, COPD, etc)
  - Absence of consciousness isn't sufficient to declare death (PVS)
- So why are both conditions combined sufficient for death?

Shewmon, Alan. Brain Death: Can It Be Resuscitated?The Hastings Center Report. 2009;39(2):18-24.

TBF bodies Are dead

- If we move from a purely biological model to an ontological definition of death:
- Where the focus is not on organismic function or the work of an organism
- But *on that which is essential to the human person*, the loss of which signifies death
- This is capacity for consciousness, not biological integration

Thank you

- Lwhetstine@walsh.edu