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Exploring scope for improvement in knowledge attitude and practices about organ, tissue donation and transplantation among postgraduate medical students in Mumbai, India

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ABSTRACT

Background: To promote organ, tissue donation as well as transplantation well sensitized health care providers have an important role. In the view of extended period of infancy of the same in India, a study has been conducted to explore knowledge, attitude, and practices among postgraduate medical students in Mumbai.

Methods: All were explained nature of the study and informed written consent was obtained from those who are willing to participate. Data was collected through self-administered questionnaire from December 2014 to February 2015 and was entered, analysed in Microsoft Excel 2012. Institutional Ethical Committee approval for this study was obtained and confidentiality was maintained in this process.

Results: Out of 228 postgraduate students who were given self - administered questionnaire, 163(71.49%) participants returned back the same. There was a fair knowledge about organ and tissues which can be donated as well as transplanted in the participants. However 49.69% of the respondents knew importance of time factor for safe organ preservation and 18.4% doctors could define near relative for organ donation and transplantation. Though 61.41% of the participants could correctly define brain death, only 36.19% could correctly name all members of authorized certifying committee for brain death. Majority of the participants (99.38%) supported the concept of organ donation however only 38.03% have ever counselled patients for organ donation, 11.04% were registered organ donors and 4% carried the same.

Conclusions: Postgraduate medical students lacked detailed technical and legal aspects about organ, tissue donation and transplantation which need to be strengthened.

Keywords: Donation and transplantation, India, KAP, Organ and tissue, Postgraduate medical students

INTRODUCTION

Organ transplantation has been the most sought control measure against end stage organ disease and organ failure like in end stage kidney diseases. ¹⁻³ Due to complex sociocultural, medico legal and organizations factors involved into it, organ and tissue donation has become a

challenging task.⁴⁻⁷ Addressing the widening gap between demand and supply for organ donation has become an important public health problem globally and India is no exception to that.

Doctors and nurses are in unique position to foster organ and tissue donation.⁸⁻¹¹ However, worldwide there are

studies indicative of insufficient knowledge among medical students towards organ donation and transplantation. 12-19

Surgical timeline of transplantation through skin autograph for rhinoplasty was pioneered in India, where blood and eye donation is a common practice. However with less than one in a million people donating organs, India is one of the countries with the lowest organ donation. Even twenty years after introduction of The Human Organs Transplantation Act in India, organ as well as tissue donation and transplantation still remains in extended period of infancy. This has become more so important when India is one of the preferred destinations for medical tourism worldwide. However, published evidence from our country indicates a dire need of improvement in knowledge attitude and practices of the doctors regarding the same. 19 -21 In view of dearth of relevant literature, we have conducted a study exploring the same among postgraduate students of a medical college in Mumbai who are future medical workforce of the country.

METHODS

Ethical approval for this study was obtained from the institutional ethics committee.

This study was conducted amongst the doctors pursuing postgraduate studies at a medical college, Mumbai from December 2014 to February 2015. After explaining nature of the study all the participants were invited to participate in the study and informed written consent was obtained. They were given self-administered questionnaire pertaining to knowledge, attitude and practices related to organ and tissue donation as well as transplantation. All the data was entered and analysed in Microsoft Excel 2012. Anonymity and confidentiality was ensured during this process.

RESULTS

Out of 228 postgraduate students who were given self-administered questionnaire, 163 (71.49%) participants returned back the same.

Awareness among the doctors about which organs or tissues can be donated after death was highest for cornea [92 (56.44%)] followed by heart [76 (46.62%)], kidney [76 (39.26%)], liver [63 (38.65%)], heart halves [34 (20.84%)], islets of langerhans cells [32(19.63%)], bones and tendons [20 (12.26%)] respectively. Only 18 (11.04%) doctors were aware that bone marrow can be donated after death while 4 (2.45%) has wrongly said that blood can be donated after death.

Awareness about organs and tissues which can be donated by the living donor was high among the participants for kidney [125 (76.68%)], liver [117 (68.09%)], bone marrow [99 (60.73%)], as compared to

intestine [21 (12.88%)], islets of Langerhans cells [24 (14.72%)], heart valve [17 (10.42%)] bone [20 (12.26%)].

Table 1: Awareness of the participants regarding organ, tissue donation and transplantation (N=163).

Variable	Awareness (%)
Time factor necessary for safe organ donation	81(49.69%)
Essentiality of HLA compatibility for organ donation	105 (64.41%)
Could define near relative for organ donation & transplantation	30 (18.4%)
Could define concept of brain death	123 (75.46%)
Could name all members of the authorized committee for certification of brain death	59 (36.19%)
Religion as no barrier towards organ donation and transplantation	112 (68.71%)
Could name the center for National Organ and Transplantation	39 (23.92%)
Aware that hospital was a member of Zonal Transplantation Coordination Centre	64 (39.26%)

Wrong perceptions among the respondents about which organs can be donated by a live person was identified for heart [35 (21.47%)], pancreas [30 (18.4%)], stomach [4 (2.45%)], cornea [33 (20.24%)] blood vessels [20 (12.26%)] and tendons [20 (12.26%)]. Also 21 (12.88%) participants incorrectly said that all above mentioned organs can be donated by a living donor.

Awareness among the respondents about which organ can be transplanted was highest for kidney [145 (88. 95%)] followed by liver [144 (88.34%)], heart [136 (83.14%)], pancreas[83 (50.92%)] and intestine [44 (26.99%)]. Eleven (6.74%) and 1 (0.61%) and 15 (9.2%) participants incorrectly said that uterus, spinal cord and all the organs can be transplanted respectively. Two (1.22%) of the participants did know about which organs can be transplanted.

Awareness about tissue transplantation was highest for cornea [109 (66.87%)] followed by bone marrow [98 (60.12%)], skin [89 (54.60%)], heart valve [62 (38.03%)], tendons [43(26.38%)], middle ear [7 (4.29%)] among the post graduate medical students. Fifty [30.67%] participants were of opinion that all these mentioned tissues can be transplanted.

Majority 125 (76.68%) of doctors were not aware that split transplant of liver was less successful than whole organ transplantation while 79 (48.46%) wrongly opined that genetically modified animal organs could be used for human transplantation. Eighty four (51.53%) of participants knew that lifelong antirejection treatment is required post-transplant while 108 (66.25%) were aware

that adult liver can be transplanted in a paediatric patient. Fair number of the participants 94 (57.66%) were of opinion that wishes of family members should be honoured even if deceased patient has signed for organ donation.

Majority of the respondents 135 (82.82%) correctly mentioned that heart can be functional in a brain death patient. Though 121 (74.23%) post graduate medical students could differentiate between coma and brain death, only 59(36.19%) could correctly name all members of the authorized committee to certify a patient as brain dead.

As far as own organ and tissue donation is considered, 73 (44.78%) of the post graduate medical students thought that prior permission of relatives is essential while 71(43.55%) did not think the same and 19 (11.65%) were not sure about the answer. Details pertaining to technical and legal aspects about organ & tissue donation and transplantation are shown in Table 1.

As far as general knowledge of the post graduate medical students is considered, less than half of the doctors 77 (47.23%) knew date of organ donation day celebration. Though [88 (53.98%)] of the participants were aware of Tamilnadu as an Indian state with highest number of organ donors, only 46 (28.22%) could name Spain as a country with the highest number of organ donation worldwide.

Most of the participants 150 (92.02%) felt that every hospital should be registered in organ donation registry. Need for online registration system for organ donation was echoed by almost all the 152 (93.25 %) participants. Nine (5.52%) participants were not sure about the same and 2 (1.22%) were not for this online organ donation registration.

For 116 (71.16%) participants, source of knowledge about organ donation was medical curriculum followed by internet 81 (49.69%), other mass media including newspapers [112(68.71%)], friends and family [30 (18.4%)]. Only 13 (7.97%) reported family physician as source of information on this aspect. More than half of the participants [91(55.82%)] were of opinion that multiple sources of information like television, newspaper, internet, religious meeting and attending physician will be appropriate for promotion of organ donation and transplantation.

Though 104 (63.08%) of the participants were aware that there is a law related to organ donation and transplantation only 50 (48.07%) could tell about when law was passed and only 7(6.73%) could name correctly the amended law pertaining to organ donation. Majority of the participants 147(90.18%) were for the need for amendment in the law pertaining to organ donation. Majority of the doctors 159 (97.54%) strongly supported the need for promotion of organ donation after death in India.

Seventy four (45.39%) doctors were interested to donate organ donation after death, only 9 (5.52 %) willing to register as living donor and 52(31.90%) would like to register as both. Most of the respondents [126(77.33%)] were interested to donate eye 126 (77.33%) followed by kidney [100 (61.34%)], liver [75 (46.01%)], bone marrow [66(40.49%)], heart [65 (39.87%)], lungs [42 (25.76%)], pancreas [32 (19.63%)], intestine [23 (14.11%)]. Twenty one of the participants (12.88%) did not opt for any of these organs. Sixty seven (41.10%) agreed to donate whole body after death. Further details of practices among the postgraduate students regarding organ and tissue donation as well as transplantation are indicated in Table 2.

Table 2: Details of practices of organ and tissue donation among the postgraduate medical students (N=163).

Variable	Practices (%)		Practices (%)
Have ever counselled a patient for organ donation 63 (38.65%)			
Counselled for live organ donation	14 (22.22%)	Counselled for both live &	28(44.44%)
Counselled for cadaver organ donation	20 (31.74%)	cadaver organ donation	
Not counselled for any patient for organ donation 100 (61.34%)			
As never been approached for the same by any patient	68(68%)	Due to absence of organ donation facility	7(7%)
As had no time to counsel	8(8%)	Not Justified	10(10%)
As not comfortable to raise the topic	5(5%)	No response	1(0.61%)
Registered as organ donor 18 (11.04%)			
Not Registered as a organ donor 145 (88.95%)			
As not given a thought about it	96(66.2%)	As no permission from family members	3(2.06%)
As Clueless about where to approach	31(21.37%)	As not interested	4(2.75%)
As fear of organ & tissue misuse	7(4.82%)	No reason	4(2.75%)
Carried organ donation card 8(4.9%)			

DISCUSSION

Response rate of 70% in our study was indicative of non priority in the rest of the medical students towards this important public health problem. Our response rate was lower as compared to the other published studies may be due to the fact that the other studies might have been conducted in the positive conductive environment towards organ donation and transplantation. ^{21,22}

Our study participants endorsed higher awareness about cornea as well as kidney donation in relation to other studies among medical undergraduates, postgraduate students and professionals. 19,20,23

Other aspects of the study like chances of success of split liver transplant as well as transplantation of adult liver into pediatric patients, use of genetically modified animal organs and need for lifelong antirejection treatment post transplant were not explored in the available published literature worldwide and so could not be compared. Majority of the participants [105(64.41%)] were aware that HLA compatibility is essential for organ donation as compared to blood group [27(16.56%)]. Whereas another study in Pakistan, blood grouping [114 (72.2%)] and HLA compatibility [149(94.3%)] were considered as important prerequisites for organ donation.²³ In our study comparatively lower awareness (49.69%) was recorded regarding importance of time factor for organ preservation and transplantation than another study conducted among the medical students in Pakistan.²³

In our study 94 (57.66%) participants were of opinion that wishes of family members to be honoured against deceased organ donation even if deceased patient has signed for organ donation. This finding is quelled by another study conducted among medical students in Pakistan where 84 (53.2%) said that transplantation should be carried out irrespective of unwillingness of the family members as per the donor's wishes.²³

More than half of the participants in our study (61.41%) were aware of brain death while 135 (82.82%) correctly mentioned that heart can be functional in a brain death patient. Majority 121(74.23%) doctors could differentiate between coma and brain death. Another study involving postgraduate students in India, concept of cadaver as brain dead was understood by only 23 (18.69%) while definition of brain death was not known to 20% of the respondents which involved medical undergraduates, interns and postgraduate students. 21,20 Highest awareness about brain death (97.5%) was observed in the doctors in another Indian study.²⁵Awareness regarding brain death among medical personnel in Pakistan varied from 46% to 91.4% as per published evidence. 24,26 Worldwide published literature among the medical undergraduate students echoes the scope for understanding concept of brain death. 17,22

More awareness about authorized committee members for certification of brain death [59 (36.19%)] was evident in this study as compared to another study in India where none of the participants knew the same. ¹⁹

In our study, 112 (68.71%) did not perceive religion as barrier towards organ donation. In another study conducted in India majority 96% thought that religion can not be hurdle towards organ donation. While Studies conducted in the neighbouring country Pakistan, more than 50% of the participants which included medical students, doctors and nurses had concern about the religious decrees against deceased organ donation. ^{23,24}

General knowledge of the study participants regarding country and Indian state with the highest organ donation, organ donation day could not be compared with rest of the studies which did not explored these aspects.

In our study medical curriculum outnumbered other sources of information for organ donation while other studies have shown that audio visual media followed by medical curriculum were the main sources of knowledge as far as organ donation and transplantation is considered. 17.21.23

Meagre number of the participants in our study [62 (38.03%)] have ever counselled the patients for organ donation as compared to another study in India where 63.64% of the health care providers were able to ask the relatives of the dying patients for organ donation. Our study has reported one of the lowest organ donation practices than other studies worldwide. This may be due to the fact that difference due to conductive environment elsewhere. Lower counselling rate for organ donation in our study was attributed mainly to the reason that being never approached by patients for the same. It is one of the examples of low precedence to this important issue by both the medical and general community.

Though many postgraduate students [104 (63.08%)] in our study knew about existence of law related to organ donation and transplantation, only few had detailed knowledge about the same. Other studies conducted elsewhere also indicated awareness about the law from 51% to 86.7%. ^{23,17}

Majority 145 (88.95%) of the respondents who were not registered as organ and tissue donors cited the main reason as they have not given a thought about it 96(66.2%). Another 31 (21.37%) participants were interested in organ donation however were clueless about approach. Very few had cited fear of organ misuse, abuse and misappropriated [7 (4.82%)], no permission from family members [3 (2.06%)], not interested [4 (2.75%)] and no reason [4 (2.75%)]. Similar study conducted in the post graduate medical students in India, majority 75% had not pledged for organ donation citing the reasons like

no opportunity and information, not thought of death or organ donation and others. 21

Interestingly 24 (14.72%) participants had a family history of organ donation and transplantation while in another study conducted among the undergraduate medical students 3.4% had at least one family member with an organ donation card.⁹

CONCLUSION

Though postgraduate students had fair knowledge about organ donation and transplantation they lacked detailed technical and legal aspects of the same. It shows that though topic of brain death and organ donation have been part of medical undergraduate curriculum, it has not been sufficient to make them equipped with the necessary skills. There should be well planned Continued Medical Education program with emphasis on the practical aspects of organ and tissue transplantation for the doctors pursuing higher studies as well as the professionals which can act as torch bearers. Innovative and sustainable efforts to create awareness among both the medical and general population should be developed. At the same time it is needed to strengthen facilities and all resources which offer organ retrieval and transplantation for organ and tissue donation as well as transplantation, including research.

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REFERENCES

- 1. Mehrabi A, Fonouni H, Müller SA, Schmidt J. Current concepts in transplant surgery: liver transplantation today. Langenbecks Arch Surg. 2008;393(3):245-60.
- 2. Dahm F, Weber M. Kidney transplantation-new developments. Swiss Surg. 2003;9(5):205-21.
- 3. Karlberg I, Nyberg G. Cost-effectiveness studies of renal transplantation. Int J Technol Assess Health Care. 1995;11(03):611-22.
- 4. Edwards TM, Essman C, Thornton JD. Assessing racial and ethnic differences in medical student knowledge, attitudes and behaviors regarding organ donation. J Natl Med Assoc. 2007;99(2):131-7.
- 5. Ghods AJ. Ethical issues and living unrelated donor kidney transplantation. Iran J Kidney Dis. 2009;3(4):183-91.
- 6. Edwards AG, Newman A, Morgan JD. Exposure to the field of renal transplantation during

- undergraduate medical education in the UK. BMC Med Educ. 2005;5: 32.
- 7. Edwards AG, Weale AR, Morgan JD. A survey of medical students to assess their exposure to and knowledge of renal transplantation. BMC Med Educ. 2004;4(1): 32.
- A Guide to Reading and Understanding the Center-Specific Reports(CSRs) Prepared by the Scientific Registry of Transplant Recipients (SRTR); Donation Service Area (DSA) served by LifeLink of PuertoRico (PRLL). LifeLink of Puerto Rico.January 2011 report.
- Essman C, Thornton J. Assessing Medical Student Knowledge, Attitudes, and Behavior Regarding Organ Donation. Transplant Proc. 2006;38:2745-50.
- 10. Lima CX, Lima MV, Cerqueira RG, Cerqueira TG, Ramos TS, Nascimento M, et al. Organ Donation: cross-sectional survey of knowledge and personal views of Brazilian medical students and physicians. Transplant Proc. 2010;42(5):1466-71.
- 11. Evanisko MJ, Beasley CL, Brigham LE, Capossela C, Cosgrove GR, Light J, et al. Readiness of critical care physicians and nurses to handle requests for organ donation. Am J Crit Care. 1998;7(1):4-12.
- 12. Feeley TH, Tamburlin J, Vincent DE. An educational intervention on organ and tissue donation for first-year medical students. Prog Transplant. 2008;18:103-8.
- 13. Dutra MMD, Bonfim TAS, Pereira IS, Figueiredo IC, et al. Knowledge about transplantation and attitudes toward organ donation: A survey Among Medical Students in Northeast Brazil. Transplant Proc. 2004;36:818-20.
- 14. Bardell T, Hunter DJW, Kent WD, Jain MK. Do medical students have the knowledge needed to maximize organ donation rates? Can J Surg. 2003;46:453-7.
- 15. Cantwell M, Clifford C. English nursing and medical students' attitudes towards organ donation. J AdvNurs. 2000;32:961-8.
- Chung CKY, Ng CWK, Li JYC, Sum KC, Man AH, Chan SP, et al. Attitudes, knowledge, and actions with regard to organ donation among Hong Kong medical students. Hong Kong Med J. 2008;14:278-85
- 17. Bilgel H, Sadikoglu G, Bilgel N. Knowledge and Attitudes about Organ Donation Among Medical Students. Transplantationsmedizin. 2006;18:91-6.
- 18. Mekahli D, Liutkus A, Fargue S, Ranchin B, Cochat P. Survey of First-year Medical Students to Assess Their Knowledge and Attitude Toward Organ Transplantation and Donation. Transplant Proc. 2009;41:634-8.
- 19. Edwin AR, Raja D. Attitudes of health care professionals towards organ donation. Indian J Urol. 2000;16:98-105.
- 20. Shaishav P, Desai T. Perceptions and Practices Encouraging Organ Donation Among Doctors in Surat City. National J Community Medicine. 2014;2(2):269-72.

- 21. Bapat U, Kedlaya PG, Gokulnath. Organ Donation, Awareness, Attitudes and Beliefs among Post Graduate Medical Students. Saudi J Kidney Dis Transpl. 2009;20(1):174-80.
- 22. Marqués-Lespier JM, Ortiz-Vega NM, Sánchez MC, Sánchez MC, Soto-Avilés OE, Torres EA. Knowledge of and Attitudes Toward Organ Donation: A Survey of Medical Students in Puerto Rico. P R Health Sci J. 2013;32(4):187-93.
- 23. Ali NF, Qureshi A, Jilani BN, Zehra N. Knowledge and ethical perception regarding organ donation among medical students Ali et al. BMC Medical Ethics. 2013;14:38.
- Siddiqui OT, Nizami S, Raza E, Fatmi Z. Deceased-Donor Organ Transplantation: Knowledge and Attitudes Among Health Care Professionals Managing Critically III Patients in Karachi. Experimental and Clinical Transplantation. 2012;6: 544-50.
- Reddy AVR, S. Guleria S, Khazanchi RK, Bhardwaj M, Aggarwal S, Mandal S. Attitude of Patients, the Public, Doctors, and Nurses towards Organ Donation. Transplantation Proceedings. 2003;35(1):18.
- 26. Sheerani M, Urfy MZ, Khealani B, Patel J, Qamarunnisa, Rath S. Brain death: concepts and

- knowledge amongst health professionals in province of Sindh, Pakistan. J Pak Med Assoc. 2008;58(7):352-6.
- Mishra PH, Vij A, Sarma RK. A knowledge, Attitude and Practice Study of Organ Donation and its Problems in the Metropolitian City of Delhi. J Academy of Hospital Administration. 2004;16(1).
- 28. Burra P, De Bona M, Canova D, D'Aloiso MC, Germani G, Rumiati R, et al. Changing attitude to organ donation and transplantation in university students during the years of medical school in Italy. Transplant Proc. 2005;37(2):547-50.
- 29. Schaeffner E, Windisch W, Freidel K, Breitenfeldt K, Winkelmayer WC. Knowledge and attitude regarding organ donation among medical students and physicians. Transplantation. 2004;77(11):1714-8.

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