

Review Article

Body donation in India: a review

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ABSTRACT

The study of anatomy is inseparable from cadaveric dissection. However scarcity of cadavers is felt all over the world. Body donation is the preferred and major source of cadavers worldwide. It is defined as an informed and free act of giving one's whole body after death for medical education and research. This article gives a brief review of history of body donation. It reveals the details about who can donate and who can accept the body along with procedure followed to donate body in India. It discusses the donors' attitude behind body donation and factors preventing people from body donation. It deals with approach of various religions towards body donation. It discusses some important ways to overcome the scarcity of bodies in India and the world.

Keywords: Gross anatomy, Cadaveric dissection, Body donation, Body bequest

Body donation is defined as an informed and free act of giving one's whole body after death for medical education and research.

IMPORTANCE OF BODY DONATION

Anatomy, the study of structure of human body is one of the first, most basic and yet one of the important subjects studied by medical students. Teaching and research in anatomy is mainly based on cadaveric dissection. It helps a student to learn topographic localization of organs of body. It helps in developing a spatial and tactile appreciation for the fabric of the human body that cannot be achieved by prosection or computerized learning aids alone. Attitude developed during dissection may influence interactions with future patients and families. Hence dissection on cadavers is a landmark, to recognize emotional issues that students may confront and to guide them towards becoming humane physicians.¹ Aside from their being dissected in anatomy classes, cadavers are also used for practicing surgical skills and developing new surgical techniques.^{2,3} A sound knowledge of

anatomy is essential for an efficient general practitioner. It is also required for competency of supporting and technical staff of patient treatment and care. Body donation is the major and preferred source of cadavers worldwide.³⁻⁵

HISTORY

The history of body donation can be traced long back to *Puranas*, the Hindu religious literature which narrates a story of Vrutasoor, the troublesome demon, of whom the Gods and the mankind wanted to get rid of. On the request from Lord Indra, the great sage Dadhichi, by his power of *yoga*, left his body. His bones were utilized to make the weapon- *Vajra*, using which the demon was killed. This may be considered as the first body donation in the world.

In ancient India, Sushruta dissected human body in about 500 BC.⁶ In Europe, the concept of dissection for acquiring knowledge about the structures of human body was started in 15th century when barber-surgeons used to

demonstrate various structures at the professors' command. Andreas Vesalius (1514-1564) was the first medical student to dissect the cadaver and also continued with it even as a professor.⁷ Slowly and steadily importance of dissection was realized. When the practice of hands-on anatomical dissection became popular in United States medical education in the late 18th and early 19th centuries, demand for cadavers exceeded the supply. Slave bodies and thefts by grave robbers met this demand. Enslaved and free African Americans, immigrants, and the poor were frequently the target of grave robbing. Slave owners sold the bodies of their deceased chattel to medical schools for anatomic dissection.⁸ In United Kingdom, the Murder Act 1752 permitted the use of corpses of executed criminals for dissection. However, by early 19th century, with rise of medical science and with reduction in number of executions, there was increased demand for cadavers. The Anatomy Act was passed in Massachusetts of America in 1831. In U.K., Anatomy Act was passed in 1832 which permitted the donation of the body of the deceased by his kin. It also permitted the use of unclaimed bodies for dissection. Thus donation of body to science was unheard till 1832 when utilitarian philosopher Jeremy Bentham's body was donated. The act was repealed by Anatomy Act 1924, which was in turn was repealed by Human Tissue Act 2004.⁹

In India, the Anatomy Act was enacted in 1948 to provide unclaimed bodies of deceased persons to hospitals and medical and teaching institutions for the purpose of anatomical examination and dissection. It has been uniformly adopted in all its states.¹⁰ In Maharashtra (old Bombay State) the Anatomy Act was adopted as Bombay Anatomy Act 1949. According to section 5(1) and (2) of this act, 'Where a person under treatment in a hospital whether established by or vesting in, or maintained by the State Government or any local authority, dies in such hospital or a person in a prison and his body is unclaimed, the authorities in charge of such hospital or prison shall with the least practicable delay report the fact to the authorized officer and such officer shall then hand over the unclaimed body to the authorities in charge of an approved institution for any therapeutic purpose or for the purposes of medical education or research including anatomical examination and dissection'.

The section 5(3) of the law states that 'Where a person having no permanent place of residence in the area where his death has taken place dies in any public place in such area and his body is unclaimed, the authorised officer shall take possession of the body and shall hand it over to the authorities in charge of an approved institution for the purpose specified in sub-section (1).¹¹

The act was further amended by the state legislative council in 2000 to permit donation before death of one's body or any part thereof, after death by a person, to a hospital, and medical & teaching institution for therapeutic purpose, medical education and research.

India first experienced of body donation in the year 1956, when the body of Pandurang Sridhar Apte was donated to B. J. Medical College Pune.⁶

WHO CAN DONATE THE BODY?

According to Bombay anatomy act section 5 B (1) 'If any person either in writing at any time or orally in the presence of two or more witnesses during his last illness whereof he died has expressed a request that his body or any part of his body be given to authorities in charge of an approved institution for being used after his death for therapeutic purposes or for the purpose of medical education or research including anatomical examination and dissection, the person lawfully in possession of his body after his death may, unless he has reason to believe that the request was subsequently withdrawn, authorise the removal of the dead body or such part thereof to any approved institution for use in accordance with the request'.

Section 5B(2) further states that ' Without prejudice to the provisions of sub-section (1), the persons lawfully in possession of the body of a deceased person may authorise the removal of the whole body or any part from the body for use for the purposes specified in ,sub-section (1) unless such person has reason to believe-

(a) that the deceased had expressed an objection to his body or any part thereof being so dealt with after his death, and had not withdrawn such objection; or

(b) that any near relative of the deceased objects to the body being so dealt with.¹¹

Thus, age, sex, caste, religion, socioeconomic status does not prevent an individual from body donation.

WHO CAN ACCEPT THE BODY?

Any hospital, medical or teaching institution which has been approved by the state government for medical education, research or treatment can accept the body.

PROCEDURE TO DONATE THE BODY

1. Fill the willingness form available in the approved institution. Body can be donated even if the form is not filled.
2. Make the next kin or near relative aware of your will.
3. After the death of the donor, the next kin / near relative should bring the body to the approved medical institution, preferably within 3 to 5 hours.
4. Following documents are essential to donate a body:
 - a. Death certificate-issued by registered medical practitioner/ hospital.

- b. Disposal permit-issued by local governing authority e.g. Municipal corporation.
- c. Application by next kin/ close relative.

SUITABILITY OF A BODY FOR DONATION

As donated body is going to be used to study normal structure of human body, some of the donated bodies may not be suitable for usage and hence liable for rejection. Some frequent reasons for rejection of the body are-

1. Body of a medico legal case (e.g. Suicide, homicide, accidental death etc.).
2. Postmortem bodies.
3. Body of a person having contagious / communicable disease g. HIV, AIDS, Tuberculosis, Hepatitis B & C, Gangrene etc.
4. Decomposed body.
5. Extreme obese / emaciated body.
6. Body with organs removed (except eyes).
7. Body of a person with skin diseases like psoriasis, bedsores etc.

The medical institute has a right to reject the body for any other reason. The decision, whether to accept or reject the body is taken by the medical institution at the time of donation. Even though willingness form is filled by the prospective donor, the execution of donation is not mandatory for both - the donor as well as recipient (the medical institution).

CURRENT SCENARIO

Although whole body donation is extremely important for medical education, the number of persons who choose to donate body remains low. Hence scarcity of bodies is felt all over the world.^{4,10,12} The situation is equally affected in India, too. In a survey carried out by present author in some of the medical colleges in Maharashtra (India), a gross insufficiency of cadavers was found in 90.90% of medical colleges.¹³ These include not only the colleges run by private managements but also those run by the state and central governments. 18.18% of the surveyed colleges did not receive a single cadaver by donation in last 5 years. In 63.63% of these colleges, the numbers of cadavers available were less than half of the requirement during 2006 to 2010. These institutes have to rely on the unclaimed bodies, which have also proved to be a poor source of cadavers.

FACTORS AFFECTING BODY DONATION

Few researchers have studied the factors affecting the willingness to donate the body. These are race, ethnicity, demographic factors, awareness about body donation, age, sex, education, occupation, income, attitude about religion, spirituality, marital status, number of dependents.^{12,14,15} Boulware et al (2002)¹⁶ has observed that African -Americans, older age, lower education, lack of insurance, unemployment, co morbid conditions and religion/spirituality were associated with less willingness to donate cadaveric organs.

Age is associated with willingness to donate one's body. Various researchers have shown that the people from young age are more willing to donate body than those from old age.^{13,14,16,17}

Likewise, the gender- males are more inclined towards body donation than the females- has also significant association with the willingness to donate the body.^{12,13,17,18} Educated class is more prone towards body donation than the non educated one. Studies have shown that individuals with lower education are less willing to donate cadaveric organs.^{16,17} Religion does have significant association with body donation. Boulware et al (2002)¹⁶ recorded that the donors concerns regarding their religious beliefs and spirituality is responsible for low cadaveric donation rates. Data of religion of people who donated their bodies from Sassoon General Hospital Pune showed that 91% of them were Hindus.¹³

DONORS' ATTITUDE TOWARDS BODY DONATION

Most of the bodies are donated with altruism.¹⁰ The most common reason for making a body bequest is to aid medical sciences and express gratitude to the medical profession.^{5,19} ThMcClea and Stringer (2010)²⁰, in a study about profiles of body donors in New Zealand, recorded that 90% of the donors donate their bodies primarily to aid medical science and teaching. Bolt et al (2010)²¹ revealed the three principal factors motivating Dutch people for body donation viz. a desire to be useful after death, a negative attitude towards funeral and expression of gratitude. Similarly, reasons cited by prospective Indian donors for body bequest are - the body should be utilized for mankind's benefit than being burnt after death; for medical education; as a way to express gratitude towards society and service towards the society.¹³ In addition, the wish to avoid funeral ceremonies, to avoid waste, and in a few cases, to evade the expenses of a funeral have also been reasons which makes a person to donate his body. The notion of monetary incentives to promote donation was overwhelmingly rejected.²⁰⁻²²

FACTORS RESPONSIBLE FOR 'NO BODY DONATION'

Though body donation is the preferred and major source for cadavers, the proportion of general population willing to donate body is meager.²²

Most important reason for 'no body donation' in Indians is lack of awareness. Only 22 % of general population is aware that body can be donated.¹³ Another major hindrance in body donation is spirituality and religious beliefs. Majority of them want to get performed the last rituals on their body as per their religious belief. The fear that the body may not be treated with respect and dignity is also an important factor preventing one from body donation.^{13, 17, 21} Medicos, in addition, cannot accept the concept of dissection of their own body. The other reasons cited for 'no body donation' are love for one's own body, fear that the organs may be sold and the fear that the body may not be used for the right cause. Alashek et al (2009)¹⁷ noted that the barriers to cadaveric donations in Libyan population were lack of adequate knowledge, unease about body manipulation and concerns about religious implications. It has also been noted that although anatomists encourage cadaver donation, the attitude of anatomists towards donating their own bodies for dissection is not well known. Only 15.7% anatomists in Turkey are willing to donate their bodies.⁴ The main reasons cited by these anatomist in Turkey for 'no body donation' are - unacceptability for getting dissected by colleague, the unacceptability of donation by family, the anxiety of disrespectful behavior to cadavers and religious belief.⁴ Organ donation is preferred over whole body donation not only by general population but also by medical fraternity.^{13,23}

RELIGION AND BODY DONATION

Almost all religions in the world support and encourage the act of donation. However the decision is left to personal conscience.

The Hindu religion believes in the theory of incarnation. It preaches that though the body is mortal the soul is immortal. It changes body in each birth. Thus it undermines the importance of body, and thus indirectly supports the concept of donation of ones' own body. Hindu mythology has many stories in which parts of human body are used for the benefit of other humans and society. Islam believes in the principle of saving human lives. The majority of Muslim scholars belonging to various schools of Islamic law has invoked the principle of priority of saving human life and has permitted the organ donation as a necessity to procure that noble end. Buddhists believe that organ and tissue donation is a matter of individual conscience and place high value on acts of compassion. It honors those people who donate their bodies and organs to the advancement of medical science to save lives. Similarly almost all churches of Christians support the concept of organ and tissue

donation. Catholics view organ and tissue donation as an act of charity and love. Pope John Paul II has stated, 'the Catholic Church would promote the fact that there is a need for organ donors and that Christians should accept this as a challenge to their generosity and fraternal love so long as ethical principles are followed'.²⁴

People are often unaware about the preaching of their religion and hence may be misled by superstition/misreading of religious texts. Many Hindus believe that after death, if proper religious rituals are not performed on the body, the soul of the deceased do not get *Moksha* (freedom). Such religious rituals can be performed symbolically on dough- doll.

HOW TO IMPROVE THE SITUATION?

Organized efforts are needed to raise the awareness about body donation and change the mindset of the society towards body donation. 'Body donation programme' should be designed. The various reasons cited for 'no body donation' should be taken care of. Body donation cells should be made mandatory for all medical colleges for effective implementation of the programme. Awareness campaigns need to be started using electronic and paper media. The 'holy' dimension of the word 'donation' may be stressed during these campaigns. Alashek et al (2009)¹⁷ suggested that the public educational campaigns should be coordinated with religious leadership. Broad publicity should be given to the body donations done by political & religious leaders and other popular public personalities. The donors and their families may be given social honor, recognition and appropriate incentives like health care facilities. Due assurance should be given to prospective donors that their bodies will be treated with respect and dignity. To ensure respectful treatment to the cadaver from students, the invaluableness of donated bodies and the feelings of the donors behind body donation should be stressed on students' mind. The practice of honoring the cadaver at the commencement of medical course session and dissection, by students and teachers, as is followed in Korea²⁵ and Thailand²⁶ may be followed elsewhere. The remains of the cadaver after use should be disposed off as per the will of the donor. Proper guidance and assistance about body donation should be easily available for the willing people. Appropriate counseling of the next kin of the donor to honor the will of the donor should be done. The next kin/close relatives are also needed to be convinced for donation of the body of their near and dear ones. The NGOs and social workers can play an important in this field. Some of the medical colleges in India receive cadavers more than required. Hence, appropriate legal measures should be undertaken to permit the transfer of cadavers from one state to other as well as from one medical college to other. So also, inter-college cooperation should be emphasized.

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