

Organ Donation from Brain-Dead Donors and the Role of the Japan Organ Transplant Network

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Atsushi AIKAWA*¹

Abstract

The Japan Organ Transplant Network (JOT) is the only organ procurement/allocation organization in the country. Mainly supported by organ transplant coordinators, it operates on a 24-hour basis to facilitate organ donation from brain-dead donors, which is increasing rapidly since the revision of the Organ Transplant Law in 2010. The coordinators at JOT cooperate with prefectural and in-hospital coordinators in performing the procedures ranging from confirming the intent of donors and their families to providing explanation to families, obtaining written consent on various forms, assessing the possibility of organ donation, communicating with the transplant consultants in charge of circulatory dynamics management after the diagnosis of brain death, selecting recipients from the patients on the waiting list, selecting organ removal teams and scheduling organ removal, and transporting recovered organs. Once organ transplant is performed, JOT discloses information after obtaining the consent of donors' families for the purpose of ensuring transparency in organ transplant. The payment of cost to organ donor facilities and organ removal teams is also made via JOT. Opportunities for organ donation are offered by JOT through the issuance of organ donor cards as well as Internet organ donor registration.

Key words Organ donation from brain-dead donors, Japan Organ Transplant Network, Coordinator, Organ donor card

Introduction

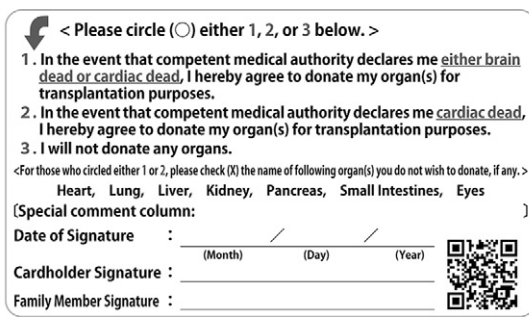
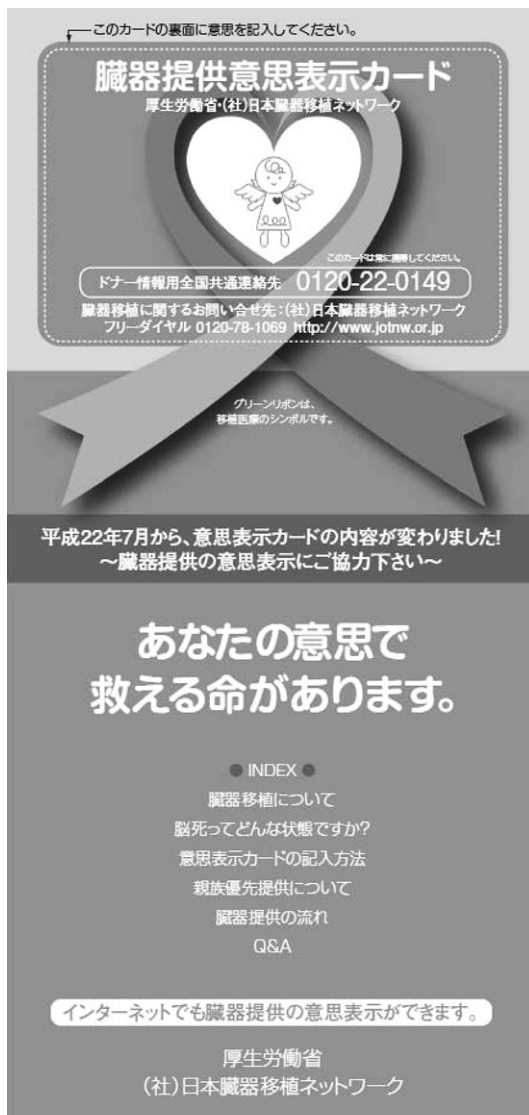
Since the revised Organ Transplant Law came into effect on July 17, 2010, there have been 29 cases of organ donation from brain-dead donors, enabling organ transplant in 125 patients on the waiting list as of the end of December. The heart and lungs are organs that can be transplanted only from brain-dead donors. Prior to the revision of the law, the number of patients undergoing heart transplantation and lung transplantation in a year was limited to a little more than 10. During the 5 months after the revised law took effect, 20 and 21 patients on the waiting list received heart transplantation and lung transplantation, respectively.

In this short period, the Japan Organ Trans-

plant Network (JOT) appropriately performed various organ procurement/allocation procedures, ranging from confirming the intent of donors to giving explanation to families, obtaining written consent, assessing the possibility of organ donation, selecting recipients from the patients on the waiting list, selecting organ removal teams and scheduling organ removal, and transporting recovered organs. In this process, it has been striving to ensure transparency in organ transplant and to disclose as much information as possible after obtaining the consent of donor's families.

This article concretely describes the roles that JOT has been playing in organ donation from brain-dead donors, with some discussion of future prospects.

*1 Professor and Chairman, Department of Nephrology, Toho University Faculty of Medicine, Tokyo, Japan (aaikawa@med.toho-u.ac.jp). This article is a revised English version of a paper originally published in the Journal of the Japan Medical Association (Vol.139, No.12, 2011, pages 2516–2520).



(Source: Japan Organ Transplant Network.¹⁾

Fig. 1 Leaflet with organ donor card (above) and back of organ donor card (below)

Issuance of Organ Donor Cards and Internet Registration of the Intent to Donate Organs

JOT has been issuing organ donor cards in a new format since the revision of the Organ Transplant Law. Unlike the previous version, the new card comes attached to a leaflet bearing explanation (Fig. 1). On the back of the card, the donor card holder is first asked to choose one from the options: “1. I wish to donate my organs for transplant both after brain death and after cardiac death,” “2. I wish to donate my organs for transplant only after cardiac death,” and “3. I do not wish to donate my organs.” Any organs that the donor does not wish to donate should then be crossed out in the list of organs below.

If you prefer the Internet registration of the intent to donate organs, you can visit the JOT website (<http://www.jotnw.or.jp/>) (Japanese only) or its mobile phone version (<http://www.jotnw.or.jp/m>) (Japanese only) and sign up for provisional registration. After a registration card with an ID number is sent to your postal address, you place your a signature on the card and proceed to official registration. To complete official registration, you access <https://www2.jotnw.or.jp/registration/index.php> (Japanese only) and enter the ID number and password sent to you. If you want to donate your organs preferentially to your relatives, follow the necessary procedures at the time of official registration. After completion of registration, a donor registration card is sent to your postal address.

The back of the donor registration card is basically similar to that of the organ donor card, except that the ID number has been printed.

There is another format, which is a leaflet with an organ donor sticker to be affixed to a health insurance certificate or a driver’s license as a declaration of intent when there is not a designed space to indicate your donor status on their cards. This sticker is handed out to medical insurers, at places issuing health insurance certificates, driver’s license centers, and police stations accepting renewal of driver’s license.

Procurement and Allocation of Transplant Organs from Brain-Dead Donors (Fig. 2)

JOT is the only organization in the country

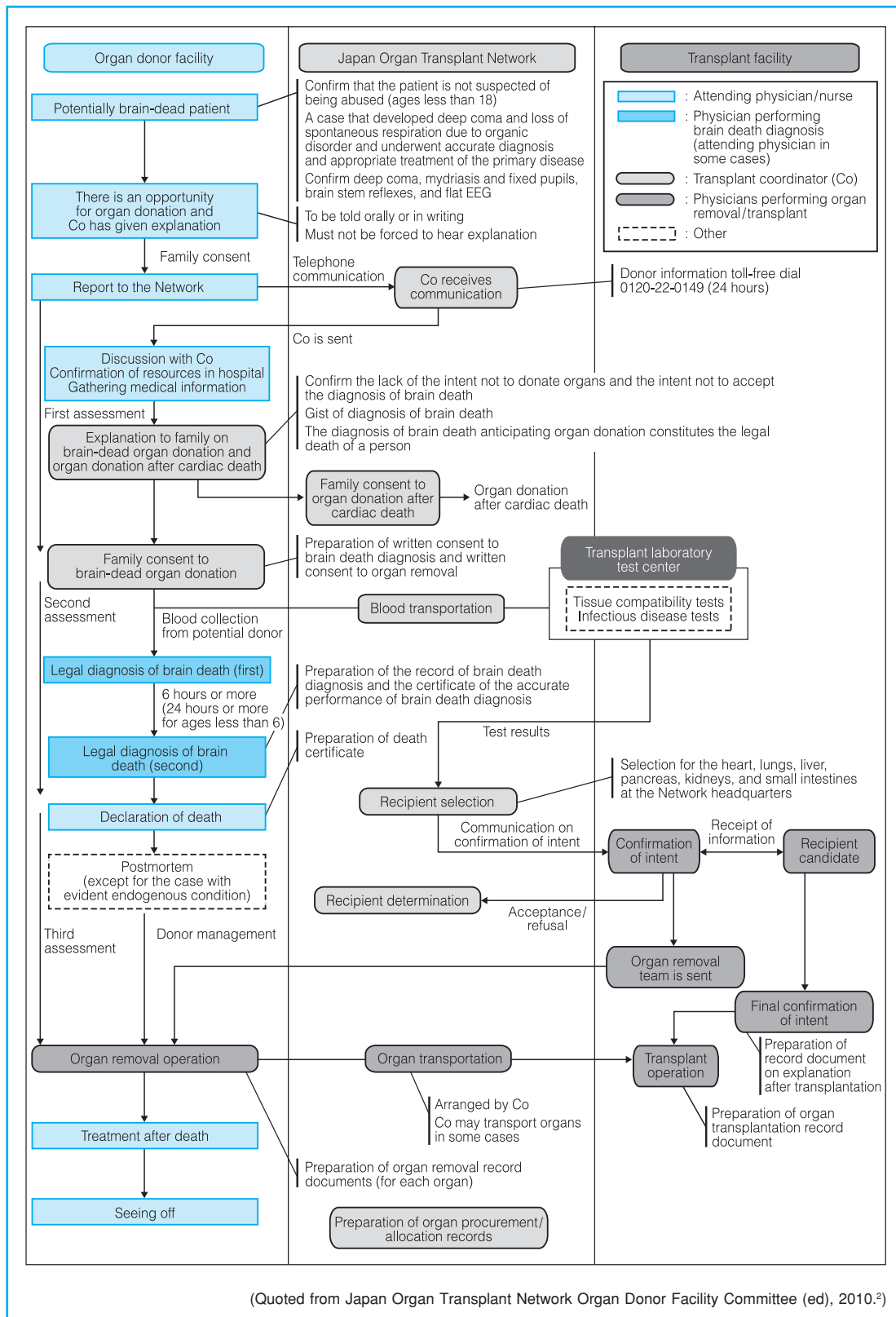


Fig. 2 Flow chart of brain-dead organ donation after the enforcement of the revised Organ Transplant Law

authorized to conduct procurement and allocation of transplant organs. The role of the coordinators at JOT in organ procurement and allocation is extremely important.

The procedures for the procurement and allocation of transplant organs from brain-dead donors are somewhat different from those for organ donation after cardiac death. Firstly, when a patient (potential donor) is in a condition that is diagnosed as being brain death at an organ donor facility, there is an opportunity for organ donation, and the patient's family members consent to hear the explanation by the coordinator, and a judgment must be made as to whether or not the patient can be an organ donor. The JOT coordinator, in cooperation with prefectural and in-hospital coordinators, hurries to the organ donor hospital and sets to work, starting from the detailed evaluation of the information collected so far on the potential donor and the opinion of the attending physician.

The coordinator first needs to find out if there is written first-person consent to donate organs, i.e., if the potential donor has a donor card, if there is declaration of intention on the health insurance certificate or driver's license, if the intent is registered with JOT via the Internet, and whether the registered intent, if any, is consent or refusal. If the intent to refuse organ donation is confirmed, the patient cannot be a donor. If the potential donor is under management at a facility other than the 5 legitimate types of facilities, brain-dead organ donation is impossible. In addition, if child abuse, potential child abuse, or mental retardation is involved in a potential donor younger than 18 years old, organ donation cannot take place.

If the intent of the potential donor is to donate organs or the intent is unknown, organs can be donated based on family consent. The first step to brain-dead organ donation is obtaining the family consent to the process of legally diagnosing brain death. If consent is obtained, legal diagnosis of brain death including the apnea test is conducted twice. If the patient is diagnosed as being brain dead, the family must be informed of the fact and asked again if they want organ donation in brain death, or organ donation after cardiac death, or no donation. The family here includes the spouse, parents, siblings, and every person living with the patient. The decision should be based on the collective will of the fam-

ily, and they need to be represented by a person who helps form an opinion.

The coordinator plays the central role in conducting all these steps in consultation with the attending physician. After obtaining family consent, three copies each of the written consent to the diagnosis of brain death and the written consent to organ removal must be obtained (for organ donor facility, JOT, and family).

In the case where brain-dead organ donation is possible, the usability of organs must be assessed at the beginning. On the part of JOT, members of the organ assessment committee are selected to evaluate the heart, lungs, liver, kidneys, pancreas, and small intestine, and judgment is made based on infection status and the functional and morphological condition of organs as determined by blood tests, urinalysis, ultrasound, other imaging tests, etc. To prevent deterioration of organs during organ removal operation, it is necessary to determine the type and dose of catecholamine, to correct electrolyte anomalies resulting from diabetes insipidus, and to adjust the dose of Pitressin. If these tasks, as well as infection control, cannot be performed by the physicians at the organ donor facility, the coordinator must assign and invite a medical consultant physician.

In the case of brain-dead organ donation, JOT selects the recipient of each organ and assigns the facilities performing organ removal. Usually, organ removal is performed by the teams from the hospitals performing transplantation. After appointing the date and time of organ removal, the coordinator specifies when each team should arrive and when and in what order each organ is to be removed. These arrangements are confirmed at meetings held in advance. Once organs are removed, the coordinator completes organ removal reports describing the records of operation and the condition of removed organs in due form, and delivers the organs and the reports to the hospitals where transplantation is performed. The coordinator must have a full grasp of transportation of each organ. If the destination of the heart or the lungs is not in the same geographical area as the donor hospital, it may be necessary to use a helicopter or an airplane and arrange the time and place of departure and landing. The liver and the kidneys are usually transported by train or car.

After transplant operations are completed, the conditions of recipients are reported to JOT.

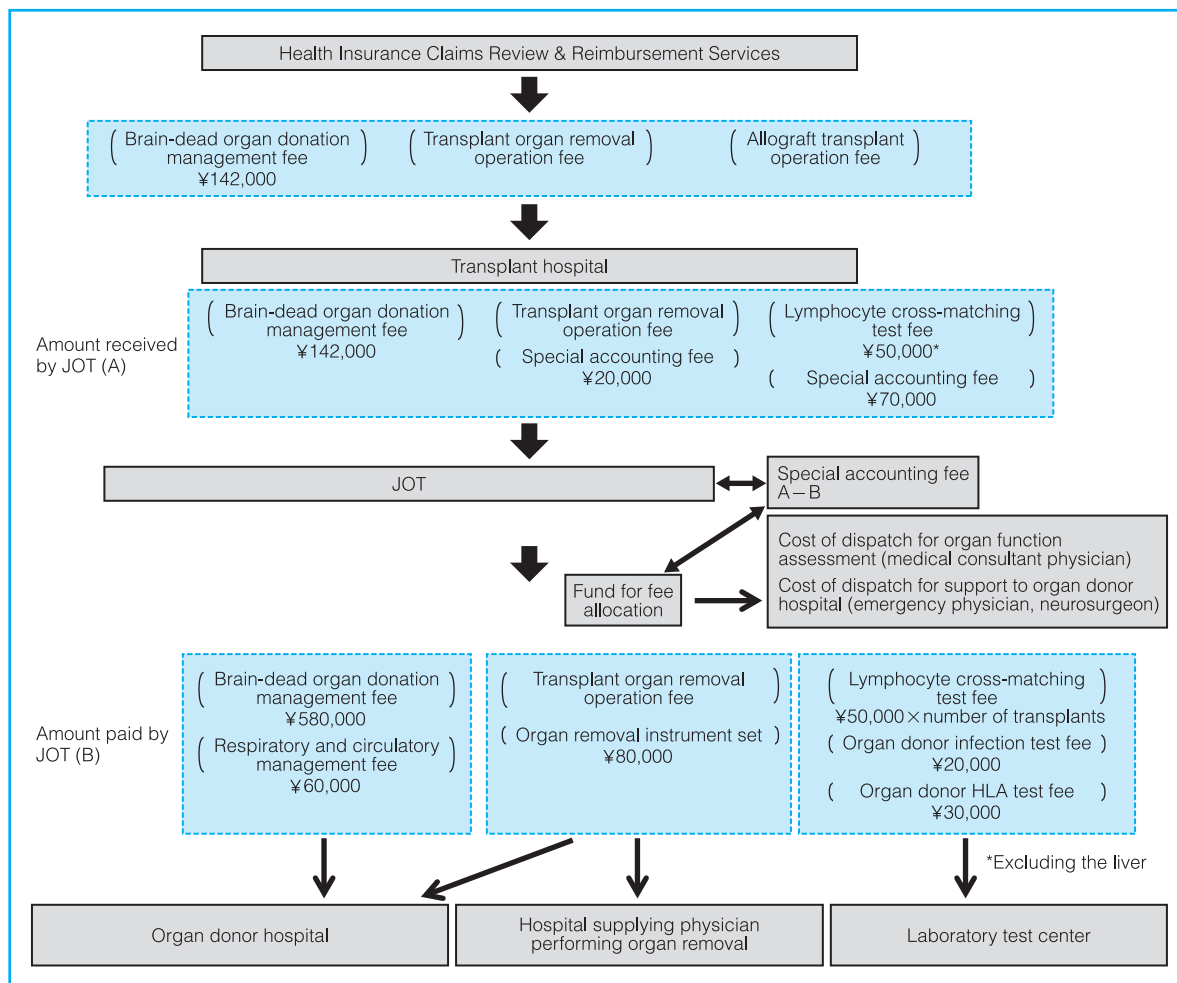


Fig. 3 Fee allocation in brain-dead organ donation

This information is recorded, as well as subsequent follow-up on postoperative progress. The coordinator delivers the letters of thanks written by recipients to the donor family, tells them the progresses of transplant operations, conveys the gratitude of recipients, and presents the letter of appreciation from the Minister of Health, Labour and Welfare.

Media Coverage of Information on Organ Donors and Transplant Hospitals

After organ removal operations are completed, the scope of information disclosure is confirmed with the donor family and a press conference is held at the JOT headquarters or the organ donor hospital by the representative from the Ministry

of Health, Labour and Welfare Office of Organ Transplantation, JOT chief coordinator, and the attending physician and director of the organ donor hospital.

If the family does not want to disclose the name and place of the organ donor hospital, only the general area (e.g., Kanto-Koshinetsu or Tohoku area) is announced at the JOT headquarters so that the specific location may not be identified. The information disclosed includes the organs removed, the names of transplant hospitals receiving each organ, the approximate age (e.g., rounded to the nearest 10) and gender of the donor. It is also disclosed whether the intent of the donor had been expressed or whether it was unknown. Recently, in the case where the intent of the donor is unknown, coordinators are

trying to convey the comment of the family about why they decided to agree on organ donation.

The JOT website discloses the data concerning transplantation for all cases of brain-dead organ donation, including the number of transplants by organ type, the survival of organ recipients, the information on donors, the dates of brain death diagnoses, and the information on transplant facilities for each organ.

Allocation of Fees in Brain-Dead Organ Donation (Fig. 3)

With regard to the allocation of fees, transplant hospitals charge medical fees including the brain-dead organ donation management fee, the transplant organ removal fee, and the allograft transplant operation fee. Payment is then made via the JOT to the organ donor hospital according to the fee allocation rules. The amounts of fees were increased by the revision of medical fees in April 2010.

JOT receives the following amounts from transplant hospitals: the brain-dead organ donation management fee of 142,000 yen (US\$1,844)*² for each organ; a certain amount from the transplant organ removal operation fee and the special accounting fee of 20,000 yen (US\$260) from the same source; and the lymphocyte cross-matching test fee of 50,000 yen (US\$ 649) and the special accounting fee of 70,000 yen (US\$909) from the transplant operation fee.

Out of the sum of these amounts, 640,000 yen (US\$8,312) of the brain-dead organ donation management fee is paid to the organ donor hospital. If a physician in charge of respiratory and circulatory management is sent from outside of the organ donor facility, 60,000 yen (US\$779) out of this amount is paid to the hospital supplying the physician in charge of respiratory and circulatory management. If organ transplantation has been performed, part of the transplant organ removal operation fee for each organ is paid to the organ donor hospital (heart: 296,000 yen (US\$3,844), bilateral lungs: 298,500 yen (US\$3,877), liver: 416,000 yen (US\$5,403), simultaneous pancreas and kidneys: 395,400 yen (US\$5,135), kidney: 192,000 yen (US\$2,494)). If the organ removal instrument set is supplied by the organ donor hospital, the hospital receives 40,000 yen (US\$519) for an abdominal surgery set and 40,000 yen for a thoracic surgery set.

The hospital supplying the physicians performing organ removal receives part of the transplant organ removal operation fee. The laboratory test center receives from JOT 30,000 yen (US\$390) as the organ donor HLA test fee, 20,000 yen as the organ donor infection test fee, and 50,000 yen per test in the lymphocyte cross-matching test fee.

In addition, the organ donor hospital receives from JOT up to 2 million yen (US\$25,974) as the subsidy for the cost related to organ donation, provided that relevant conditions are met.

References

1. Japan Organ Transplant Network. <http://www.jotnw.or.jp/donation/donorcard.html>. Accessed Sep 2011. (in Japanese)
2. Japan Organ Transplant Network Organ Donor Facility Committee (ed). Protocol for Organ Donor Facilities. Tokyo: Japan Organ Transplant Network; 2010:7. (in Japanese)

*2 Yen/US dollar exchange rate: 1 US\$=77 yen.