



Review Article

Perspective on organ donation in India: A comprehensive review

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ABSTRACT

In twentieth century, one of the utmost wonders of medical sciences, which have saved the lives of many patients, is Organ donation. Successful recovery of life saving organs is a multifaceted process that involves a team work of specialists. The present article aimed to review the concept of Organ donation, organ donors, legal aspects, process of pledging organs by an alive person, the current perspective in India and attempts by government authorities to promote awareness about this concept.

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1. Introduction

Sharing the spirit of life is said to be divine. The person donating organ, has a feel of giving life to a fellow human being. Since past, organ donation is considered as act of deed, even supported in our Hindu mythology with example of Lord Ganesha.

The Organ donation (OD) is defined as the process of retrieving or procuring an organ or part of it from a live or deceased person and then, transplanting it into another living person.¹ It has been reported that 25 different organs/tissues can be donated by humans checking psychiatric, and medical fitness of donars.² According to Organ procurement of Transplant Network (OPTN, 2015), the organs donated from one single donor can save up to eight lives.³ The most commonly transplanted solid organs are kidneys, liver and heart, while cornea and musculoskeletal grafts are the most commonly transplanted tissues.⁴ The rate of organ transplantation have increased gradually in the last two decades and give outstanding results in children and young adults, but are challenged by the increasing population of elderly transplant patients with co

morbidity.

2. Various types¹ of Organ Donors

There are three kinds of organ donors:

1. Live donors
2. Cadaveric or brain death donors
3. Natural death donors.

2.1. Live donors

This occurs when a living individual willing to donate his or her organ(s) to someone in need of a transplant. Living donors are usually family members or close relatives of that person who require a transplant. They must fulfill the medical criteria and undergo comprehensive mandatory medical testing as required by the particular circumstance before being accepted as suitable donors.

2.2. Brain death/Cadaveric donors

Brain death is an irreversible cessation of cerebral and brain stem function characterized by the absence of electrical activity in the brain, blood flow to the brain, and brain

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Fig. 1: Showing organ donation process

function as determined by the clinical assessment of responses. A brain dead person is dead, although his or her cardiopulmonary functioning may be artificially maintained for some time. Hence, the organs from a brain-dead individual can be transplanted into the body of a living recipient. The deceased individual in this condition can only be a victim of brain death. This type of transplantation requires the recipient to wait until a suitable organ is available based on the recipient medical condition. The organs that can be donated by a brain death patient includes kidney, heart, liver, lungs, pancreas, cornea, intestine, tissues, bones, skin, and veins.

2.3. Natural death donors

A person after his or her natural death can donate his or her organs e.g eyes.

Previous studies showed that, there is no age limitation with respect to organ removal including newborns and children.^{5,6} The absolute contraindications for OD include viral diseases such as Hepatitis B/C, human immunodeficiency virus (HIV), cytomegalovirus (CMV), syphilis, Ebola virus (EBV), rabies, severe infection/sepsis, active tuberculosis, and progressive malignancy. In one of the development from USA, HIV Organ Policy Equity (HOPE) Act of 2013 has been passed that permits HIV-positive people to donate organs to HIV-positive recipients and utilization of such organs for research purpose.⁷ The outcome status and graft survival have been found to be of similar order as in HIV-negative individuals.

3. Organ Donation Scenario in India

The first organ transplant in India was conducted in the 1970s (kidney transplant),⁸ since then India has made a few strides forward, but a lot more needs to be done. Till date no country in the world able to collect sufficient organs to meet the needs of their people. Croatia, Austria, Spain, USA, Norway, Portugal, France and Belgium stand out as few countries with high rates of deceased organ donors.⁹ Unfortunately, India with a 1.2 billion population is lagging behind in OD with a national deceased donation rate of <1/million population (pmp). However, Tamil Nadu has shown exemplary performance in OD with 1.4 donor pmp.¹⁰ Although India stands in the second place regarding the numbers of live donor transplants undertaken globally after the USA, but stand nowhere in the list of deceased donor transplant.¹¹ Country needs 258,000 organs every year, i.e., 185,000 kidneys; 33,000 livers and 50,000 hearts, whereas only 6000 kidneys, 1200 livers and 15 hearts are transplanted annually (National Organ Transplant Program). India has a fairly well-developed corneal donation, and transplant program however donation after brain death has been relatively slow to take off. In the backdrop of annual demand of 120,000 corneas around 50,000 were collected during the past few years yet <25% could be transplanted due to quality issues.¹²

The cost of OD and transplantation in private sector in India may vary from rupees forty thousand to fifteen lakhs depending on organ involved. Moreover, India is acknowledged as favourite place for foreign nationals seeking high quality low-cost medical care in the world with well-established accredited health system capacity. Also, there have been few instances of organ trafficking in India as leading to resistance/negative publicity, but since then many corrective interventions have been taken to remove this menace. The Government of India promulgated Transplantation of Human Organ and Tissues Act in 1994 and with the view to enlarge its scope and promote cadaver organ donation has brought amendment into legislation (2011) and notification of rules (2014).¹³ Also many diverse and collateral activities have been established under favourable environment of legislation with the stakeholders involvement. National Organ and Tissue Transplant Organization (NOTTO) established at Safdarjung Hospital, New Delhi has been commissioned and has two subdivisions 1. National Human Organ and Tissue Removal and Storage Network 2. National Biomaterial Centre (National Tissue Bank). Regional/ State level organ and tissue transplant institutions would be established in a phase manner at Chennai, Kolkata, Mumbai, Chandigarh and Guwahati in-addition to six cities were AIIMS are established. The NOTTO website <http://nott.o.nic.in> has become functional and various operational guidelines of National Organ Transplantation Program have been released in the domain of public.¹⁴

4. Factors affecting OD in India

4.1. Sociocultural factors

The attitude toward OD is mainly based on humanitarian and altruistic concepts in the Western countries. However, in Asian countries such as India, Japan etc life, death, and life after death are embroiled in concepts of religion, ethics and tenets of spirituality.¹⁵ It is very difficult to initiate a social as well as personal dialog on a subject like OD in these countries. In Japan, also there is no tradition of altruism and it is socially unacceptable to take things from others (receiving organs).¹⁶ Religious concerns may also create barriers toward OD.

4.2. Knowledge, beliefs, and personal values

Horton and Horton's model¹⁷ of factors linked to OD proved that the strongest predictors of OD willingness are knowledge, attitudes and with personal values (including altruism). The public awareness regarding OD in India is extremely low. The notion of "brain death" and legalities associated with it are still not clear to Indians. Lack of knowledge about it has also been noticed among health professionals.¹⁸

4.3. Legal and ethical issues

Various factors have been noted in organ transplantation like consent, financial help to donors and their families and equitable distribution of donated organs.¹⁹ In Indian law, the subclause (3) clause 9 of chapter II states that the unrelated live donation has high likelihood to get misused. This is a prime reason why kidney trade still occurs in India.²⁰

4.4. Participation of Stakeholders' in OD

There exists a discrepancy between the number of potential donors and the actual number of cadaveric donations. This could be because of the reason that the families of potential donors do not adhere or comply with the decision of donors after death.²¹ This leads to the indulgence various nongovernmental organizations (NGOs), religious leaders, civil society, and other stakeholders in creating awareness.

4.5. Financial issues

Other hindrance is the financial incompetency for poor recipients. We commonly observe the request on social media, newspapers and roadside hoardings to help poor patients who need organ transplantation. In India, most of the transplantations are achieved through social contributions rather than by government funding.

5. Organ Wastage in India

Due to lack of awareness and myths regarding OD in India, large number of Indian population do not participate in this noble cause. Below is the data in this context:²²

1. Total 'brain deaths' because of accidents is approximately 1.5 lakhs/annum. Other causes like brain tumours and IC bleed would eventually add more values.
2. In India, total demand of organ donations is: two lakh kidneys, 49,000 hearts and 47,000 livers every year. If only 5%–8% of total brain deaths are harvested in proper manner, there would be no need of organ donations from a living person.
3. In case of heart donation, scenario of organ wastage is even worst. Due to factors like cost and availability of experts, hearts are mostly wasted in India.²³ In the last 5.5 months, with the efforts of National Organ and Tissue Transplant Organization, the utilization of organs and their distribution has improved with much less of wastage.

6. Role of Nurses in OD and Transplantation

Nursing professionals should have a thorough comprehensive and scientific knowledge about OD. This includes the assessment and management of deceased donors, potential donors or live donors, transplant recipients, counselling the live donors and recipients, and self-care management. All these steps are required to improve the post-transplant quality of life. Nurses play a major role in the development of a successful transplantation program.³ They are the main members of OD team that give care to patients by communication, technology and human resources, with proper care, coordination, education and research. Thus, the nurses are required to have proper knowledge about the good ethical principles and should have ample resources to analyse social issues and potential risks for patients related to organ donation and transplantation.

7. Conclusion

Organ donation and transplantation has given new ways in the progress of science and progressive mentality of society. The present review suggests that organ donation in India is still on back foot due to factors like lack of awareness among medical professionals and general public, religious and organizational issues, and legal and ethical problems. In India, the potential for deceased donation is enormous due to a large number of fatal road traffic accidents and this pool is yet to be tapped. Few hospitals and committed NGOs in the country have shown that deceased donation as a feasible option.

8. Source of Funding

None.

9. Conflict of Interest

None.

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