



LETTER TO THE EDITOR

About «porcine resuscitation», death and organ donation[☆]



Sobre la «reanimación porcina», la muerte y la donación de órganos

Dear Editor:

Recently, *Nature* published a study on an *ex vivo* brain preservation system (*BrainEx*) used in pigs that had been decapitated 4h in advance¹ that ended up restoring microcirculation and some cerebral functions but with no electrographic activity. The study was a big deal on news because it questioned the diagnostic criteria of death and jeopardized organ donation.

We have not witnessed a phenomenon of «porcine resuscitation». Death is a unitary phenomenon that occurs after the irreversible cessation of the entire brain functions, and not after the cessation of a single brain cellular activity.² Death is diagnosed after confirming the irreversible cessation of brain functions or the irreversible cessation of circulatory function, although as C. Pallis used to say «there are several types of death but only one way of being dead». In both cases, the only thing that changes is time and the mechanism through which brain functions are lost³; in brain death (BD), brain functions are the first to go following cerebral circulatory arrest due to neurological injury. However, in circulatory death, circulation is the first to go followed by brain functions due to secondary anoxia.

In Spain, the diagnosis of BD is included in the Royal Decree 1723/2012 and requires proof of the irreversible cessation of the entire brain functions such as conscience, the capacity to breath, and circulation, although certain isolated brain functions like the secretion of hypothalamic hormones or temperature control may still exist.⁴ Although the study published in *Nature* is a huge breakthrough in the field of neuroprotection, it does not prove that the previous diagnosis of death has been reversed. In the case of death due to circulatory criteria, the Spanish legislation requires the absence of spontaneous circulation and respiration for 5 min after completing resuscitation maneuvers

or having implemented life-sustaining treatment limitation (LSTL) measures because after this time no cases of self-resuscitation have been reported. This guarantees the irreversibility of the entire process and the so-called «*point of no return*». Without further interventions that reestablish the cerebral blood flow, the hypoxic damage to the brain progresses until it reaches irreversible brain damage and then the irreversible cessation of brain functions.

It just does not seem right to suggest that health professionals should be at the crossroad of having to decide whether to keep fighting for the life of a patient or having to start thinking of organ donation. This over-simplistic, dichotomic decision is just not so. The possibility of organ donation is only suggested when a diagnosis of BD has been achieved or LSTL measures have been implemented. A decision that is always made previously and independently.⁵

In the future we will witness significant breakthroughs in the field of neuroprotection. However, talking about resurrecting a dead brain as the recovery of all of its brain functions is still science fiction. The current diagnosis of death on neurological or circulatory criteria is a safe and unequivocal diagnosis, and organ donation is an option that is considered independently.

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