



Assessing the Roadblocks to Organ Donation

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Authors' contributions

This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.

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ABSTRACT

There has been a significant propulsion in the growth rate of organ failure across the globe in the recent times and major contributor for the same is rising graph of non-communicable diseases, especially diabetes and hypertension in developing countries like India. For patients with end-stage organ disease, organ transplantation is the most desired therapeutic option but according to the current estimates, there is a substantial discrepancy between the organ supply and demand ratio as organ transplantation serves only to less than 10% of the global need of organ donations. These figures thereby necessitates the action towards the promotion of organ donation at various levels. Despite massive advancements in the intricate procedure that occurs between organ donor identification and transplantation and overcoming challenges such as a lack of knowledge, financial restraints, and insufficient transplant facilities, there is still a perennial inability to meet the needs of donors across the country. Varying beliefs and cultures reflect different regulations and donation practices among different groups, posing a challenge to the standardized processes. The purpose of this article is to set out the close link between shortage of organ supply, its relation to the various factors contributing to it along with the certain suggestions in which we can counter these challenges. This article also provides a brief overview of the origin and evolution of India's Transplantation of Human Organ Act, in the hope that our experience in drafting legislation governing organ transplantation may be useful to ones who are considering or overseeing this life-saving procedure.

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1. INTRODUCTION

Organ donation involves the removal of healthy organs from the living or dead person, for the purpose of treatment of a diseased individual by replacing the diseased organ with a healthy organ [1]. Organ donation is regarded as a sacred act since it entails the sharing of life's spirit. It has been observed that a single individual can donate up to 25 different organs/tissues post psychological and medical screening and a single donor's organs can save up to a maximum of eight life [2]. The purpose of this article is to set out the close link between shortage of organ supply, its relation to the various factors contributing to it along with the certain suggestions in which we can counter these challenges. This article also provides a brief overview of the origin and evolution of India's Transplantation of Human Organ Act, in the hope that our experience in drafting legislation governing organ transplantation may be useful to ones who are considering or overseeing this life-saving procedure.

Who is an organ donor?

According to the definitions [3],

Donor: an individual who has had at least one organ obtained for transplantation, irrespective of if the organ has been transplanted or not.

Potential donor: Patient with irreversible brain trauma who appears to be medically fit for organ donation and may satisfy Brain death criteria.

Eligible death: Dead individual 70 years older or younger than this, who has been legally pronounced as brain dead as per hospital protocol and did not meet the OPTN policy's exclusions.

Organ donors are broadly divided into three categories:

1. Living Donors (Donors who are alive).

Living donors who are eager to donate one or more of his or her organs can donate them to those in need of it. The recipient individual in the majority of these donations is either a member of a family or an acquaintance.

2. Deceased / Cadaver Donors (Donors who have died as a result of brain or cardiac death).

Patients who are died as a result of brain death or cardiac death and satisfy the respective neurological and circulatory criteria are also considered as potential donors.

3. Deceased Donors (who have died naturally).

Individuals dying due to natural reasons can also donate their organs.

Organs that can be donated:

Following the medical evaluation, approximately 25 various organs (ovary, uterus, kidney, pancreas, lung, heart, and liver) as well as tissues ,(cartilage, marrow, tympanic membrane, cornea, bony fragments, arteries, and other circulatory vessels, limbs, and other musculoskeletal structures along with blood and blood products for transfusion process), can be considered for donation. A person can survive with 1 kidney and 1/2 of the pancreas, and even if they donate 3/4 of his or her liver, it grows back to its previous size within six weeks [4].

Organ donation process:

There are mainly two methods for registering for donating the organs:

1. By committing to Organ donation, while a person is still living.

A person can make an Organ donation pledge by signing out a donor application in front of two witnesses, one of whom must be a close relative.

2. After death, with the approval of his or her family.

Family members can donate a person's organs if he or she dies without being registered. They must sign a consent document for the same, which is given to them at the moment, and organs are collected within the next few hours [4].

All this is followed by an organ transplantation process, which goes as:

To begin with, firstly the diagnosis or confirmation of the death is established using

neurological and circulatory criteria in the brain and cardiac dead patients respectively. This is followed by referral and medical evaluation of the patient. Then certain investigations are done to match the donor with a suitable recipient of his or her organs and after this, the organs are removed surgically from the donor's body. The retrieved organs are then preserved and transported for transplantation surgery [5].

Current organ donation scenario:

According to the current statistics available, Australia has 11 organ donors per million, Britain has 27, Canada has 14, Spain has 35.1 donors and the USA has 26 donors per million whereas India has only 0.08 donors per million population. Currently, no country in the world gathers enough organs to meet the demands of its population for organ transplantation [1,6,7].

India, with a population of 1.2 billion people, is trailing behind in terms of organ donation, with a nationwide deceased donation rate of 1 per

million people. Only 6000 kidneys, 1200 livers, and 15 hearts are harvested annually to meet the demand for 260,000 organs, i.e. 180,000 kidneys, 30,000 livers, and 50,000 hearts. Tamil Nadu, on the other hand, has achieved commendable results in organ donation, with 1.3 donors per million people, and this Tamil Nadu model is benefiting both poor and wealthy people from India as well as from other countries [8].

Based on the organ to be transplanted, the expense of OD and transplantation in India's private market might range between Rs. 40,000 to Rs. 15 lakhs. Furthermore, India is regarded as a destination of choice for overseas nationals wanting optimally priced good healthcare services in a country with a very well-authorized healthcare system. In addition, there have also been a few episodes of organ smuggling in India that have resulted in opposition or unwanted headlines, but various remedial initiatives have indeed been implemented so far to eliminate this threat [2].

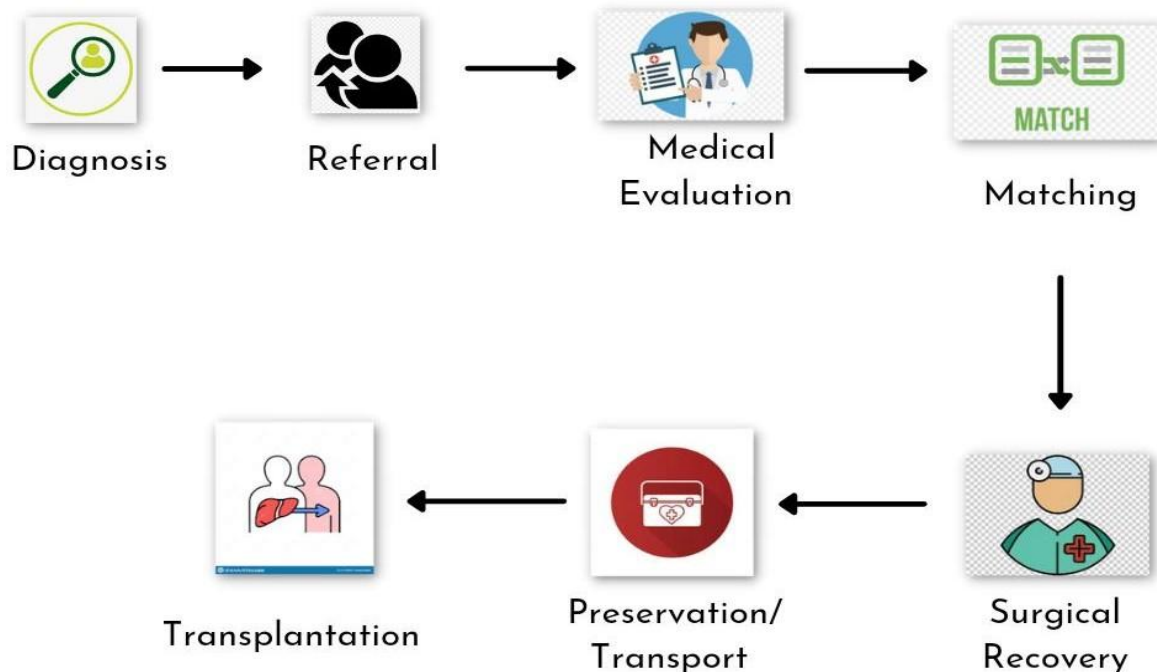


Fig. 1. Steps in transplantation

2. SOCIETAL AWARENESS AND PERCEPTION REGARDING ORGAN DONATION

Lack of public awareness and proper understanding, as well as the prejudices, myths, and preconceptions around organ donation due to religious and cultural hurdles, are some of the factors contributing to India's organ scarcity.

Other specific reasons for skepticism about organ scarcity include:

1. Apprehension about being surgically maimed.
2. Lack of knowledge and misinterpretation of the idea of brain death.
3. Fear of declaring a patient dead prior to death.
4. Socio-cultural beliefs such as the desire to be entirely buried/burned, reincarnation without a missing organ, and so on.
5. Psychological aversion to sharing an organ with another person.
6. Lack of skilled transplant coordinators and counselors.
7. Perception of organ trafficking as an abuse of organs and a dearth of organizational transparency.
8. Substandard hospital infrastructure, logistical staff, functional connectivity, and support system [4].

3. FACTORS IMPEDING ORGAN DONATION ACTIVITIES

There have been numerous factors challenging organ donation and transplantation throughout history. Despite the fact that many of these obstacles have been overcome over the years, still, most of them persist. Some of these factors are discussed hereby:

A. HINDRANCE DUE TO SOCIO-CULTURAL BELIEFS

The concept of an afterlife in India is intertwined with ethics, religion, and spirituality. Many superstitions, which still exist today, contribute to an unfavorable attitude toward organ donation. Some common beliefs include rebirth with a deficient organ (which has already been given) and also that fiddling with the anatomy will hamper the liberation of their dead family member's soul from the cycle of life. Thus, making it extremely tough to at least begin a dialogue about donating an organ in India, especially in the instance of a brain-dead donor [9].

B. INADEQUATE INSTITUTIONAL SUPPORT

A huge obstacle to the deceased Organ donation program is the paucity of a significant range of transplant centers having professionals, along with the transplant coordinators who are suitably

trained and proficient in the techniques necessary for operating an organ donation program. The unavailability of quality hemodialysis programs, investigational studies, and efficient national healthcare coverage is also a concern. There seems to be no defined methodology for pronouncing brain death in many hospitals. A few of these also lack efficient transplant coordinators who can empathize with the families of brain-dead and other prospective organ donors to obtain their permission for organ donation [10].

C. Death: a taboo subject for organ donation

Unwillingness to contemplate what will happen to their body after death also hinders a person from consenting for organ donation before their death thereby putting the family members in blind about their deceased relative's intentions about the same. As a result, well-informed donors are desperately needed, who is willing to donate their organs and is well-versed with the idea of "brain death" and the processes involved in organ donation [11].

To counter these apprehensions, Public campaigns that boost interpersonal communication concerning brain death and organ donation can be seen as a tool to build community representations capable of encouraging behaviors that promote organ donation and transplantation. Accepting the status of brain death is also necessary in order to be willing to give one's organs.

Brain death is defined as irreversible loss of all brain functions, including the brainstem [12].

D. DEARTH OF KNOWLEDGE AND AWARENESS

The main determinants of Organ donation willingness are knowledge, beliefs, and personal convictions, according to Horton and Horton's model. In India, public knowledge about Organ donation is fairly low. Indians are still perplexed by the concept of "brain death" and the legalities surrounding it. It has also been observed that health practitioners also have a lack of awareness regarding the same.

E. RELATIONAL INFLUENCES AND TIES

Family's perspective frequently molds people's attitudes toward organ donation, and it can

impact an individual's decision both favorably and unfavorably.

Some felt compelled to seek approval from members of the family while, Organ donation, according to others, would obstruct their family's grieving process.

Although some patients, who wouldn't have consented to posthumous donation or living donation to someone they didn't really know, are often ready to voluntarily donate an organ for a member of the family or an acquaintance [13-17].

F. FINANCIAL CONCERNS

Another stumbling block is impoverished recipients' financial incompetence. We frequently see requests for donations on media platforms, in the newspaper, and on the wayside, billboards to support underprivileged individuals in the need of organ transplants. The majority of transplants in India are funded through societal contributions instead of government funds [2].

All of the factors that influence organ donation, as outlined in this article, point to the current state of organ wastage in society. Statistical figures highlighting the same are, an annual number of "brain fatalities" due to accidents is estimated to be over 1.5 lakh. Every year, India's overall organ donation demand is two lakh kidneys, 49,000 hearts, and 47,000 livers. There really is no need for living organ donors, even if organs from 5%–8% of total brain death patients were retrieved properly. The problem of organ wastage is even worse if seen in the context of cardiac donations [2].

4. LEGISLATION AND ORGAN DONATION

On August 20, 1992, the Transplantation of Human Organs Bill was introduced in the Lok Sabha and the same was passed in 1994.

Even yet, it has failed to make a long-term difference in the country's cadaveric organ donation situation. However, the Transplantation of Human Organs Act has recently been amended to incorporate the following revisions in order to widen its scope:

1. If the number of transplants conducted at the respective transplantation centers is 25 or more per year, an authorization

committee headquartered at the hospital will grant approval; if the number is less than 25, an authorization committee at the state or district level will grant approval (s).

2. No member of the authorization committee will be a medical professional involved in the transplantation team.
3. Requesting families of brain dead patients for Organ donation is required by the intensive care unit (ICU)/treating medical team.
4. Organ swap donations between close relatives are permitted.
5. If a foreign national is a donor or a receiver, procedures for them are notified.
6. Development of National level Organ extraction, Banking, and Transplantation Network.
7. Upkeep of a list of those individuals who are donating the organs and the ones who are awaiting the transplants.
8. All Organ donation and transplantation-registered hospitals must have a "transplant coordinator" on staff.
9. Each recognized transplantation Centre is required to maintain its website. The identities of those on their database should not be made available to public.
10. Within 24 hours of holding the meeting, the authorization committee must make a final judgment on whether to provide approval for transplantation or not. For organ procurement, sharing and transplantations, the link should be created between the transplantation Centre's website and state/regional/central networks through an online platform.
11. According to the specifications issued by the respective administration of state and union territory government, the beneficiary, institution, government, non-governmental organization, or society may bear the costs associated with the maintenance of the cadaver, organs or tissues procurement, their preservation and shipment [18-19].
12. Complete procedures concerning quality standards, screening of donor, doctor/transplant coordinator certification and expertise, laboratory data, hardware, recordkeeping, and other prerequisites, among others, should be conveyed.
13. Retrieval and transplant centre's accreditation and reauthorization is provided [20-21].
14. The phrase "close relatives" is defined to encompass from grandparents to grandchildren.

15. Eye or cornea extraction supervised by a qualified technician.
16. The board of certification for brain deaths has also been simplified for certify in the brain deaths. It's also worth noting that in the event that a neurosurgeon or neurologist is unavailable for brain death certification, a surgeon or a general physician or an anesthetist can be recruited in the medical board [4].

5. CONCLUSION

According to the proposed review, in India organ donation is still on the decline due to causes such as hindrance due to socio-cultural beliefs, inadequate institutional support, Death being a taboo subject, relational influences and ties, and lastly financial concerns. A substantial portion of India's populace does not join in this great cause due to inadequate knowledge and misconceptions concerning Organ donation. Even in the twenty-first century, organ donation continues to counter numerous problems at both the community and personal levels.

But, in a setting of dynamic bureaucracy, system preparedness, technological expertise, and a plethora of organs coupled with the increased enthusiasm, positive outlook of healthcare professionals, open dialogue, guidance, and effective collaboration of various entities, the graph representing Organ donation and transplantation scenario in the country will revert from lower to higher and might even offer an additional functional model to the rest of globe. Although some elements of organ donation, such as ethics, cost-effectiveness, and fraudulent activities, will be always debatable.

CONSENT

As per international standard or university standard, Organ donar and their family member's written consent has been collected and preserved by the author(s).

ETHICAL APPROVAL

It is not applicable.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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