



## Ethical and Legal Considerations in Organ Donation and Transplantation: an Analysis of the Key Benefits and Drawbacks

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### Abstract

In human life, organ donation and transplantation is one of the most significant importance to extend functional life and support quality of life. Also, this process is not related exclusively to medical teams, but relates to general society because the sources for this process are only human due to ethical and legal issues. The process requires ethical and legal consideration, because it presents many challenges and risks to society and the medical community. The aim of this paper is to consider the advantages of transplantation for human life. It considers the controversy surrounding the ethical and legal considerations, from the concept of brain death (brain-dead donor) and the market for human organs (living donor). The operation of organ donation and transplantation are very complex and sensitive because it directly relates to human life. There should be more careful observation and diagnosis by the medical team during the donation process and the transplantation process.

**Keywords:** Ethical consideration, organ donation, organ transplantation, benefits, drawbacks.

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## Introduction

In modern medicine, Organ transplantation is well known to extend functional life and improve quality of life and has been demonstrated to be cost effective (Miller et al., 2014). Organ transplantation has been a major breakthrough. But the process is challenging and involves risk. The first kidney was successfully transplanted by Drs. Murray and Merrill in 1954, between twin brothers; after that, the first heart was transplanted by Dr. Barnard in 1967 (Jonsen, 2012).

The main source of organ donation includes three sources: living donors, brain-dead donors and cadaver donors. In this paper, the focus is on living donors and brain-dead donors. A living donor is a person who offers to donate an organ or part of an organ to patients awaiting organ transplants (Golmakani et al., 2005). A brain-dead donor is a person who has completely irreversible loss of brain function. The organs for this person can be taken for transplantation (Fernández-Torre et al., 2013). Finally, cadaveric donation includes two types: the first is a person who is brain dead and organs can be taken for transplantation (heart, lungs, kidneys, liver and pancreas), the second is a person who is brain and heart dead and organs can be taken for transplantation such as skin, corneas, tendons and bone (Golmakani et al., 2005).

Sorting out this issue is of crucial importance for human life because this process has prolonged the standards of end-of-life organ

diseases of transplant recipients. Also, it is not related exclusively to medical teams, but relates to general society, because the sources of transplantation are only human due to ethical and legal issues.

This paper is divided into three sections. First of all, this paper focuses on the historical background of transplantation. Donation will be explained, as well as the determination of death and the human organ market. Also, a discussion section will explain the two aspects, evaluating the different positions for the ethical considerations surrounding the concept of brain death in the first section. The final section will explain the different points of the controversies regarding the establishment of legal market for human organs. In this section the focus is on kidney transplantation in Iran because Iran is the only country that permits regular marketing for human organs (British Association, 2012).

The purpose of this paper is to investigate the controversy surrounding the ethical and legal considerations in organ donation and transplantation, from the concept of brain death and the market for human organs to ethical and legal perspectives. It will be argued that transplantation prolongs functional life and supports the quality of human life. However, it will be suggested that the clinical test for determination of death has international difference and diagnostic difficulty. Thus, there needs to be more studies and careful examinations by the physician. In addition, it will provide support for a legal

regular market of organ donation, because the most significant criticism of this model is that it has no alternative to altruistic donation.

The debate about organ transplantation has a long history. According to Larijaniet al. 2004, Iran has a long history of organ transplantation; the first transplantation of nerve repair was performed by great Iranian physician (Avicenna 981 to 1037). In 1935, the new modern method of organ transplantation occurred in Iran. However, an ethical issue occurred, because the largest segment of the population in Iran is represented by Muslims. Thus, discussion occurred among the religious leaders, legal experts and physicians (Larijani et al., 2004).

In 1954, in Peter Bent Brigham hospital, Drs. Murray and Merrill transplanted a kidney between twin brothers. The recipient lived for 8 years rejected by their genetic similarity. This event provoked many debates regarding ethical problems (Jonsen, 2012).

In 1967, Dr. Barnard transplanted a heart into a patient who lived for 18 days. After that, Barnard tried heart transplantation for another patient who lived 594 days. This event raised ethical questions, because since a heart removal certainly ends the life of the source, arguments about the concept of death appear. It is probable that if the person loses brain functions it means death (Jonsen, 2012).

In 1968, the Harvard Medical School attempted to redefine death (brain-dead donors) and death was described as an

irreversible coma; the main purpose of death definition is that it can lead to arguments in finding organs for transplantation. In general, this report accepted but did not settle the question, because it was not clear to explain the separation between death and vegetative state (*ibid*). A number of arguments arose among ethicists and legal scholars. As a result, the congress in the USA requested for the field of medical ethics to research the question. These studies uniformly formed the definition of death according to new criteria of brain-stem (1979-1982). Death was defined as “irreversible cessation of all functions of the entire brain, including the brain stem, is dead” (Jonsen, 2012).

The main issue for organ transplantation is the shortage of organs. This issue is not new; in 1968 the National Conference of Commissioners decided to uniform the State Laws and drafted the Uniform Anatomical Gift Act (Berman et al., 2008). The signed legislation was concluded for state governments and outlined the basic procedure for donation and receipt, but did not mention any issue related to financial incentives. In 1987, the state act was changed; the new legislation prohibited selling organs from living donors and if a person violated this law they would be liable for a fine of \$50,000 and/or up to 5 years in prison (Berman et al., 2008). Therefore, the human organ market is illegal for the general public. Iran has permitted the legal selling of human organs; the operation system started in 1988. This is controlled by the Dialysis and Transplant

Patients Association (DTPA) in Iran (British Association, 2012). Also, in 1991, during the first International Congress about Organ Sharing in society (organ allocation), Pope John Paul II believed that “There are many questions of an ethical, legal and social nature which need to be more deeply investigated. There are even shameful abuses which call for determined action on the part of medical association and donor societies, and especially of competent legislative bodies” (Bruzzone, 2008).

In 2000, the Iranian parliament has proved positive judgement for progression in the transplantation programs. This judgement shows the determination of brain death (brain-dead donors) diagnosis by four physicians, but these physicians were not part of the transplantation teams that were established. These teams include: neurologist, neurosurgeon, medical specialist and anaesthesiologist (Larijani et al., 2004).

### **The ethical controversies surrounding the concept of brain death**

The determination of brain death (brain-dead donors) has been more controversial in recent years, particularly regarding its impact on organ donation (Fernández-Torre et al., 2013). The diagnosis of brain-dead needs neurological criteria. This is the best rationale to determine death, but this has not been endorsed as traditional criteria (De Georgia, 2014).

The new definition of brain death by neurology is “(1) all clinical functions of the brain have been abolished causing unresponsiveness, absence of brain stem reflexes, and complete apnoea; (2) an irreversible structural brain lesion can be demonstrated that is alone sufficient to account for these clinical findings; and (3) no potentially reversible conditions exist that could confound this testing” (Freeman, 2012).

The neurological criteria are the best way of indicating the point at which organs can be taken for transplantation, on account of many reasons. Firstly, the definition of death changed. Furthermore, the concept of death changed; there was a transition from loss of irreversible cardiopulmonary functions to loss of irreversible brain functions. This definition of death can lead to finding organs for transplantation. According to Kofke (2014), in 1950, when the cardiac and breathing functions stopped it means death, but now irreversible loss of brain function emerged (De Georgia, 2014). Both Mollaret and Goulon define death as a state of coma, which means withdrawing the irreversible cardiopulmonary functions in the concept of brain death (*ibid*). Moreover, the definition of death was brought into question after Beck successfully used the defibrillation of human life in 1947(*ibid*). Then, ventilation positive pressure developed by both Bower and Bennett in 1950. The purpose for using these advanced methods is that comatose patients could recover and could survive; however, patients in a severe coma would not resuscitate certainly (*ibid*).

According to De Georgia (2014), in 1957, Pope Pius XII responded to these concerns, declaring that physicians did not have an obligation to add therapy in patients that were considered to be in a severe coma .A psychiatrist (Ayd 1962) in (Medical and Moral Considerations) suggested that medical therapy must be stopped when death is inevitable in the case (*ibid*). Secondly, the inception of the international concept of brain-dead donors has been uniformly explained (adopted by all 50 states). The determination of brain death has been divided in two formulations, both of them accepted in various societies and laws. Brainstem death is used for the diagnosis of brain death in the UK and confirmation of the “irreversible loss of the capacity for consciousness combined with the irreversible loss of the capacity to breathe” (Sherrington and Smith, 2012). Whole brain death is used in the USA and most European countries and means loss of all brain functions. Similarly, the conception of brain death as accepted in much of the general population is the question of humanity if the patient is at the end of the stage of life which benefits another patient needing organ donation. Thirdly, neurologic criteria for death are accepted by most religious. According to Bruzzone (2008), in 1958, in the encyclical of the prolongation of life state, Pope Pius XII suggested that any definition for the determination of death was not directly related to the church but related to the physician. Most Muslim scholars have recognized brain death such true death (Golmakani et al., 2005).

In other words, the diagnosis of death by neurological criteria is popularly known as the best rationale to determine death. As a result, death is moving from cardiac death to brain death. It means that the time at the end stages of life is the best time to donate the organ because the patients are completely dead and need the uncontrolled donation after determination of death by physician.

On the other hand, the philosophers and ethicists argued that the neurological criteria are not suitable for indicating the point at which organs can be taken for transplantation. Firstly, the diagnosis of neurological determination of death was not clear. For example, according to Whetstone (2014), in 2013, in the United States, the JahiMcMath case brought theoretical arguments; this event encouraged a new discussion on neurologic criteria for the legitimacy of brain death. A situation started when the mother of JahiMcMath was refused tonsillectomy that her daughter required. Consequently, the daughter suddenly died. Maybe, the mother Jahi could not accept the reality, related to a grieving mother or for a bigger malpractice. Jahi’s mother thought that her daughter was alive, a possibility which the medical community never seriously entertained (*ibid*).Whetstone (2014) concluded that JahiMcMath would have been considered alive according to the current neurologic criteria, despite suffering total brain failure. This situation required more thinking and a review of the neurologic criterion. Secondly, some people believe the neurologic criteria for death

has not been accepted in some society, such as, Japan there was disagreement about the death determination, because people are represented by Zen Buddhists and followers of Shintoism and believe that mind and body are not separated and exist as one during the death. In 1977, legislation in Japan supported this idea: every individual should be able to choose standard of death by neurologic criteria or not (Sherrington et al., 2012). Moreover, Miller et al. (2014) and Bruzzone (2008) state that sometimes traditional religious leaders are against the end-of-life organ donation and organ transplantation, such as some Orthodox Jews, some Islamic leaders and some Asian religions. Thirdly, Sherrington and Smith (2012) believed that the quality assessment for brain death and the subscription of the organ donation should be separated. While the primary suggestion for brain death was linked with appearance of transplant technology; they had intentionally proved a professional legal formulation for removing therapies from a person who is brain dead. Moreover, they said the diagnosis of brain death is the validity and prolonged therapies for a person are not necessary (Sherrington and Smith, 2012). Previous debates regarding the concept of brain death depends on integration of the brain with other organs of the body: if the brain loses functions it means death of the body. Without thinking, the body rapidly shuts down all the organs in the body. Shewmon(2001) and Bernate(1981) stated that This belief is an unethical understanding of brain dead Patients as dead; however, the patient's brain death may be exhibited for some time in the level of

somatic integration and it is been founded questions the confidence on a "central integrator" theory. The philosophers and ethicists suggested an alternative concept of brain death, which is a "loss of personhood". The main reason for an alternative was to support the neurological determination of death because neurologists may not detect with absolute certainty human brain functions (Sherrington and Smith, 2012).

To sum up, the neurologic criteria may be the best method for the diagnosis of brain death (brain-dead donors). However, this is not possible for all of society and the statement of brain dead achieves biological definition of death but is not clinically clear because there are some misunderstandings of the historical background amongst the general public. The determination death needs to be carefully considered during diagnoses by the professional groups' physician, because the determination of brain death has evolved.

#### **Controversies concerning the establishment of a legal market for human organs**

There have been an increasing number of organ transplants from living donors, but the law in most countries prohibits the sale of organs. Only Iran permits the sale of organs. This debate focuses on kidney transplantation because a kidney is a paired organ that can be safely removed with slight impact to the health of the donor and the waiting list for kidneys is the longest of all waiting lists for another solid organ (Gentry et al., 2012). Furthermore, this

section focuses is on Iran because Iran is the only country to permit legal regular marketing of human organs (British Association, 2012). This topic is heavily related to legal and ethical issues.

British Association (2012) stated that a regulated market for human organs exists in Iran controlled by the Dialysis and Transplant Patients Association (DTPA). Both the voluntary (living donors aged between 20-35 years) and potential vendors (recipients) link with DTPA; after that they are referred to a centre to diagnose the same medical criteria as the living donor. By this method, the living donors do not directly receive money from vendors. The government approved a fixed price adding to about US\$1,200 for health insurance only for one year. Also, after the recipient's family received the organ, the vendor needs to contribute to the charitable organisation between US\$2,300 and US\$4,500 (*ibid*).

Many prominent people claim that the growth of a regulated market and law permit is possible, on account of many reasons. Firstly, the main problem for transplant operations is that there is a shortage of organs and an increasing waiting list for patients with advanced kidney disease. A regulated market would eliminate the waiting list. For example, the British Association (2012) demonstrated that Iran is the single country that has permitted the legal marketing of human kidneys. In 1999, it was found that Iran had been eliminating the waiting list for kidney

transplants, and this system had not reduced altruistic donations (British Association, 2012). Recently, in Western Europe, approximately 40,000 patients are waiting for kidney transplants and the rates of waiting list for a lung, liver and heart ratio from 15 to 30 % (Javed et al., 2007). Canadian legislation prevented the sale of organs and tissue (Gill et al., 2014). But, in the recent studies of more than 2,000 Canadians many of them accepted financial incentives for both deceased (70%) and living (40%) donors. The waiting list increased by about 15% for a kidney transplants between (2002-2011). Secondly, the best advantage of the regulated market is to avoid the black market, because the black market risks the health of both the donor and recipient. For example, in Israel in 2003, a medical doctor named Friedlaender defined the dangers of 80 patients who transplanted in Iraq for living donors buying in the black market because the practice is illegal in Israel. There was approximately a 10% mortality rate in these patients after 1 year, which was higher than the standard professional of central transplantation (Berman, 2008). In addition, in India, some studies illustrated that there is increasing incidences of viral infection like hepatitis B and C. A black market for human organs not only poses risks for recipients but also endangers life. Some of the studies show a high number of the donors having chronic complications like nephrectomy as a result of insufficient education and dire commercial straits (Berman, 2008). Thirdly, in the most endemic part of the world the sale of organs is

illegal. Therefore, the violation of religions increases, for instance, in Africa religious groups and missionaries have witnessed people finding organs in communal graves (Novelli, 2007).

On the other hand, many countries and some philosophical arguments prohibit the legal market for human organs because of various reasons. Firstly, the selling of organs risks the health of the donor and the quality of organ donation, the basic foundation of health which is "Do No Harm": it means the medicine is the state of being without danger. Furthermore, Ceccoli and Glean (2013) argue that altruism in organ donation is better than the market because of higher quality organ donations. Secondly, according to the British Association (2012), one of the biggest disadvantages in payment for organ donation is the transmission of more diseases than in voluntary donations, because the type of person incentivised by payment would possibly be untruthful about any diseases. Moreover, the largest problem for this process (selling organ or a regulated market) is finding the communicable disease in donors by routine screening. As a result, the donor is considered not best for donation and rejected. Because of that, any payment for living donors is prevented in Europe. Thirdly, the World Health Organization (WHO) is against the purchase and sale of human organs for transplantation. A market for human organs can lead to a situation involving the highest bidder. Thus, the organ would be allocated in terms of ability to pay rather than a medical need to determine the distribution of

the organs. In 1989, WHO resolved this problem and prohibited the sale of human organs (Bakari et al., 2012). Additionally, a company in California has begun creating and selling embryos; this event produced many arguments in the WHO about whether the tissue and cells should be donated only without money and without any advertising. Until now there has not been any legislation about this evidence (Klitzman et al., 2015). Finally, regarding a regulated market in Iran, some advocates suggested that the program transplanted in Iran is not perfect because most of the vendors are uneducated and impoverished. Also, the outcome about the health of vendors is not clear and not completed (British Association, 2012).

To conclude, the using of financial encouragement and a regular market in the donation of human organs may be accepted. This model increases the rate of the human organ donation and reduces waiting list for organs. For example, in 2003, in the UK, Professor Nadey Hakim called for the UK government to authorize the sale of human organs and named it transplant tourism, concluding that if someone wants to donate a kidney for a special price then that would be acceptable (Daar, 2004). However, it may be believed that the intrinsic value of humanity would not be cheapened even if a market where to put a "price tag" on organs: a price would only show that the market is trading kidneys at a specific rate.

### **Conclusion**

The decision about whether there can be donation and transplantation in all cases can be a highly controversial issue. The process exposes numerous challenges in the medical community and society. Thus, this paper has attempted to explore this issue from the ethical and legal perspectives.

It has been illustrated that there exists ethical considerations around the notion of brain death by indicating that it may lead to finding organ donations. This paper has also analysed the neurologic criterion for death, but some ethicists argue that the neurological criterion is unclear and is unacceptable for indicating whether a person is suitable for organ donation. This paper considers controversies surrounding the legal market for human organs. In addition, from the different perspectives which have been discussed, it can be concluded that most countries prohibit a regular market for organ donation, but only in Iran is it permitted. This paper has analysed both perspectives. In most countries the living organ donation is dependent on altruistic donation; however, sometimes this method causes an increasing in the black market. This paper presents the cons and pros of a regular market of human organs.

Overall, this paper argues that transplantation and donation is of the most significant importance for human life, because it can prolong functional life and support quality of life. Also, it should be suggested that the determination of brain-dead donation is necessary for diagnosis by teams' physicians

(neurologist, neurosurgeon and anaesthesiologist). Donation should be permitted by regulating a market for human organs, but the implication for this model should be controlled by government, supported by legislation and using a fixed standard price. Furthermore, observation is needed for appropriate screening, matching and allocation of organs ensured by the specific medical team.

### Conflict of Interest

Authors declare that there is no conflict of interest.

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