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KADAVERIČNA TRANSPLANTACIJA ORGANA I RELIGIJA

CADAVERIC ORGAN TRANSPLANTATION AND RELIGION

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Summary – Multiple organ procurement is a surgical procedure by which organs of a brain dead donor are taken for transplantation. Cadaveric organ donors must be those who have suffered a sudden structural and irreversible damage of the brain or brainstem. Social and scientific aspects of organ transplantation have been widely discussed so far, whereas the religious factor, which should be also respected, has rarely been analyzed. Considering the fact that Serbia is a multicultural and multi-confessional society, opinions of all confessions practised in the Republic of Serbia should be taken into account. The Orthodox Church permits transplantation from one man to another and transplantation is strongly recommended from the standpoint of Christian morality. These attitudes are accepted and respected by the Roman Catholic Church, Reformers, Judaism and Islam as well. For the future development of organ transplantation it is necessary to have a sufficient number of organ donors. Valid and complete laws must strictly define brain death, organ donation and waiting lists. The public should be fully informed about this issue in order to build mutual confidence between the population and medical staff.

Key words: Organ transplantation, Brain death, Religion

Introduction

Transplantation is the moving of tissues or organs from one organism to another or from one place to another in the same organism. Organs can be transplanted from a living organism or a brain dead donor. A tissue or an organ that is moved is called the transplant and it may be: an autotransplant – the donor is also the recipient, the transplant is transferred from one place to another; an isotransplant – the donor and the recipient are genetically identical because of the tissue antigen similarity (monozygotic twins); an allotransplant is transferred from one organism to another of the same species - it can be taken from a living donor, but only those parts that are not life threatening for the donor or which do not reduce his/her basic skills or it can be taken from a brain dead donor (*ex cadavere*); a xenotransplant- the donor and the recipient belong to different species.

Multiple organ procurement is a surgical procedure by which organs from a brain dead donor are taken for transplantation. Only healthy organ donors are eligible for transplantation [1]. Cadaveric organ donors should be those who have suffered a sudden, structural and irreversible damage of the brain or brainstem [1].

The first liver transplantation was done by Starzl in 1963 [2-4]. The first liver transplantation in Serbia was performed in 1995 and in Vojvodina on the 28th of June 2008.

The above mentioned facts are in the sphere of medicine and science, but if they are viewed from the aspect of medical ethics, modern problems of the contemporary society emerge. Social and scientific aspects of organ transplantation have widely been discussed so far, whereas the religious factor has rarely been analyzed. Religious opinions should also be respected [5]. Considering the fact that Serbia is a multicultural and multi-confessional society, opinions of all confessions practised in the Republic of Serbia should be taken into account.

The era of transplantation began in the XX century. Procedures of organ and tissue transplantation were very complicated and sporadic at that time, but from the beginning of this millennium they have been performed in hundreds of hospitals worldwide. Serbia has joined these modern trends of treatment, so the kidney and liver transplantations have been performed since 1975 and 1995, respectively. Due to new scientific achievements, the number of successful organ and tissue transplantations will certainly increase. A very serious problem today, probably going on in future as well, is insufficient number of organs. The number of donors has been rising for 2% annually during the last 15 years, and the number of patients on waiting lists has been rising for 15%-20% annually in the same period [6].

Liver transplantation is the most demanding transplantation of parenchymal organs. It requires a perfect organisation of all procedures, high motivation of medical staff, patients and their families as well as constant financial resources for continuing work [7]. It is due to

the increasing need of organs and inadequate offer of organs eligible for transplantation that abuses are possible, and they should be avoided by strict regulations.

Definition of brain death through history

At the beginning of the 20th century H. Cushing noticed that cardiac arrest was preceded by cessation of breathing in cases of huge increase of intracranial pressure. In 1954 K. Simpson underlined that „life goes on as long as the oxygen blood circulation is maintained in the brainstem centres”. Two French doctors described the state of *coma dépassé* (literally a state beyond coma) in 1959. Such patients were said to look like dead bodies with a well filled pulse [8].

The *Uniform Gift Act*, by which the consent of the next-of-kin is required to get an organ, was passed in the USA in 1965. A donor's card, which allows legal organ donation postmortem, was established. Criteria for brain death were set for all states in the USA in 1968. The *Ad hoc* Committee of the Harvard Medical School gave the definition of an irreversible coma, which had the following criteria: absence of spontaneous breathing and movements, lack of response to stimuli, widely dilated, fixed pupils, loss of cephalic and deep-tendon reflexes. The above criteria were supported by the Declaration of Sydney.

The Minnesota criteria were set in 1971, their conclusion about brain death being that an irreversible damage to the brainstem in patients with extensive intracranial pressure means a „point of no return” and that diagnosis can be made on the basis of clinical evaluation. In the same year, Mouhandas and Chou defined the criteria for brain death on the basis of clinical tests, emphasising the role of the brainstem.

The donor's card was introduced in the USA in 1972 for all 50 states to allow the postmortem organ donation. An American collaborative study from 1977 set the criteria for diagnosing brain death [8].

The First and the Second UK Memorandum from 1976 and 1979, respectively, defined brain death, and these criteria were based solely on the brainstem death. Criteria for brain death were revised in the USA in 1981. The National Conference of Commissioners of the USA passed the Uniform Brain Death Act in 1978, by which the cardiopulmonary death was extended towards brain death. The Uniform Determination of Death Act was passed in the same year and adopted by the Congress in 1980. The President's Commission for the Study of Ethical Problems in Medicine and Biomedical and Behavioral Research stated the following in 1981: „the person with cessation of the circulatory and respiratory function and the person with the irreversible cessation of function of the brain, including the brainstem, is dead.” Another version defines brain death as follows: „when cardiopulmonary functions are maintained artificially, neurological criteria must be applied to determine whether the brain function has terminated irreversibly” [8].

Besides the strictly determined procedure for diagnosing brain death to define a patient as a potential organ donor, it is necessary to obtain the informed con-

sent of the organ donor before death. If this consent has not been obtained in this way, it must be given by the next-of-kin after the donor's death provided that the deceased did not explicitly oppose to his/her organ donation. The Book of Rules on medical criteria, manner and procedure of establishing death of a person whose organs can be taken for transplantation was passed in 2005, and it was the prerequisite for the organized organ transplantation in Serbia [9]. This book of rules states that „brain death is the irreversible loss of all brain activity. It is diagnosed in patients in deep coma whose breathing is maintained artificially, their state being due to brain injury, cerebrovascular diseases or tumors. Brain death is diagnosed on the basis of clinical examinations, three times within the period of at least six hours, the time lap between each diagnosing being at least an hour” [9].

Clinical examination of patients with suspected brain death

The traditional definition of corporeal death was that it was a state resulting from the complete and irreversible cessation of the heart function and breathing (cardio-respiratory death). According to modern medicine it is the state when the complete inactivity of the brain ensues (brain death).

The clinical examination must prove the cessation of the brain function, whereas the peripheral nerve activity does not have to be damaged since the spinal cord reflexes can sometimes remain. When brain death is suspected, clinical diagnosis must be made to exclude any possibility of life. The examination should exclude the state of deep coma (a disease, influence of alcohol and medication, intoxication, cold). The following criteria are applied to determine the absence of brain nerve reflexes and thus the absence of the brain function [10]:

- absence of spontaneous breathing - no spontaneous inspirations or expirations;
- absence of the brainstem reflexes;
- the pupils may be wide, but not dilated to the maximum;
- absence of corneal reflex;
- absence of eye movement initiated by the head and neck;
- of any muscle tonus.

All clinical tests must be done three times within 6 hours. They can be easily performed without great technical assistance, and the suspicion of brain death can be confirmed or rejected with great certainty on the basis of these data.

Methods for confirming brain death

Having proved the suspicion of brain death by the above examination, it is necessary to confirm the existence of brain death by objective procedures in order to exclude any doubt and a possible abuse. Methods for confirming brain death are the following [10,11]:

- electroencephalography (EEG)
- selective cerebral angiography

– isotope examination of the cerebral circulation, i.e. gamma-encephalography

If electroencephalography is used to confirm brain death, either selective cerebral angiography or gamma-encephalography must be applied additionally.

Electroencephalography is based on the fact that each nerve cell produces weak electric currents. Such potentials of small values can be recorded on the head surface by appropriate electrodes. If the curve of the electroencephalogram is flat, it can, but it does not have to be the proof of cessation of the brain activity. If the curve gives off even the smallest possible data, it means that the brain is still functioning even to the least extent and the body is not brain dead.

Selective cerebral angiography is the x-ray recording of the brain blood vessels which is performed by selective injecting the contrast material into the blood vessels that feed the brain. The diagnosis of brain death is confirmed if the brain arteries fail to be filled with the contrast material.

Isotope examination of the cerebral circulation (gamma encephalography) is a method of testing by one intravenous injection of isotope solution with simultaneous gamma camera recording. Gamma encephalography is a completely reliable, non-invasive method of confirming brain death and it does not have to be repeated, because there is no blood flow in the brain blood vessels in the state of brain death.

Other methods for confirming brain death are:

– analysis of arterial and venous blood gases, which shows that the oxygen level in the arterial and venous blood is the same in case of brain death, thus indicating the lack of circulation and inability to exploit oxygen in the brain

– echoencephalography (ultrasound) indicates the absence of brain blood vessel pulsation in case of brain death

– analysis of liquor, which may prove the increased amount of substances that indicate the absence of oxygen (lactic acid) and the increased number of dead brain cells,

– somato-sensory evoked potentials - the brain is exposed to an external stimulation and the brain activity is measured on the head surface by electrodes as a response to stimuli, which is absent in case of brain death.

The next step after the confirmation of brain death is to find the suitable recipient from the waiting list. The ethical committee stipulates that the same doctors cannot be involved in two separate processes of brain death confirmation and organ transplantation. Members of the transplantation team must not have any kind of influence on the doctors who are engaged in brain death confirmation, thus respecting ethical principles on which the organization of transplantation is based.

Transplantation of organs and tissues – Legislation and Religion

In order to perform organ and tissue transplantation in the best possible manner it is necessary to have

good regulations to avoid any vagueness associated with this procedure. The first human organ transplant act in Germany was passed in 1977, and France has adopted three acts and one decree on human organ transplant so far. Regarding legislature Serbia falls behind European countries – there are two human organ transplant acts, one of which was passed in 1990 and the other one in 1992. These acts are not synchronized and precise enough and legal uncertainty has resulted from them, which might have indirect effect on the efficiency of doctors' work [12]. There is a bill on transplantation waiting to be adopted, and it has been harmonised with the recommendations of the European Council Commission for Transplantation.

There are many views on brain death and organ transplantation from the legal and medical aspect. Since Serbia is a multi-confessional country with several recognized religions, it is necessary to take into account different religious attitudes towards organ and tissue transplantation.

When organ transplantation became the topic of discussion after DeBakay's venture, the biggest problem was in respect of heart transplantation, because the language of Bible symbolism recognizes „heart” as the totality of the inner spiritual life, which is called a „personality” in psychology. No question is asked about transplantation of other organs – that being the attitude of the Serbian Orthodox Church according to the statement of the ex dean of the Theological Faculty in Belgrade [13]. The Serbian Orthodox Church gave the blessing for organ transplantation at the Assembly held in May 2005. In Orthodoxy there is a prevailing doctrine of life protection and caring as the main postulate of our responsibility not only for our own life but for life of others. The Church has always regarded human life as God's gift [14].

According to Bishop Irinej, the Orthodox Church allows organ transplantation from one human to another and this procedure is highly recommended from the standpoint of Christian morality [5], provided that the following conditions are met:

– freedom and voluntariness

– love for thy neighbour

– no manipulation, coercion or trading with human organs is permitted

– it is impermissible to take advantage of poverty to buy organs

– organ transplantation must not be life threatening for the organ donor

– organ transplantation must not degrade or endanger biological or spiritual identity of the recipient.

The Assembly of all 14 Orthodox churches was held in Istanbul recently at the invitation of Bishop Vartolomej. One of the decisions was to establish an Orthodox commission for bioethical issues which should deal with the Orthodox doctrine about cloning, euthanasia, organ transplantation, surrogate motherhood, abortion, contraception and homosexuality.

Other churches and religious communities also recognize generosity in organ donation. Pope Paul II addressed the 18th International Congress of the Transplantation Society in 2000 saying that brain death is

the definite cessation of the human life. The attitude of the Roman Catholic Church is best reflected in the statement of Pope Paul II that it is a sin to bury anything that can serve the living human [15]. The Greek Orthodox Church approves of organ, blood and tissue donation only if it helps to improve health and prevent diseases. Protestantism encourages organ donation for transplantation, explaining that it is „a contribution to the wellbeing of the mankind and it can be an expression of devotion and love for the neighbour in need”. Jehovah's witnesses think that organ donation is the issue of free will, but all blood must be removed from the organs and tissues before being transplanted. The Romani disapprove of organ donation because it is contrary to their belief of continuation of the corporeal life after death and according to which the human body must be completely intact since the soul eventually regains the body form. Organ donation has been allowed in Islam since 1983 provided that the written consent has been given in advance. Jews are obliged to donate an organ if they are in a situation to save the life of another human being [15].

At the moment, Spain is the first country in the world by the number of cadaveric donors, whereas Ser-

bia takes the last place in Europe. For further development of organ and tissue transplantation programme it is necessary to inform the population properly about the advantages of organ transplantation and to educate medical staff adequately. The positive attitude of the population and medical staff towards organ and tissue transplantation will help to develop donors' network both regionally, in Vojvodina, and nationally, in Serbia.

Conclusion

For the future development of organ and tissue transplantation it is necessary to have sufficient number of donors as well as valid and complete regulations regarding the definition of brain death, organ donation and waiting lists. The public must be fully informed about transplantation in order to build mutual confidence between the population and medical staff, to prevent any abuse of organ transplantation and to extend the donors' network, which should enable legal procurement of organs to be transplanted in an ethically acceptable manner. Most religions in Serbia have a positive attitude towards organ transplantation.

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Sažetak

Multiorganska eksplantacija je hirurška procedura kojom se od moždano mrtvog davaoca uzimaju organi za transplantaciju. Kadaverični davaoci organa moraju biti osobe koje su pretrpele iznenadno, strukturno i ireverzibilno oštećenje mozga ili moždanog stabla. Dosad je kontinuirano raspravljano o društvenom i naučnom momentu transplantacije organa, dok je religijski faktor, koji treba uvažiti, retko analiziran. S obzirom na to da je Srbija multikulturalno, multikonfesionalno društvo, treba uvažiti mišljenja svih konfesija u Republici Srbiji. Pravoslavna crkva dozvoljava transplantaciju or-

gana sa jednog čoveka na drugog i transplantacija zaslužuje svaku pohvalu sa stanovišta hrišćanskog morala. Sa ovakvim stavovima slažu se i rimokatolička crkva, reformatori, judaizam i islam. Ako se u budućnosti želi razvijati transplantacija organa i tkiva, neophodan je dovoljan broj donatora. Veoma je bitno postojanje valjane i potpune zakonske regulative, kada je u pitanju definicija moždane smrti, darovanje organa, liste čekanja. Javnost treba da ima informacije o transplantaciji da bi se steklo međusobno poverenje stanovništva i medicinskog osoblja.

Ključne reči: Transplantacija organa; Leš; Religija; Moždana smrt; Zakonodavstvo

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