

# Confusion about brain death

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Laureys stated that “brain death is death”<sup>1</sup>. The justification given for this statement is problematic.

The stated concept of death is the “permanent cessation of the critical functions of the organism as a whole... respiration and circulation, neuroendocrine and homeostatic regulation, and consciousness”<sup>1</sup>. The usual concept of death is the loss of integrative unity of the organism, and therefore consciousness is not included<sup>2,3</sup>.

The stated criterion of death is “the irreversible cessation of all clinical functions of the brain”<sup>1</sup>. Yet also stated is that “brain death signifies death not because it is invariably imminently followed by asystole, but because it is accompanied by irreversible loss of critical *cerebral* functions”<sup>1</sup> (emphasis added). This suggests that the reason many are “intuitively attracted to the brain death formulation”<sup>1</sup> is the lack of *cerebral* function, or consciousness. Laureys argues that this loss of consciousness, although often thought “as good as dead”, is not sufficient to diagnose death<sup>1</sup>. Moreover, the brain death criterion does not fulfill the stated concept/definition of death. Specifically, in brain death, it is not clear why the loss of respiration must be spontaneous<sup>4</sup>, if the irreversible loss of circulatory function occurs, or how to deal with persistence of neuroendocrine control<sup>5</sup>. In brain death, there can be prolonged somatic survival with little medical support<sup>6</sup> (suggesting homeostatic regulation), with ongoing circulatory and hypothalamic function including body temperature and antidiuretic hormone regulation<sup>7</sup>. That long “survivals” in brain death merely “indicates that their bodily decomposition has been delayed until their circulation has ceased”<sup>1</sup> is exactly the point. These prolonged survivals show that, when alive, there is “not an integrator but integration, a holistic property”<sup>1</sup> that persists during brain death. The integrative unity of the organism is not lost<sup>7</sup>.

The well-accepted tests for brain death are based on one clinical study that included 187 patients with brain death<sup>8</sup>. This study was poorly reported by today’s standards, was never prospectively validated, and involved critical care during the 1970s<sup>8</sup>. That the tests have “stood the test of time”<sup>1</sup> is not reassuring given that they invariably lead to the withdrawal of support. Laureys states that the clinical tests of brain death only test the brainstem, and do not differentiate whole brain from brainstem death<sup>1</sup>. It is also disconcerting that, in brain dead patients, other studies have shown that: electroencephalogram activity remains in 20%<sup>9</sup>; brainstem evoked potentials remain in 5%<sup>10</sup>; cerebral blood flow remains in 5%<sup>11</sup>; and pathologic brain destruction is not seen in at least 10% even when they have been maintained with circulation for more than 24 hours after brain death occurred<sup>12-14</sup>. The tests might not document irreversible loss of “all clinical function of the entire brain”<sup>1</sup>.

“The general acceptance of the practice since 1968 (in the US) is irrelevant to its moral rightness or wrongness<sup>15</sup>”. The brain death criterion does not fulfill the definition/concept of death, and the tests used do not fulfill the criterion of brain death. It may be time to reconsider if brain death is equivalent to death of the patient.

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