Brainstem Death: Implications in India

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Abstract

Brainstem death and brain death although practically same with regards to the concept of organ donation, remain technically different. Brain death mandates irreversible cessation of all the functions of the entire brain and brainstem while brainstem death signifies irreversible damage to the brainstem. As per the Indian law, brainstem death is the legal requirement and not brain death.

Recently in a big super-specialty hospital in New Delhi, a patient was declared brain dead as per the currently accepted standard criteria followed to make such a diagnosis. The confusion arose when a doctor ordered an EEG as a confirmatory test. The EEG showed some cortical activity and when the patient’s relatives showed this EEG to another doctor in another hospital, he opined that the patient could not be declared brain dead as the EEG was showing cortical activity. The relatives were justifiably confused and angry and sought an explanation for this paradox. Such cases are being increasingly encountered in our clinical settings especially in large super-speciality hospitals where cadaveric organ donation programs are being aggressively pursued.

In India, the Transplantation of Human Organ Bill was introduced in the Lok Sabha on 20th August 1992 and became the Transplantation of Human Organ Act in 1994. This essentially follows the United Kingdom criteria for brainstem death as against the United States criteria where as per the Uniform Determination of Death Act irreversible cessation of the entire brain and brainstem function needs to be documented that is brain death and not brainstem death. The United Kingdom criteria for brainstem death permeate in the previously colonized countries (such as India) while Central and South American countries generally follow the United States position on whole brain death. As per the Transplantation of Human Organ Act of 1994, to make a diagnosis of brainstem death requires a panel of four doctors consisting of the doctor in charge of the patient, the doctor in charge of the hospital where the patient was treated, an independent specialist of unspecified specialty and a neurologist or a neurosurgeon. The burden of proof rests with the specialist of the neurosciences, with the other members confirming the diagnosis. All the four doctors sign each test done to document absence of brainstem function namely pupillary reflex, doll’s head eye movement, corneal reflex (both sides), gag reflex, cough (tracheal), eye movements on caloric testing bilaterally, absence of motor response in any cranial nerve distribution and apnoea test. Reversible causes of coma should be excluded by all possible means namely the absence of any intoxication (alcohol), depressant drugs and neuromuscular blocking agents. Primary hypothermia, hypovolaemic shock and metabolic and endocrine disorders should also be sought for and excluded. Thus in India, it is brainstem death and not brain death which is the legal requirement. EEG is not mandatory nor are other confirmatory tests like cerebral angiography, transcranial Doppler and radionuclide scan. So theoretically it is possible...
that a patient may be certified ‘deceased’, eventhough the EEG may be documenting some cortical activity because in India we are documenting brainstem death and not whole brain death. Confirmatory tests may however be carried out if the panel of doctors is in doubt or disagreement of the diagnosis. This raises two interesting questions. First, if the relatives refuse the donation of organs in a brainstem-dead certified patient, can the life support systems be disconnected and switched off. Second, if the relatives request more time to decide about organ donation during which the cardiopulmonary function of the deceased patient ceases, what time does one record as the time of death. Can one die more than once (first, when one’s brain dies and again later when one’s heart stops).

Unfortunately the Transplantation of Human Organs Act, 1994 does not clearly give any answers to the above two questions. However the United Kingdom criteria (on which the transplantation of human organs act of 1994 is based) provides an answer to the above difficult question where it states that ‘the medical officer will usually speak to the relatives and announce the death. The time of death is recorded as the time when the final test to fulfill the criteria for brainstem death was satisfied’. In the Dority Vs Superior Court of San Bernardino County of USA case the court ruled that “brain activity is a necessary condition to legal personhood and perhaps with the exception of the fetus, it is a sufficient condition for legal personhood. It appears that once brain death has been determined...no criminal or civil liability will result from disconnecting the life support devices.” To the best of our knowledge no such case has been ruled upon by the Indian judiciary but the above case can be quoted in defence of disconnection of life support devices once a patient has been certified as brainstem dead.

**CONCLUSION**

The distinction between brainstem death versus brain death is essential for all physicians whatever may be their speciality. The knowledge of the prevailing law with regards to brainstem death as against brain death in India as also the ambiguity in the law with regards to disconnection of life support devices in a brainstem death certified patient will go a long way in preventing unnecessary confusion and apprehension both on the part of the treating physicians and the relatives.

**REFERENCES**

3. The Transplantation of Human Organs Act, 1994 Republic of India.  