

Organ Donation Rate in Brain-Dead Patients in a Tertiary Referral Center

Sir,

Ever since the first organ (kidney) transplant which took place in the 1970s in India, there has been a little progress in this field.^[1] Awareness about organ donation from brain-dead donors among Indians, and surprisingly doctors, remains limited.^[2] The organ donation rate from deceased donors in India is only 0.26 per million, as compared to 25.6 per million in the United States, 18.3 per million in the United Kingdom, and 32 per million in Spain.^[3]

We present the findings of a retrospective study of patients fulfilling brain death criteria as per the Transplantation of Human Organs and Tissue (Amendment) Act,^[4] admitted over 9 years from January 2009 to December 2017. The objective of this study was to analyze the trend in organ donation from brain-dead patients in a tertiary care referral hospital. The study period was divided into intervals of 3 years each. Of 55 patients who were identified as brain dead, 10 became organ donors. The rate of conversion was noted to increase from 11% in the 2009–2011 interval to 40% in the 2015–2017 interval. The majority of donors were males, with a male:female ratio of 3:1 and a mean age of 58.6 ± 3.6 years. Organ donors were divided into either those with neurological or traumatic causes of brainstem death (BSD) with 24 patients in neurology group and 31 in trauma group [Table 1]. The most common causes of BSD were trauma from road traffic accidents and nontraumatic intracranial hemorrhage. Other causes were hypoxic-ischemic encephalopathy postcardiac arrest, stroke, and trauma from falls.

The average time recorded from injury to certification of brain death was 45.46 ± 6.5 h and from certification of brain death to organ harvesting was 28.26 ± 4.3 h. Organ harvested in all cases was kidneys, liver, and cornea. All the brain-dead donors were optimized using a standard international protocol.^[5] Hormonal

resuscitation was done with methylprednisolone and thyroxin. Hypotension and diabetes insipidus were the commonly observed complications of BSD. These complications were managed with noradrenaline, vasopressin, and desmopressin. The management of potential organ donor in BSD patients is laid out in detail in a recent position statement issued by the Indian Society of Critical Care Medicine.^[6]

Table 2 lists the reasons for not being able to retrieve organs from the BSD cases, the most common being lack of consent from the patients' families and shock with multi-organ failure, and other reasons being discharge against medical advice and infectious diseases.

This study looks at the trends of organ donation in a large Indian city. Most studies on organ donation following BSD have been done outside the Indian setting. Organ donation rates in other studies from India range from 5% to 48%.^[7,8] In this study, the organ donation rate is shown to have risen sharply from 2 of 17 BSD cases (11%) in the earlier part of the study to 4 of 10 (40%) BSD cases in the latter period, which is on par with western countries.^[9,10] This improvement could be attributed to the role of well-trained, around the clock intensive care physicians in diagnosing and managing potential organ donors, in a closed ICU setup. Intensivists play a major role in counseling the family members and implementing standardized protocols in the care of BSD patients.^[11] In the latter years, the appointment of transplant coordinators, to liaise and build rapport with the families of the BSD patients, and the presence of an in-house transplantation team including liver and kidney transplant surgeons have contributed to the improvement in organ donation rates.

A prospective study by Seth *et al.* lists the various reasons for the refusal of organ donation by the patients' families, the most common being lack of consensus among family members toward donation.^[12] Further studies can help in anticipating

Table 1: Causes of brainstem death and number of organ donations over in each interval in the 9 years study period

Study interval	Neurology	Trauma	Total BSD in the study interval	Organ donations (percentage of total BSD in the study interval)
2009-2011	7	10	17	2 (11.7)
2012-2014	12	16	28	4 (14.2)
2015-2017	5	5	10	4 (40.0)
Total (2009-2017)	24 (ICH-13, stroke-8, HIE-3)	31 (RTA-23, fall-8)	55	10 (18.18)

BSD: Brainstem death; ICH: Intracranial hemorrhage (nontraumatic); HIE: Hypoxic-ischemic encephalopathy; RTA: Road traffic accident

Table 2: Reasons for nonconversion of brainstem deaths into organ donation

Cause for nondonation	Number of cases (percentage of total BSD)
Family refusal/discharge against medical advice	24 (43.63)
Unfit for organ donation [Shock with MODS and infectious diseases]	21 (38.18)

BSD: Brainstem death; MODS: Multiple organ dysfunction syndrome

reasons for refusal and the areas to focus on, in improving the conversion rates.

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Conflicts of interest

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