

CADAVER ORGAN DONATION: A PRESSING MEDICO - SOCIAL NEED

What is Cadaver organ harvest?

Death simply means the extinction of life. Since the advent of intensive care support and artificial ventilation, we often encounter today in hospital ICU's patients on ventilation with a beating heart. In the absence of brain stem reflexes, this state is called brain stem death. This state was first recognized as a legally acceptable definition of death by an Adhoc Committee convened in 1968 by the Harvard Medical School to define what constitutes death in a comatose patient on a ventilator. This definition has since been accepted world wide as the basis on which continued supportive measured in ICUs can be discontinued as well as organ harvest can be undertaken.

After brain stem death there is an interval where there is cardiac activity, no respiratory activity - which can be compensated with ventilator support and the visceral organs remain viable . This is a variable period of few days to weeks. During this period many organs can be harvested from the patients to use in transplantation to end stage disease patients with good outcomes. Many organs can be harvested including heart, lungs, liver, kidneys, pancreas, intestine, heart valves, ear ossicles, cornea, bone and skin.

India too adopted this definition of death in 1994 by enactment of The Human Organ Transplant Act. This has been since amended in 2011 with harsher punishments on the one hand, but promoting the cadaver transplant programme regionally as well as nationally. This act sought to clamp down on the rampant illegal human organ trade market in India. It legalized cadaver organ harvest. It also mandated all hospitals with ICUs to record the occurrence of brain stem death and consul the next of kin on organ donation . Also suggested is the setting up of Regional and National Registries to collaborate transplant activity at various centers.

The yawning supply demand gap in transplantation

Today in India we have the dubious reputation of being the world capital of Diabetes Mellitus. Combined with other causes of renal failure like hypertension, stone disease, polycystic kidneys, glomerulonephritis etc, this translates into a large no of end stage kidney disease, needing transplantation. At a conservative estimate only about 5000 patients of more than 200,000 patient pool of end stage renal disease in India can undergo transplant, primarily on account of absence of a suitable donor. There is thus a huge supply demand gap for organs which is increasing every year.

If one simply considers the number of fatal road accidents in India, the figures are astounding. Nationally 1,33,938 patients died in fatal accidents in the year 2010. Of these 2076 deaths occurred

on Delhi roads alone (figs from Mr Satyender Giri, Jt Commissioner Police Delhi in Times of India 25 Jun 2012). If approximately 70% of these patients are considered optimal for transplant this could mean 2800 renal transplant, 1400 liver transplants and 1400 heart/ lung transplants a year. This means that most of the patients awaiting transplants in Delhi NCR may be taken up from this pool, without need for recourse to live related transplant! This is the potential of cadaver transplant that should be looked at in all earnest.

The conduct of cadaver organ harvest and transplantation

On occurrence of brain stem death in the ICU, the transplant coordinator is informed. This diagnosis is confirmed by two sets of tests of brain stem integrity, six hours apart, performed by a team of doctors separate from the transplant team. Blood samples are collected for blood grouping, biochemistry, coagulation profile, viral markers and crossmatching. The exclusion criteria for organ harvest include transmissible viral diseases like Hepatitis B and C viruses, HIV, sepsis, disseminated malignancy, raised serum creatinine and haemodynamic instability. Once final consent is obtained and legal formalities cleared, the patient is wheeled to the operation theatre for multiorgan harvest.

Simultaneously, the hospital and neighbouring centres are contacted to identify and prepare potential recipients. This work need immense coordination between various teams of doctors, coordinators and the patients. The best suited recipients for the various organs being harvested are identified, and admitted urgently for preparation for transplantation. As the best results in cadaver transplant occur within a 12 hour ischaemia periods, all attempts are made to minimize the time between harvesting of the organs and their subsequent engraftment.

The long term graft outcomes are comparable to those with living donors at about 91% for 1yr and 80% for 5yrs.

What needs to be done?

The need of the hour is to sensitise both physicians and citizens of their moral duty to recognise the need for cadaver organ donation. This has to be aggressively promoted through the print media and television channels, direct contact through meetings with doctors and through promotion campaigns with popular social personalities like actors, politicians and bureaucrats. Every hospital ICU should encourage relatives of patients diagnosed with brain stem death to consider organ donation. Posters should be displayed in waiting rooms in hospital OPDS and near ICUs to sensitise people on organ donation. Non transplanting hospitals can collaborate with transplanting centers within Delhi NCR to arrange for organ harvest so that not a single organ is wasted.

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