

First Ever Organ Transplantation from A Brain-Dead Person in Bangladesh: A Successful Outcome of The Human Organ Transplantation Act

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Abstract

On the 19th of January 2023, a historic event took place in the field of medical practice and country's healthcare system. A 20-year-old girl named Sarah Islam was pronounced clinically dead on Wednesday (18 January, 2023) while being treated at Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka, Bangladesh, with her terminal illness as she has been suffering from tuberous sclerosis since her childhood. Her final act was termed 'heroic' by her attending physicians as she became the first patient in the country to donate her organs while being brain-dead. The next day in the early morning (19 January, 2023) doctors conducted the country's first-ever cadaveric kidney transplantation as taken from her. The recipients were two females in their 30s who were reportedly recovering well after the surgery. Those two surgeries were performed separately at Bangabandhu Sheikh Mujib Medical University (BSMMU) Hospital and the National Kidney Foundation Hospital in Dhaka. The Human Organ Transplantation Act (HOTA) officially came into force in Bangladesh on April 13, 1999, allowing organ donations from both living and brain-dead donors; after long discussion, some amendments were ratified by the Parliament in 2018. The Act places some legal requirements around the collection and preservation of human organs as well as ensuring their transplantation into a human body. Few years back, religious leaders came forward to issue a fatwa (religious approval) that recognize both living and brain death criteria and permit both living and brain-dead donors to donate organs for transplantation. Based on that fatwa and a long medical discussion the country's parliament passed this Act. Enacting the HOTA shows an immense influence in our society on cadaveric organ donation and transplantation especially from brain-dead individuals, and we hope that this historic donation will create more awareness and pave a new path for organ donation campaign in the country in near future.

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Introduction

Organ transplantation is one of the modern medical treatment modalities that can save the lives thousands of patients with end-stage organ failure who are suitable candidates for

transplantation.¹ However, the development of human organ transplantation in Bangladesh is relatively new. The first successful living-related kidney transplantation was performed at the

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Institute of Postgraduate Medicine and Research (now Bangabandhu Sheikh Mujib Medical University) in October 1982.^{1,2} However, regular kidney transplantations from living-related donors in this hospital have been continuing since 1988.^{1,2}

On January 19, 2023, a historic event took place in the field of medical practice and country's healthcare system. A 20-year-old girl named Sara Islam was pronounced clinically dead on Wednesday (January 18) after treated with her terminal illness at Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka, Bangladesh. She became the first patient in the country to donate her organs while being brain-dead.³⁻⁵

Case Summary

Sarah Islam was pronounced clinically dead on Wednesday (January 18) after being terminally ill since childhood from tuberous sclerosis at Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka, Bangladesh. She was admitted to the Intensive Care Unit (ICU) at BSMMU on Monday (January 16) as her health deteriorated after undergoing a brain surgery done in India recently. Conventionally, the three essential findings in brain death are coma, absence of brainstem reflexes, and apnoea. A critical evaluation for brain death was considered in such patient who have suffered a massive, irreversible brain injury of identifiable cause. The moment the patient was determined to be brain dead was legally and clinically dead. All phases of the determination of brain death were clearly documented in the medical record. Her final act was termed 'heroic' by her attending physicians

as she became the first patient in the country to donate her organs while being brain-dead. On Thursday (19 January), doctors conducted the country's first-ever cadaveric kidney transplant (from brain-dead medical patients). As her mother consented to donate Sara's organs, surgeons started to initiate prompt transplantation surgeries, known as cadaveric transplantation. The recipients were two females in their 30s who were reportedly recovering well after the surgery. Those two surgeries were performed separately at Bangabandhu Sheikh Mujib Medical University (BSMMU) Hospital and the National Kidney Foundation Hospital in Dhaka. Meanwhile, her two corneas were also transplanted at Bangabandhu Sheikh Mujib Medical University (BSMMU) Hospital and Sandhani Eye Hospital in Dhaka. One of the patients was in his 30s having blindness since birth, while the other in 60s, having acquired blindness. Thus, Sara Islam's consent to donate her organs after her death has given new life to four, two with completely damaged kidneys and two without eyesight.

Discussion

Transplantation remains the optimum treatment for patients with end-stage organ failure, e.g., kidney. However, the availability of donor organs in Bangladesh fails to keep pace with the increasing demand, which ultimately results in a long waiting list of potential recipients.⁶ Recently, the Human Organ Transplantation Act (HOTA) came into official force in Bangladesh on April 13, 1999, allowing organ donations from both living and brain-dead donors;^{2,7} after several discussions, some amendment were taken by the Parliament in 2018.^{2,7} The Act places some legal requirements around the collection and

preservation of human organs as well as to ensure their transplantation, and the expedience thereof, into a human body. Before 1999, religious leaders in Bangladesh issued a fatwa (religious approval) that recognized both living and brain death criteria and permitted both living and brain-dead donors to donate organs for transplantation.⁸

The HOTA⁹ applies not only to the removal of organs such as the kidneys, heart, liver, pancreas, bone, bone marrow, eyes, skin, and tissue but also to any other organ or tissue from the human body that is transplantable (Section 2:1). Regarding Under the Act, the term deceased refers to a human body with a heartbeat that has been declared brain-dead by an authorized specialist physician and whose organs have been operated by life support for the purpose of transplantation into another human body (Section 2:3). The Act authorizes a team of physicians to declare brain death. The declaration of brain death committee is usually included in the donor's Determination of Brain Death. The committee is principally composed of three expert physicians with the rank of Professor or Associate Professor in Medicine or Critical Care Medicine, Neurology, and Anesthesiology, as these are the physicians with the ability to declare a person brain-dead (Section 5:1). The removal of organs from deceased donors is limited to brain-dead donors. Section 4 of the Act prescribes that organs can only be removed from a person after declaring brain death and transplanted into a person, in accordance with Section 5, in the following cases: : if

- a) the donor voluntarily donates any of his/her organs during their lifetime for the purpose of transplantation, or
- b) in the absence of such a donation mentioned in clause "a," after the diagnosis of brain death of the said person, if any of their legal heirs gives written permission allowing the organs of the said person to be used in this way, or
- c) the dead body is not claimed 24 h after the diagnosis of brain death, and the person in charge of the administrative authority permits it or
- d) in the case of dissection of the eye, skin, and tissue, if the body is in the possession of any other person or institution or place and the relevant Deputy Commissioner or, as the case may be, District Commissioner or person assigned by the District Commissioner authorizes the donation in writing (Section 4:1).

The following recipients under the Act will be given priority for receiving organs from the deceased for transplantation: firstly, a person whose brain death is declared has given written consent for the donation of an organ to a close relative or other person during their lifetime; secondly, a person who is relatively young; thirdly, a person near death where the procedure would likely save their life; and finally a person who is at a relatively nearby geographically or a short travel time away. These conditions are subject to successful cross-matching of the donor and recipient on the register (Section 7c:3). Information of patients eligible for receiving organ transplantation and persons declared brain-dead and eligible for donating organs is kept in every hospital where transplantations are regularly

conducted (Section 8:1). In this way, the Act provides an opportunity for all who are in need of organ donation, but gives priority to the wishes of the brain-dead donor's family. Moreover, the Act prohibits the selling and buying of organs or receiving any financial benefits in exchange for organs (Section 9). However, financial reimbursement including fees for surgery, transplantation, in-patient hospitalization during recovery, loss of earnings, post-operative care and medication, Intensive Care Unit (ICU) access and ventilators, burial or funereal services, and corpse transportation are not interpreted in any clauses of the Act. In our observation, the HOTA paves the way for transplantation of vital organs, such as the kidney, liver, heart, pancreas, and other body parts or organs from deceased donors, which has remained absent in Bangladesh until January 19, 2023.

In medical practice of the country, most of the hospitals lack an organ transplantation focal committee or person. The donation process is also complex and requires a coordinated team approach.¹⁰ To achieve a maximum outcome in this field some measures need to be taken immediately. A dedicated committee or team must be formed. Once brain death has happened, the coordinator will meet with the family to provide information on organ donation in a sensitive and supportive manner. During the meeting with the family, the patient remains on a breathing machine and can be given medications while the family is making a decision.⁶ The decision can be easier and less stressful for the family if they have already talked about organ donation before. The family may give consent for which organs they wish to donate during this

meeting.¹⁰ Once a decision has been made by the family, then they can go forward and make all the funeral arrangements. Then donated organs are matched to the suitable recipients based on waitlist, urgency, necessary physical and laboratory tests.^{6,10} The most suitable recipient for each organ is identified before that organ is removed, because organs cannot be stored for long periods of time outside the body. Finally, for the best match of an organ to a recipient, blood HLA typing (DNA/genetic test) is done to see which recipient would have the least chance of rejection of the organ. Every attempt is made to find an eligible recipient for each organ.^{6,10} After donation has occurred, the family is contacted by telephone to tell them which organs were recovered for transplant or research. Both the families of the donor and the recipient will also receive formal institutional letters. The recipients and donor families should be confirmed about their privacy which must be maintained strictly.¹⁰

Conclusion

Organ donation has a great impact in modern healthcare as it improves health and saves lives. When approached from a virtue ethics perspective, we may have a moral obligation to donate our organs after our death. Donating our organs may be how we could continue behaving virtuously even after our life is over. Besides, enacting the HOTA shows an immense influence in our society on cadaveric organ donation and transplantation, and we hope that this historic donation will create more awareness and pave a new path for organ donation campaign in the country in near future.

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