LIFE CAN BEGIN AFTER DEATH

Jaiswal Ashish1 Jape Ravindra2 Bhagwat Sachin3 Karle Geetanjali4 Kale Suvarna5 Sangode Nimesh6 Gaikwad Avinash7

ABSTRACT:
Donation of organ is much essential to save life of recipient. These organs can be achieved by living or deceased body. However there are certain legal terms ethics processes should have to follow during organ donation. Organ donation improving quality of life and reducing morbidity and mortality. Today most organ transplant are relatively safe procedures no longer considered as experiment but considered as a treatment option for thousands of patients with medical indication such as those suffering from renal failure, heart disease, respiratory disease, cirrhosis of liver. Intensive fungal infections are major cause of death in organ transplant patients. organ transplant is a safe procedure that gives new hope and new life when dealing with this issues it should not be forgotten that this is a decision of life and death where decision is made on who lives, who dies and why this issue is also regarding real people who are suffering and decision made based on good ethics and proper understanding of social religious aspect will facilitate and make the process less painful. Both community and physicians should therefore approach organ transplant positively and treat social and religious issues as “Negotiable” perspectives and not barrier to organ transplants. After completion of this article reader should able to know legal process of organ transplant how will organ donor which part of body can be donated.

Key Words: Organ donation, Organ transplant, Body donation.

INTRODUCTION:
Transplants are most miraculous achievements of modern medicine. They depend entirely on generosity of donor and their families who are willing to make this life saving gift to others. Tragic accident and terminal disorders are often the source of many deaths it becomes choice of person or family to greatest gift of life to another person. organ is defined as a unit in the body with special function usually constructed from several different types of tissue, human being only has one of some organs and the organ function can be crucial to maintain life.[1] Organ transplantation improve the quality of life and increases life expectancy of patient with end stage organ failure.[2]Organ transplantation have gradually ameliorated in the last two decades and usually provide excellent result in children and young adults, and are increasingly challenged by growing proportion of elderly transplant patients with co morbidities. Renal transplantation increases patient survival over dialysis and lifesaving transplants are in dispensable to treat patient with heart–liver-lung irreversible diseases. Organ transplant program activity has been steadily growing. [3] Gender and race are not factors in determining a successful match, the living donor must first undergo a blood test to determine blood compatibility with the recipient decision to become a living donor is voluntary one and the donor may change his or her mind at any time during the process the donor decision and reason are kept confidential.[4] Now a days development of immunosuppressive drug increases survival rate of organ recipients.

DAAN
Act of giving something without expectation of return is known as daan. There are various types of daan like vidyadaan, netradaan, annadan among all types of daan. Organ donation [daan] have its specific importance.

HISTORY
First Indian surgeon Sushruta in 2nd century B.C. used auto grafted skin transplantation in nose reconstruction.

The first organ which has successfully transplanted was kidney in 1954.

1-7PG Scholar, 2Prof. & HOD., 3Reader, 4Assoc. Prof. 5-6Asst. Prof. Department of Public Health Dentistry. 7Reader, Department of Rachana Sharira, C.S.M.S.S. Ayurved College, Aurangabad Maharashtra.

Corresponding author email address: jaiswalashish187@gmail.com

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First heart liver pancreas was successfully transplanted in 1960.

First lung and intestinal transplant are done in 1980.[6]

ETHICS

Ethics of organ transplantation premised on dead donor rule which states that vital organ should be taken from person who is dead.[7]

TRANSPLANTATION

Grafting of any human organ from any living or deceased person to some other living person for therapeutic purposes.

Recipient - Person who receive organ

Donor - Person who donate organ

List of organ that can be donated:[8] Heart, lung, liver, kidney, heartvalves, eye, cornea, intestine, pancreas

Tissue that can be donated: Skin, bone, veins, cartilage, tendon, ligaments, stemcell, blood, blood platelet

Diseases- Patient of cancer DM, AIDS, Liver diseases, infectious disease is not fit for to donate any organ.

PRESERVATIVES

- Simple cold storage[SCS]
- Hypothermic machine perfusion[HMP]
- Non hypothermic machine perfusion[NHMP]
- Oxygen persuflation [ OP]
- Ice cold preservative- solution flushed into organ this starts process of preservation [9]

LEGAL PROCEDURES

THO ACT 1994

AIMS: Regulating storage removal transplants human organ for therapeutic purposes, preventing commercial dealing of organs.

According to 1994 act. Unrelated donor have to file an affidavit in court of magistrate stating that organ is being donated out of affection, later donor have undergoes few tests before transplants. [10]

Punishment- removal of organ without authority shall be punishable with imprisonment which extend upto 5 year and fine 10,000rs.

ROLE OF AC (Authorized Committee)

Purpose of this body is to regulate process of authorization to approve or reject transplants. committee scrutinized recipient and donor by personal interview and information about approval or rejection send by email to concern hospital and also checked all supplied documents.

ROLE OF AA (Appropriate Authority)

To regulate removal, storage, transplantation of human organ the power of AA include inspecting, grafting, registration to hospitals enforcing the required standard for hospitals conducting regular inspection of hospitals to examine quality of transplantation and follow up medical care of donor-recipients. AA Issues a license to hospital for period of 5 years. At a time, each organ required separate license. [11]

IDEAL DONOR

- Good in overall health
- Older than 18 years and younger than 55 year
- Have normal B
- Free from alcoholism, HIV infection, Hepatitis B or C, cancer.[12]

CROSS MATCH

Checking for match – blood and tissue type of donor – recipient is checked to ensure that they are compatible. People are same ethnic group more likely to be closed match. [13]

Types of donation

There are three different ways to donating organs.

1. Donation after brain stem death - Most organ donation from brain stem death, where brainstem death following severe brain injury, circulation and artificial ventilation.

2. Donation after cardiac death - Donation after cardiac death mostly occurs few minutes of heart stopping, otherwise organ will damaged by lack of oxygenated blood. eg. eye donation

3. Living organ donation this type of donation, donor is usually blood related [parents] eg kidney donation[14]

Process

There are three important things you need to do

1. Register your decision
2. Inform and discuss with your family
3. Always carry your donor card

By pledging for organ donation when person is live by consent of family after death, person filling up donor form get it sign by two witness and send via email. After that donation center provide organ donor card registration. If person expires without registration family member can donate his organ. For this they need to sign consent form which provided at that time. Transplant coordination team carries out entire process till relative receive body of deceased.
Various countries organ donation

Israel - 2008 signing as organ donor card in Israel has provided a potential medical benefit to the signer. If two patients require an organ donation and have the same medical need preference will be given to one that had signed an organ donation card.

Sri Lanka - Eye donation society a non-governmental organization established in 1961 has provided over 60,000 corneas for corneal transplantation for patient in 57 countries, it is one of the major suppliers of human eyes to world with supply of approximately 3000 cornea per year

India - India has fairly well developed corneal donation program however donation after brain death has relatively slow to take off, most of transplant in India are living related or unrelated transplants, to promote organ donation government enacted the law called “Transplantation of human organ Act “in 1994

China - More than 2 million people need for organ transplant in China 50,000 waiting in Latin America (90% of which waiting for kidneys)

Organ transplantation in china has taken place since 1960’s and China has one of the largest transplant programs in world peaking at over 13,000 transplant year by 2004

<table>
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<th>A.P.</th>
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<td>388</td>
<td>113</td>
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Organ donation in India - 2013

Most of the deceased donation programmes has been developed in southern state of India, various such are as follows.

A.P. - JEEVANDARSHAN PROGRAMME

Karnataka - Zonal coordination committee of Karnataka for transplantation

Maharashtra - zttc in Mumbai

Tamilnadu - Cadaver transplant programme

Shortages - Currently more than 1 lakh people waiting for organ transplant yet there is shortage of donors, over the year people all over the world have stopped registering to e an organ donors, causing many people die each year the shortage of organ have increased because of criteria among certain organs.

Recovery - Depending on organ transplanted recovery is expected to take between 6 weeks & year, you will be given immune supressive medication to prevent rejection of transplanted organ if person receive liver transplant he will need to take the immunosuppressant for the rest of his life an organ transplant is considered a success after 1 year.

Success Rate

The success of transplants depends on the recipient’s immune system healing process & overall health. It also depend on circulation of organ attached to the vessels so it can thrive & function as part of its new system the overall success rate for a one organ transplant is about 80% the most successful transplanted organ is the kidney with success rate 90% while lungs have highest rejection rate of all organ with success rate of 5%. Rejection happen especially in older people with multiple medical problem & people who had multiple organ transplant rejection happen far less with the advanced medical technology today & medication are given that reduces the enhances of rejection.

Cross Match

Blood Test - shows whether your body will reject the donor organ immediately it will mix a donor blood with your blood to see whether your antibodies attack the antigens of the body, if they are attack you are not a good match with the donor.

Blood Type - This Blood test shows which type of blood you have your blood type should be compatible with organ donors blood type, but sometime it’s possible to transplant an organ from a donor with a different blood type.

Tissue Type - This test shows the genetic make up of your body’s cells. The result of this test will be used to match with an organ donor the more matches you have, the more likely your body will accept the new organ.
Percentage of success
Success rate usually state how many people who receive the transplant are living 5 years after the transplant.
- Kidney about 9 people out of 10[80to 90%]
- Liver-about 7 people out of 10[79%]
- Lung-about 5 people out of 10[54%]
- Pancreas-about 8people out of 10[89%]
- Heart- about 7 people out of 10[75%]
- Intestine –about 6 people out of 10[58%][24]

National Law - International Law
Uniform anatomical gift act that was drafted in 1968 was the first effort at providing national organ and tissue donation policy. The act created uniform legal procedure for person who wishes to donate organ for hospitals, medical institution that want to accept them. Under this act which has been adopted in some form by all 50 states a person of sound mind that is at least 18yrs of age may donate all or part of his or her own body. 1986 federal law [42u.s.c.a.] requires all hospitals participating in medicare or medicaid to implement a required request policy. Hospitals required discussing within potential donor and there families the option of organ and tissue donation and their option to decline. In 1984 national organ transplant act initiated a national health policy regarding organ transplantation the act provided funds to help established qualified organ procurement organization banned the sale of organ s and created a take force to study organ transplantation policy issue.[25]

There are 2 key laws governing organ donation and transplantation in UK the human tissue act [scotland] 2006any adult or child aged 12 or over who is able to make their own decision can give permission for their organ donated. Person owns decision is most important relative does not right to change this decision after person has died. Act gives primary to the wishes of the individual however they have been started or recorded. This can be done in various ways –verbally, having a donor card, acesing the NHS organ donors register. Human organ transplant act 1989 which first restricted living donation[26]

Approved transplant center
List of approved transplant center in India - A.P., DELHI-NCR., Gujrat, Karnataka, Kerala, Maharashtra, Rajasthan. Tamil Nadu, West Bengal.[27]

THOA ACT 2011
Transplant human organ act 2011 that allows swapping of organ and widens the donor pool by including grand parent and grand children in the list. The act which has come into effect in Goa West Bengal Delhi and all union territories from jan 2010 also provided for establishment of national human organ and tissue removal and storage network development and maintainance of national registry of recipients of organ transplants act regulates, removal, storage transplantation of human organ for theraptic purpose and prevent commercial dealing in human organs.

There is huge shortage of organ in India and patient die while on the waiting list around 7.85 million people in India suffer from kidney failure, at present the approximate prevalence of chronic kidney disease 800 per million populations and the incidence of end stage kidney disease is 150-200per million populations. Nearly 3,500 kidney transplant are done annually as against the need for 21000 transplants.[28]

DEFICIT
In China there is severe shortage of organ donors a million people need a kidney but just 5,233 got one in 2011, according to national kidney transplant registry this gives a patient a 0.5% exchanced each year , in the U.K. that chance is 43% kidney are mos in demand organs in China .2/3 of the 1.5 million people the health ministry say needs new organs [heart. lung liver kidney cornea]are waiting for kidney in lieu of public donor system demand is met by harvesting organs from excucuted criminals despite criticism from human right s advocates who question the degree of consent ;in feb. Human gjiefu a health minister announced this system will be abolished within 5 years in part because condemned prisoners organ are more likely to carry infections.[25] a researcher at the north shore LJ healthy system transplant center in new York along with those at frienstein institute for medical research., have finished study comparing wt. and eligibility in organ donation. It turns almost one quarter of person listed as would be kidney donors would in actually be ineligible due to their wt. medscape report that there is non nationally established wt. criteria for organ donation most center exclude kidney donors who have BMI of 35 or above LJ health system transplant center write in group report that taking into account the 104 potential kidney donors that the center has been between 2008 & 2011 only 18% of them were within normal BMI RANGE.[29]

Amendment
Transplantation of human organ amendment act2011, which include amendment in section 1&2 of transplantation of human organ act1994 are given in section1 & 2 of transplantation of human organ act 1994 are given. Act applies to state goa , himachal Pradesh, West Bengal & all to union territories it shall also apply to such other state which adopt this act by
resolution passed in that behalf under clause[1] of article 2552 of constitution.\textsuperscript{[30]}

**STATISTICS IN U.S.**

There are currently 123175 people waiting for lifesaving organ transplant in the U.S. of these 101,170 await kidney transplants. In 2013, 16,896 kidney transplants took place in the U.S. of these 11,163 kidney transplants, came from deceased donors & 5,733 came from living donors.

Donor organ are matched to waiting recipients by a national computer registry called the national organ procurement & transplantation network [NOPTN], this computer registry is created by an organization known as united network for organ sharing [UNOS]\textsuperscript{[31]}

**CADAVER ORGAN DONATION:**

The required pre requisite for success of cadaver programme depend on various factor includes,

1. Positive attitude of public towards organ donation.
2. Consent by relatives for organ donation in event of brain death.
3. Adequate hospital infrastructural & support logistics.
4. Successful retrieval & transplantation of organ & auditing long term graft outcomes. Tamilnadu is the leader in deceased organ donation in the country.\textsuperscript{[32]}

**Importance**

Organ donation plays important role in recipient by increasing their period of life more than expectation by donating organ people can save more than 8 lives and enhances lives of 50 people by way of tissue donation. \textsuperscript{[33]}

Donation plays role of ‘GOD’ in life of recipient.

Organ donation is way of “COMPASSION” including other religion.

**DISCUSSION:**

When a deceased patient is a potential donor, the doctor checks whether they have recorded their consent in the Donor Register or whether their nearest relatives have given consent.

In different countries rules are very clear & precise in dealing with problem of organ donation than in India. Also hospitals bills for any organ removal related procedures and tests are not charged for donor’s family.

Brain death has accepted as legal definition of death in Singapore, and other advanced countries. This definition is similar to that use in countries such as Australia, Denmark, UK, Spain, USA.

Both developing and developed countries have forged various policies to try to increase the safety and availability of organ transplants to their citizens.

In developing foreign countries rules stated that slow growth of organ transplantation is due to high cost involved lack of facilities.

Countries Like Austria, Brazil, France, Italy, Poland and Spain have ruled all adults potential donors with the “opting out” policy.

**IN USA - The National Organ Transplant Act (NOTA) of 1984** established an Organ Procurement and Transplantation Network (OPTN) in the private sector. Since 1986, the United Network for Organ Sharing (UNOS) has held the federal contract as the OPTN, acting through its 11 regions.

In the United States, organ markets are officially banned: The National Organ Transplant Act (Public Law 98-507) makes it illegal to sell human organs and to do a practice.

Australia - The above mention law also followed by Australia, it has taken struggled for 20 yr to bring the rate of organ donation up to the level that well-organized developed countries achieve.


Spain- the National Transplant Organization (ONT) was established in 1989 IN SPAIN. The success of the Spanish model is frequently linked to Spain’s legal framework of presumed consent.\textsuperscript{[34]}

Belgium - citizens can register a decision to “opt out” at any Town Hall.

In Some countries, various forms of modification have been introduced in which donors are paid for organs and the recipients pay for them, so that in effect a market in human organs exists.


**IN SCOTLAND - An Organ Donation Strategy for Scotland, was produced by the Scottish Transplant Group in June 2002 & it increase organ donation rate.**

Iran - Only one country has eliminated shortage of transplant organs & working on legal payment system for organ donation.
Donors, their nearest relatives, other family members and doctors are bound by rule on organ donation.

Children fewer than 12 may not register as a donor in the donor register, nor may anyone else do so on their behalf. When a child under 12 dies it, s organ or tissue may only be used if the doctor has obtained consent from the child parents or carriers. Young people aged 12to 15 can register as an organ donor. However the parents or carriers have may record their consent in the Donor Register. [35]

Lacuna
- Lack of transplant coordinator, nurses in hospitals.
- The press and mass media seems to be problem as it focuses on negative aspect of transplantation.
- Lack of cadaver donation programe, advanced medical facilities for illegal transplants there is no strict punishment of all the persons involved.
- The awareness on organ donation is very less but the need of organ is very much higher.
- Lack of advertising and publicity, No test mentioned for multi organ donor.

Suggestions
It has pointed out that switching to a presumed consent law would increase the rate of organ donations, due to the higher observed rate of donation in presumed consent countries SO India should adopt the Spanish system of “presumed consent” were everyone, post death, is considered a donor unless one has opted out of the process in his life time.

Awareness should be increased about the benefits of organ donations through the means of mass communication and superstitions among people should be fought by the way of religious injunctions.

The government could even consider giving incentives to donors who could be in the form of health insurance for the donor and his family.

Positive attitude of the entire hospital towards donation is essential to be sure that the process works adequately. to stop illegal organ transplantation &positive attitude also amongst medical professionals [36]

There have strict policing for illegal transplants and punishment of all the persons involved.

To maintain nationwide computer registry for all patient who need organs.

CONCLUSION:
Organ transplant useful for saving life, it does not disfigure the body, this process need large amount of ethical guidelines and public awareness.

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