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Defining Death: new pathways to consider

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By drawing on recent neurological research this article challenges some prevailing medical assumptions about the definition of death and explores some of the philosophical contours of the brain death debate.

Determining death is a practice common to societies throughout history. Various procedures have been followed to ensure that death has occurred and no person is mistakenly buried alive.[1] However, new technology, particularly cardio-respiratory ventilation, has raised questions about what constitutes death. These come into sharper focus when considering organ transplantation from those declared brain dead – particularly 'beating-heart donors'.

Brain Death

In 1968 a Harvard Medical School Committee proposed 'a new criterion for death' to supplement the cardio-respiratory criteria, namely irreversible coma.[2] They suggested two reasons for this: first, to relieve the burden for patients and families of artificial resuscitative measures in an individual whose brain is irreversibly damaged; second, to address controversy in 'obtaining organs for transplantation'.[3] The committee recognised the many causes of irreversible coma and sought to determine such a state's characteristics and how to test for it.[4] These suggestions are now widely accepted as correct medical practice.

There remain different terminologies concerning 'brain death' (BD) and law varies across different jurisdictions. In the UK BD is defined by the Academy of Medical Royal Colleges (AMRC) as 'death following irreversible cessation of brain-stem function'.[5] There remains a responsibility to exclude reversible causes of the patient's condition before making the diagnosis. The AMRC believes that clinical methods have been successful in correctly diagnosing brain death over the past thirty years and therefore do not normally require additional imaging to

make the diagnosis (except in special circumstances where neurological examination might be difficult).[6] The AMRC recognises the possibility of 'continuing function within the brain-stem, occurring beneath the level at which any … reflexes can be elicited and … continuing function in other parts of the brain'. However it believes that 'clinical criteria of death resulting from irreversible cessation of brain-stem function … demonstrate the permanent absence of consciousness and thus the ability to feel or do anything, along with the inevitable and rapid deterioration of integrated biological function'.[7] It equates the 'irreversible cessation of the integrative function of the brain-stem … with the death of the individual'.[8]

While seemingly clinically neutral, this description of what constitutes death is being subtly influenced by philosophical claims. That consciousness and capacities to feel and do anything are qualities which determine our personhood is a highly contested claim made by some philosophers.[9]

Neurological challenges to 'Whole Brain Death'

A team of early challengers to the Harvard Committee disputed that 'brain function is simply equivalent to human life'. They disagreed that BD could be a criterion for death, arguing that cessation of brain function does not equate to the brain's destruction but only to loss of physiological activity.[10] They claimed that 'irreversibility' is relative to current medical knowledge, detailing states previously considered irreversible where function was restored. They reckoned the argument that the 'brain … is that organ whose specific function it is to make a human person be alive' is an 'all-pervasive philosophical sleight-of-hand', a 'strict materialism' which 'reduces the life of the human person to a putative organic function of the material brain. "Brain function" is so defined as to take the place of the immaterial principle or "soul"'. Hence they considered the Harvard Committee's proposals to be opposed to those major religious traditions which depend upon metaphysical beliefs.[11]

The claim that the brain's *integrative* function renders a person alive may also be challenged via medical science. Shewmon has reviewed evidence for the claim that, because loss of brain function 'entails [a] loss of somatic integrative unity (cessation of the "organism as a whole")', BD constitutes death. He compared those classified as brain dead with those suffering from spinal cord injury and found that their somatic pathophysiological status was identical.[12] He excludes consciousness as a difference since those suffering from spinal cord injury are likely to remain conscious.[13] He concludes that 'the brain cannot be construed with physiological rigor as the body's "central integrator", … conferring unity

top-down on what would otherwise be a mere collectivity of organs'.[14] He therefore disputes the generally accepted biological concept of death, arguing elsewhere that 'most integrative functions of the body are not brain-mediated'.[15]

Philosophical controversies – The President's Council and the Catholic Church

In 2008 the (US) President's Council on Bioethics produced the report, 'Controversies in the Determination of Death' with particular reference to the neurological criteria. They were interested, *inter alia*, in the question of somatic integration since this assumption had recently been challenge.[16] After hearing evidence (much presented by Shewmon), the Council concluded that if the integrative functions of 'brain dead' bodies – they preferred the term Total Brain Failure (TBF) since the definition of death itself was in question[17] - 'were sufficient to identify the presence of a living "organism as a whole," TBF could not serve as a criterion for organismic death, and the neurological standard enshrined in law would not be philosophically well-grounded'. Thus they abandoned the 'reliance on the concept of "integration" ... and with it the false assumption that the brain is the "integrator" of vital functions'.[18]

It might have seemed reasonable, therefore, to abandon the neurological criteria. Instead, however, they reimagined what it means to be alive, arguing that an organism's life is dependent on 'the persistence or cessation of [its] fundamental vital work … the work of self-preservation, achieved through the organism's need-driven commerce with the surrounding world'.[19] By presenting this new *philosophical* definition of death, they attempted to marginalise the question of integrative function and still uphold the neurological criteria[20] and the Dead Donor Rule, namely that no one should be intentionally killed so that his or her organs may benefit someone else.

Drawing on evidence of functions that those patients previously discussed can perform, Brugger's critique is whether those diagnosed with TBF have 'definitively ceased carrying out their vital work'. Homeostasis and production of waste products demonstrate an 'active commerce with the surrounding environment' and recognition of a 'basic felt need'. Brugger suggests that these features are a sign of life and that the tissues' homeostatic requirement for oxygen be understood as demonstrating a 'need'.[21]

Interestingly, Shewmon concludes that 'what is truly necessary for the life of a higher organism is not the functioning of heart and lungs, but the circulation of

oxygenated blood and exchange of gases at the cellular level throughout the organism',[22] an essentially cardiorespiratory definition.

Before the White Paper, Pope John Paul II had affirmed the neurological criteria (and hence transplantation following 'brain death') accepting the established medical definitions and understandings: 'the death of the person is a single event, consisting in the total disintegration of that unitary and integrated whole that is the personal self'.[23] But since the White Paper, Catholic theologians drawing on Shewmon's work have questioned afresh the underlying basis of the diagnosis of BD (or TBF). For if those suffering TBF can demonstrate integrative somatic functions then arguably they would not fit the Papal definition.

Neurological criteria and practical implications

The evidence above has illustrated various controversies surrounding the definition of BD and implications for medical practices such as organ transplantation. I will outline three different responses.

Rejecting the neurological criteria – patients might not be dead

Several Catholic theologians have seen the Papal position, especially its medical basis, as providing inadequate certainty that patients suffering TBF are dead. Jones reckons that the 'Catholic acceptance of neurological criteria for death [is] in crisis' and that no current analysis shows convincingly that current transplantation practice is moral.[24] Brugger agrees and concludes that new medical evidence 'provides "sufficient grounds" for doubting [BD patients] are always dead [and that] until these reasonable doubts are removed, an ethically justified caution requires that we should treat them as living human beings'.[25]

Spaemann writes that in 'light of the untenability of the thesis of the integrative function of the brain, the identification of "brain death" and the death of the human being can be maintained only if the personality of man is disconnected from being a human in the biological sense'. He recognises this view in Singer and Parfit, criticises theological attempts to justify it (e.g. by misinterpreting Aquinas) and agrees with Pius XII,[26] who said that 'in case of insoluble doubt … it will be necessary to presume that life remains'.[27]

Roman Catholic writers provide much of the Christian response to the current BD debate; it has garnered limited interest from Protestant theologians to date. Gilbert Meilander, for instance, contributed to the White Paper but, unlike Pelligrino, did not oppose the new philosophical definition of death.

Upholding the neurological criteria – alternative definitions of death

Along with the President's Council, Shewmon too has developed a new philosophical view. He attempts to satisfy those who define death as the loss of the organism as a whole and those who argue that loss of consciousness is the defining criterion. He defines two 'death-related concepts': first 'passing away' (deceased) which corresponds to the 'sociolegal ceasing-to-be'; second, 'deanimation', the 'ontological/theological ceasing-to-be of the bodily organism'.[28] He equates these definitions, respectively, to: birth as a new member enters society; and conception as the 'coming to be of a new organism'.[29] Over against this, Jones argues persuasively that equating birth as a 'civil beginning' and 'acting as though life had not yet begun' prior to that point has far from settled the abortion debate. Thus the identification of a 'civil end' may not provide the justification for the retrieval of organs for transplantation which Shewmon expects.[30] There is a deep moral question to be explored as to how we describe human emergence and disappearance from the world.[31]

Accepting medical killing in practice

The third position doubts both the Dead Donor Rule and the neurological criteria but accepts the removal of organs from those still living. Miller argues that we have created 'moral fictions' by holding that withdrawal of life-sustaining treatment is a 'passive omission' which 'allows the patient to die' rather than constituting killing.[32] However, intentionality seems crucial to such acts. Describing them as killing ascribes too much to our agency, considering the inherent uncertainty concerning the timing and nature of death. We must allow the 'natural history of the disease to take its course' after such withdrawals.[33] If the person remained alive we would not act again to ensure their death – we do not 'wish them dead'.

I agree with Miller's analysis that the claim that 'brain death equals the death of the human being' is another moral fiction.[34] What I disagree with is his practical conclusion in which he equates letting die with killing, challenges the 'entrenched norm that doctors must not kill' and suggests that 'the medical profession and society … should be prepared to accept the reality and justifiability of life-terminating acts in medicine'.[35] He challenges the Dead Donor Rule by rejecting the premise that it is 'necessarily wrong for physicians to cause the death of patients'[36] and suggesting that medical killing is not always wrong.[37] The acceptance of Miller's reasoning leaves open the possibility of assisted suicide, euthanasia and the eugenic destruction of the disabled.

Conclusion

If patients diagnosed as brain dead are not actually dead and if organs are being removed from the living, then it seems that human persons are being assaulted – a grotesque parallel to the ancient practice of being buried alive. It is therefore vitally important, since concerns about the neurological criteria remain, that we re-examine the evidence and limit medical practice. Moreover, although neurological criteria may help to demonstrate irreversible brain injury, it seems unwise to equate irreversibility with death. The criteria may inform medical staff and family of an expected lack of recovery and provide justification for removing burdensome, futile, invasive treatment but should not be used to determine death prior to cardiorespiratory evidence of death or to justify organ retrieval prior to such a point.

I would therefore recommend that we reject the current BD criteria and the way it is used for permitting organ retrieval before death. Where ambiguity exists we must act in favour of *preserving* life. But this must be balanced against an, at times inappropriate, medical desire to *extend* life. We must accept that death is still a certainty and that it may well be appropriate to withdraw life-sustaining treatment if the person's brain has suffered irreversible damage. But death itself should most decisively be defined by cardio-respiratory criteria. This has clear implications for organ donation. Research into treatment for patients needing organ transplantation is crucial. But this must not be pursued by simply shifting the ethical goal posts.

For Further Reading

- C. Brugger, 'D. Alan Shewmon and the PCBE's White Paper on brain death: are brain-dead patients dead? ', *Journal of Medicine and Philosophy*, advance access publication, doi:10.1093/jmp/jht009, (2013), 1-14.
- James Mumford, *Ethics at the Beginning of Life* (Oxford University Press, 2013).
- Robert Spaemann, *Love and the dignity of human life: on nature and natural law* (Eerdmans, 2012).
- Robert Spaemann, 'Is brain death the death of a human person?', *Communio* 38 (2011), 327.

[1] Robert Spaemann, 'Is brain death the death of a human person?', *Communio* 38 (2011), 327.
[2] *Ad hoc* Committee of Harvard Medical School, 'A definition of irreversible coma', *Journal of the American Medical Association* 205.6 (1968), 337.
[3] *Ibid*., 337.
[4] (i) 'Unreceptivity and Unresponsibility – a total unawareness to externally applied stimuli, inner need and complete unresponsiveness' (ii) No movements or Breathing (iii) No reflexes (iv) Flat electroencephalogram. *Ibid*., 337.
[5] Academy of Medical Royal Colleges [AMRC], *Code of practice for confirmation and diagnosis of death* (2008), 17.
[6] *Ibid*., 19. Additional tests include: measuring blood flow in the larger cerebral arteries, brain tissue perfusion and measuring neurophysiology by EEG or evoked potentials (2008: 24).
[7] *Ibid*., 17.
[8] *Ibid*., 11.
[9] See Derek Parfit, *Reasons and persons* (Oxford University Press, 1984); Peter Singer, *Practical Ethics*, 3rd ed. (Cambridge University Press, 2011).
[10] P. Byrne, P. O'Reilly, S. Quay, 'Brain death - an opposing viewpoint', *Journal of the American Medical Association* 242.18 (1979), 1986-7.
[11] *Ibid*., 1986.
[12] D. A. Shewmon, 'Spinal shock and "brain death": Somatic pathophysiological equivalence and implications for the integrative-unity rationale', *Spinal Cord* 37 (1999), 313-320.
[13] *Ibid*., 314-315.
[14] *Ibid*., 322.
[15] D. A. Shewmon, 'The brain and somatic integration: insights into the standard biological rationale for equating "Brain Death" with death', *Journal of Medicine and Philosophy* 26. 5 (2001), 457.
[16] President's Council on Bioethics, Controversies in the determination of death: A White Paper (2008), 90.
[17] *Ibid.,* 12
[18] *Ibid*., 60.
[19] *Ibid*., 60.
[20] *Ibid*., 107.
[21] C. Brugger, 'D. Alan Shewmon and the PCBE's White Paper on brain death: are brain-dead patients dead?', *Journal of Medicine and Philosophy*, advance access publication, (2013), 9-10. doi:10.1093/jmp/jht009,
[22] D. A. Shewmon, 'Constructing the Death Elephant', *Journal of Medicine and Philosophy* 35 (2010), 260.
[23] John Paul II, Address to International Congress on Transplants, 29th August 2000 §4.
[24] D. A. Jones, 'Loss of faith in brain death: Catholic controversy over the determination of death by neurological criteria', *Clinical Ethics*, 7 (2012), 139.

[25] Brugger, 'D. Alan Shewmon', 11.
[26] Spaemann, 'Is Brain Death', 338-9.
[27] Pius XII to an International Congress of Anaesthesiologists, 1957, *The Pope Speaks* 4.4 (Spring 1958), 393-8.
[28] D. A. Shewmon, 'Constructing the Death Elephant', 256.
[29] *Ibid*., 276.
[30] Jones, 'Loss of Faith', 138.
[31] See James Mumford, *Ethics at the Beginning of Life* (Oxford University Press, 2013) for further reading.
[32] F. G. Miller, 'Death and organ donation: back to the future', *Journal of Medical Ethics* 35 (2009), 618.
[33] E. D. Pellegrino, 'Decisions to Withdraw Life-Sustaining Treatment: A Moral Algorithm', *Journal of the American Medical Association* 283.8 (2000), 1065.
[34] Miller, 'Death and organ donation', 618.
[35] *Ibid*., 620.
[36] F. G. Miller, R. D. Troug and D. W. Brock, 'The dead donor rule: can it withstand critical scrutiny?' *Journal of Medicine and Philosophy* 35 (2010), 299.
[37] W. Sinnott-Armstrong and F.G. Miller, 'What makes killing wrong?' *Journal of Medical Ethics* 39 (2013), 3-7.

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