

Original Research Article

Knowledge, awareness and attitude on infant organ donation among medical students

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ABSTRACT

Background: In India, without a viable donor nearly 5 lakh people die each year from organ failure. Infant organ donation, though a rare global phenomenon has been gaining momentum in transplantation and research. As future doctors who may counsel a potential donor family, medical students need an expanded knowledge and attitude to promote organ donation. Therefore, this study was conducted to determine the present knowledge of medical students, to identify areas lacking and to suggest measures to close these gaps.

Methods: A uniquely designed questionnaire of open and closed ended questions related both to general and infant organ donation was distributed. Following this, an educational intervention was given and post intervention responses were calculated.

Results: Overall improvement was seen after giving educational intervention about infant organ donation. Out of 65 participants, 23% (n=15) were aware about organ donation and organ donation day which improved to 92% (n=60). Only 8% (n=5) were initially familiar with paediatric organ donation, which increased to 94% (n=61). The support for paediatric organ donation increased from 65% (n=42) to 97% (n=63).

Conclusions: Infant organ donation has unexplored potentials which can alter thousands of lives each year. As receptive learners and future physicians, medical students are most likely to understand these advancing medical sciences and its real life application. Our study demonstrates the substantial changes in student's attitudes on foetal donation by a brief exposure through teaching sessions. Hence, lectures on progressive medical interventions such as infant organ donation should be encouraged in first year M.B.B.S itself.

Keywords: Awareness, Infant, Organ donation, First MBBS students

INTRODUCTION

Organ donation involves a potentially lifesaving gift from the donor to the recipient. In spite of the medical and scientific breakthroughs in the field of transplantation in the past few decades, there exists a significant disparity between the need and availability of organ donation. India has among the lowest rates of organ donation in the world at 0.34 per million, particularly when compared to other developed countries like Spain 36 per million, Croatia 35

per million, USA 27.02 per million.¹ As per available data from Organ bank India, nearly five lakh people die each year due to complications from organ failure with the absence of a viable donor.¹

Organ transplantation involves numerous ethical considerations, especially in the field of paediatrics and neonatology.² Recovering organs from donors after formal declaration of brain death, donation after neurologic determination of death (DNDD) lead to better

outcomes and readily became the standard source of organs for several decades.^{3,4} However, the growing need for donor organs not met by traditional “brain-dead” donors and the desire of dying patients and families to donate organs renewed interest in donation after cardiac determination of death (DCDD), which was reintroduced in 1993 when DeVita and Snyder published the Pittsburgh protocol.⁵

In today’s era, mortality and morbidity is increasing due to organ failure. Hence there is an overwhelming need for organ donation and subsequent transplantation. In India, the Transplantation of Human Organs and Tissues Act, 2011 stipulates the appointment of a transplantation coordinator to function with the treating Registered Medical Practitioner work simultaneously to counsel the patients and their family about the transplantation procedure.⁶

Infant organ donation, though a rare global phenomenon has been gaining momentum for its value in transplantation and research.^{7,8} India has taken strides towards infant donation in the recent past through the assembly of a panel to establish guidelines regarding recovery of organs from neonates and infants. These proposals remove ambiguities regarding declaration of brain dead status that existed in the Transplantation of Human Organs and Tissues Act, creating a standardized procedure that allows infants over 37 weeks of gestation to be considered for organ donation.⁹

Tontus et al from their study stated that a major amenable factor facing the dearth of organ donation is the lack of information regarding its legal and logistic aspects among health care providers.¹⁰ As receptive learners and future physicians, medical students are most amenable to understanding the advancing medical sciences and its real life application. This especially applies on an ethically sensitive topic such as infant organ donation. However no studies have been conducted in the past to understand student doctors’ knowledge, attitudes and practices regarding infant organ donation.

Hence, this study was conducted to assess the knowledge, to identify the areas lacking and to further suggest remedial measures to close these gaps of infant organ donation among medical students.

METHODS

A Quasi experimental study was carried out at MIMER Medical College, Talegaon Dabhade – Pune from 1st December to 30th February 2020. Present study was conducted on 1st MBBS students. Out of 94 1st MBBS students who were present, 65 consented to participate in the study. Purposive sampling technique was used. Ethical approval was taken from the Institutional Ethics Committee. The methodology for the study was explained

to all participants and they were assured that all responses would be anonymous and confidential. Initially, a uniquely designed questionnaire consisting of questions related both to general and infant organ donation knowledge, attitudes and practices was distributed. Participants were provided with 15 minutes to answer the questions privately and individually and no discussion between participants was allowed. Following this an educational intervention on the topic of infant organ donation and transplantation with a particular emphasis on infant organ donation practices was given through a lecture session and presentation. After this, post intervention responses were taken from the participants using the aforementioned questionnaire. The assessment was carried out by asking open and closed ended questions on organ donation particularly in infants. Responses were scored as 1 point for correct and 0 points for incorrect answers and final scores were calculated. The inclusion criteria for participants was all consenting M.B.B.S students in first year (2nd semester) and exclusion criteria was set up as students who were not present or did not give consent.

The questionnaire was divided into three parts. The first part of the questionnaire was designed to determine the level of awareness on general information about organ donation and practices the influence of that information on the opinions of the medical students. The second part of the questionnaire was organized as a self-assessment of the degree of information that the medical student has about infant and pediatric organ donation and transplant. The third part of the questionnaire was designed to determine the attitudes and the influence the information of the medical students regarding organ donation and their opinions with regards to future clinical application. Data was analysed in SPSS software (Version 22).

RESULTS

Pre-test and post-test responses were taken from 65 participants. There was a significant increase in the mean score of responses from pre to post-test with 5.81 ± 2.96 and 12.83 ± 1.3 points ($p < 0.0001$) respectively (Table 1).

Initially, only 15(23%) participants were aware about organ donation and the date organ donation day is celebrated. A rise in awareness from 18(28%) to 65 (100%) was seen regarding that fact that organ donation can be done both after brain death and after circulatory death. Only 5(8%) participants were familiar with the existence of paediatric organ donation, which increased to 61 (94%) post intervention. There were 5(8%) individuals correctly responded to eight recipients being the maximum recipients from a single donor. When asked if they would support paediatric organ donation from an ethical point of view, 23 (35%) medical students responded that they would not which reduced to 2 (3%) post-intervention (Table 2).

Table 1: Mean and SD of pre and post-test.

Groups	Mean±SD	t test	P value
Pre-test (n=65)	5.81±2.96	20.619	p<0.001
Post-test (n=65)	12.83±1.3		

p<0.001, significant

Table 2: Pre test and post test responses to questionnaire.

Response to questionnaire (n=65)	Q1. Awareness about organ donation and the date organ day is celebrated	Q2. Brain death and circulatory death	Q3. Paediatric organ donation	Q4. Maximum number of recipients from a single organ donor	Q5. Support for paediatric organ donation
Pre Test	15 (23%)	18 (28%)	5 (8%)	23 (35%)	42 (65%)
Post Test	60 (92%)	65 (100%)	61 (94%)	63 (97%)	63 (97%)
P value	p<0.0001	p<0.0001	p<0.0001	p<0.0001	p<0.0001

p<0.001, significant

DISCUSSION

As it is still in its early inception stages, a major hurdle to infant organ donation programs is a lack of awareness among patients and health-care professionals. This is particularly detrimental considering the consequences a loss of time can have on the success of any transplantation procedure.⁹

Despite these barriers, infant organ donation has shown considerable promise when it could be implemented. For example, in February, 2020, Post Graduate Institute (PGI), Chandigarh conducted a successful kidney transplant from a 70 hour old donor to an adult recipient.¹¹ A health care professional at every point in the patient's management, from emergency centres and intensive care units to end stage palliative services, has the capability to initiate and raise awareness about possible organ donation.

As found in previous studies, a donor's family was more willing towards donating the organ when the overseeing healthcare professional first mentions and discusses the donation procedure.¹² Sawney et al state that adequate and open communication between doctors and patient relatives is essential in successful organ donation.¹³ However, Schaeffner et al found that less than 10% of medical students felt sufficiently confident based on their current medical training to approach a patient's family member on this matter.¹⁴

Our study shows that only 35% (n=23) students were aware of pediatric organ donation practices which rose to 97% (n=63) after educational intervention. Though there is much scarcity in data regarding infant organ donation, according to Deepthi et al and Sucharitha et al among medical students, 47% and 19% participants respectively believed that an organ can be done at any age.^{15,16}

Similarly 77% (n=50) felt they were unaware about organ donation in general and did not know when organ donation day is celebrated which post intervention

reduced to 8% (n=5). This finding is similar to a study carried in Andhra medical college which found that only 56.9% of participants showed sufficient confidence in their knowledge on organ donation.¹⁶ However, Ramadurg et al pointed out how the lack of awareness among their participants on organ donation and its risk reflected on the larger lack of knowledge among student doctors.¹⁷

There were 72% (n=47) and 65% (n=42) were not aware of certain clinical aspects of organ donation such as, after what stage of brain death organs can be donated and the number of recipients a single organ donor can potentially save. This reversed to 100% (n=65) and 97% (n=63) awareness. These strikingly low pre-intervention numbers were similar to a study of Hamed et al that found only 11.5% participants were aware about brain stem death.¹⁸

Specifically examining MBBS students as per a study from Haryana, Chawal et al found that only 24.3% and Bharambe et al showed 33.1% of 1st year MBBS medical students were aware that brain stem dead patients could be potential viable organ donors.^{19,20} A failure in distinguishing brain stem death from coma, as found in 36% medical students by Bardell et al, could detrimentally affect the advice given to the family members and possibly lead to a potential organ donor going unrecognised.²¹

Most importantly, from an initial 65% (n=42) response, at the end of the study 97% (n=63) students stated that they would support paediatric organ donation practices and programmes in the future. In the majority of studies, over 70-80% medical students were found to support organ donation transplantation practices. Additionally, there was a consensus that doctors should be the forerunners in advocating for organ donation and as medical students, they were willing to participate in future promotional activities for the cause.^{20,22,23}

In a study among undergraduate students in Saudi Arabia, though only 31% students believed that they had received sufficient formal education on organ donation and transplantation, this group had significantly higher knowledge, attitude and practice scores.²³

Our study showed the significant positive reform educational intervention has on fetal organ donation with a future scope for application in clinical practices. Radunz S et al established that after a lecture series, medical students expressed a more supportive attitude to future organ donation practices.²⁴ According to a study in Pune, the awareness on organ donation was raised from 81% to 96% gained after showing an educational film and conducting an interactive session.²⁵ This was also observed by a study in the USA, that showed that exposure to information on organ donation has positive long term effects with more clinical competency while interacting with patients about infant organ donation.²⁶

CONCLUSION

Infant organ donation can potentially alter the mortality outcomes and quality of life of thousands of people each year. For successful donation, adequate knowledge and intelligible clear conversations between treating physicians and patient relatives is needed. Current medical school curriculum, despite recent modifications, has resulted in a knowledge gap regarding organ donation. Additionally there is no mention of infant organ donation.

Our study shows the inadequacy in knowledge among medical students on foetal organ donation and demonstrates the positive outcomes an organised lecture series can have on attitudes and potential future application. Furthermore, it can pave the way for more innovative and unexplored organ donation practices as is with infant organ donation. This study has several limitations. The study cannot be generalized due to the small sample size since it was done in small specific population only on 1st MBBS students.

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