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EDITORIAL

Brain death diagnosis in 2018

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It is 30 years since the Irish Working Party on Brain Death published a Memorandum describing the diagnosis of brain death. The 11 signatories were distinguished medical, surgical, neurological, neurosurgical, paediatric and critical care specialists and leaders in Irish medicine [1]. It was an impressive cross-speciality collaboration that produced a landmark publication and a working document for Irish doctors involved in diagnosing brain death. The Memorandum on Brain Death formed the basis for the Intensive Care Society of Ireland (ICSI) Guidelines on the diagnosis of Brain Death [2].

The main purpose of establishing the diagnosis of brain death is to determine finality. This avoids further complicated but useless treatment and preserves a patient's right to dignity in death. Brain death is uncommon. In a 2010 national audit of all deaths in Irish intensive care units, 7.6% of patients reached a diagnosis of brain death [3]. Bedside clinical examination in a patient with coma of known aetiology, and without confounders that demonstrates absence of brainstem reflexes and apnoea, establishes the diagnosis of brain death. These findings are irreversible in an adult patient. Since the Irish Working Party's publication in 1988, technological developments have continuously modified critical care medicine and neurology practices. However, the Memorandum's checklist of 15 criteria outlining the systematic stepwise clinical examination in the diagnosis of brain death has undergone only a minor evolution. The current ICSI guidelines have added to the original fifteen criteria, the requirement for a minimum systolic blood pressure of 90 mmHg before testing brain stem reflexes [2]. On the rare occasions when uncertainty exists about parts of the clinical examination, a confirmatory test may be used to demonstrate cessation of cerebral blood flow for example, by cerebral angiography. An expanding list of electrophysiological and imaging techniques contending for the role of confirmatory tests in no way supplants the position of the clinical neurological examination [4]. The diagnosis of brain death remains firmly rooted at the bedside in the clinical findings.

The equivalence of brain death with death of the individual is an internationally accepted medical standard upheld by all professional medical societies for more than 30 years. Yet, consensus has not kept the diagnosis free from cultural and medical controversy. Most recently, a North American paediatric case involves a 17-year-old girl who was declared brain dead and issued with a death certificate by the state of California in 2013 [5]. She is currently being maintained with prolonged somatic support including ventilation, enteral nutrition and supplemental hormones in an apartment in New Jersey because her family refuse to accept the diagnosis. New Jersey state law contains a religious exemption to the declaration of brain death. There cannot be a dual, or in the case of New Jersey, a malleable position with death; a patient is either alive or dead. However, in modern critical care medicine, we must also accommodate uncomfortable observations regarding the biological status of a brain dead patient. After diagnosis of brain death in rare cases, extended somatic support has been reported to continue for months [6]. This biological fact does not represent a challenge to the clinical diagnosis of brain death. Likewise, it need not initiate outsourcing what is fundamentally a medical duty, the diagnosis of death, to the courts. It does, however, reinforce the principles described in the Irish Working Party Memorandum; clinical examination should only proceed if certain preconditions are met and strictly adhered to with a step-by-step checklist in the verification of brain death.

The diagnosis of brain death provides the opportunity for families to donate organs for transplantation. After a second clinical examination has resulted in the diagnosis of brain death, the family should be sensitively informed that this opportunity arises. Avoiding futile prolongation of treatments and also identifying potential organ donors after death is a clinical duty for every clinician involved in critical care practise.

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Compliance with ethical standards

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Animal studies This article does not contain any studies with human participants performed by the author.

References

1. Irish Working Party on Brain Death (1988) Memorandum on brain death. Ir Med J 81:42–45
2. http://www.intensivecare.ie/ of Brain Death in adults; Guidelines 2016. Accessed 04/05/2018
3. Hegarty M, O'Neill W, Colreavy F et al (2010) Potential organ donor audit in Ireland. Ir Med J 103(10):294–296
4. Wijdicks E FM (2017). Neurology of brain death. In: Brain Death, 3rd edn., Oxford University Press, New York, pp 25–73
5. Truog D (2018) Defining death-making sense of the case of Jahi McMath. JAMA. https://doi.org/10.1001/jama.2018.3441
6. Lane A, Westbrook A, Grady D, O'Connor R, Counihan TJ, Marsh B, Laffey JG (2004) Maternal brain death: medical, ethical and legal issues. Intensive Care Med 30(7):1484–1486