Heart transplantation after the circulatory death; the ethical dilemma

Dear Editor,

Donors after brain death have been the major source of organ donation due to good perfusion of the organs. However, due to the mismatch in demand and supply of the organ donors and recipients, organ donation after circulatory death determination (DCDD) has increased recently worldwide. Kidneys, liver, and lungs are being used for the transplantation from donors after circulatory deaths (DCDs). Recently, heart transplantation from DCDs has been started, which is under the firestorm of scrutiny by the ethicists. The ethical dilemma revolves around the question if the donors are actually dead when they are declared dead by cardiocirculatory death criteria for organ procurement.

To answer this question, we must ask ourselves if DCDD violates dead donor rule (DDR). DDR states that organ donors must be dead before organs procurement and organ procurement itself should not lead to the death of the donor. Now, the question arises that what is the criterion of death. The biological definition of death requires irreversibility of the death. According to Uniform Determination of Death Act, death is defined as (1) irreversible cessation of circulatory and respiratory functions or (2) irreversible cessation of brain death. Yet, medical practice relies on the declaration of death based on permanent cessation of respiratory and circulatory functions. Irreversibility denotes that if these functions stop, they cannot be restarted, no matter what available technologies are used, whereas permanence refers to the practice that these functions will not recover and they will not restart spontaneously and no medical efforts would be used to restart them.

To minimize warm ischemic injury to the heart, heart DCDD protocols have been devised, which are not entirely uniform throughout various centers. They include (1) minimizing the standoff period, which is defined as the time between circulatory arrest and death declaration, (2) ex vivo perfusion, and (3) the use of organ preservation techniques including extracorporeal membrane oxygenation (ECMO).

Dalle Ave et al. suggested that the heart DCDD protocols do not violate the DDR only if the criterion of death is based on permanence rather than irreversibility. Irreversibility denotes that the function cannot be reversed; however, ECMO can restore circulation long after the circulatory arrest. In addition, it is uncertain that how long we should wait to confirm that the brain’s function has been irreversibly lost. Moreover, they suggested using longer standoff period (minimum of 5 min) to ensure that the possibility of autoresuscitation has elapsed and all brain functions have been lost. Furthermore, the use of any technology that can restart the brain circulation should be forbidden. Thus, ECMO can be used only if the brain circulation has been excluded from the study. In a recent article, Dalle Ave et al. proposed a new term donation after brain circulation determination of death (DBD-DDD), which can be defined as permanent cessation of brain functions, determined by the permanent cessation of brain circulation in cases of circulatory arrest. The patients can provide informed consent on the basis of understanding this criterion of death.

On the other hand, Nair-Collins and Miller suggested the complete abandonment of DDR instead of muddling through and devising a new criterion of death based on permanence. They suggested that after the valid informed consent, the donors should be able to donate vital organs under general anesthesia. This would ensure respecting the patient wishes as well as help in expanding the donor pool. Similarly, Troug emphasized on two points, keeping the patient away from suffering and respecting their choice of organ donation. He suggested that the patients with extensive brain injuries and/or those who have chosen to withdraw life support should be allowed to donate the organs under anesthesia. Hence, we should forgo DDR which is built upon the illusion of bright line between dying process and organ procurement.

The debate remains unresolved. The leaders of critical care, neurology, transplantation communities, and all other stakeholders should come together and try to make a consensus which establishes acceptable boundaries and maintain the public confidence in the integrity of the transplantation practices, keeping in mind their philosophical and religious beliefs.

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