

The awareness about eye-donation amongst medical and paramedical staff

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Abstract

Background: To determine degree of awareness about eye – donation amongst Medical and paramedical staff. **Materials and Methods:** Cross sectional study using structured questionnaire was done on MBBS students, PG students, Medical Teaching staff and staff nurses working in various departments of Govt. Medical College and Hospital, Aurangabad. **Results:** Total 300 volunteers from all 4 groups were asked to answer a structured questionnaire. Subjects had satisfactory knowledge about consent, documents needed for eye donation and place where enucleation can be performed. Subjects, specially nursing staff showed lack of satisfactory knowledge regarding whether eye donation can be performed or not, in spectacle users, contact lens users, person in which cataract/ glaucoma surgery has been done, hypertensive and diabetic people. **Conclusions:** Awareness levels are not satisfactory in Medical as well as paramedical staff, condition being worse in paramedical staff. These people being in close proximity to relatives of the diseased /dead people; increasing knowledge and awareness amongst them may be lead to increase in eye donation from our society.

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INTRODUCTION

Corneal diseases constitute a significant cause of visual impairment and blindness in the developing world. With 7.8 million blind people in India, the country accounts for 20 per cent of the 39 million blind population across the globe¹. According to the Eye Bank Association of India (EBAI), the current cornea procurement rate in India is 22,000 corneal donations per year. Of these, a significant proportion is unsuitable for transplantation². Based on our

current ratio of suitable corneas, we would need 2, 77,000 donations per year to perform 1, 00,000 corneal transplants in a year in India³. Among Indian population of corneal blindness vast majority are children. Though no population based nationwide survey has been undertaken on the prevalence of blindness in India, is estimated to be 0.8/1000 children in the age group of 0-15 years. Currently, there are an estimated 270,000 blind children in India^{4,5}. This leads to social and economic burden. Overcoming this problem requires approximately one lakh keratoplasty per year in India for which approximately 2.5 lakhs eyes per year are required. In Indian population of approximately 121 crores with crude death rate of 8 lakhs/year, approximately 96.8 lakh people die every year.⁽⁶⁾ The present collection from all over the country in a year is 20,514⁶. Proper promotion, motivation and strategies are required for increasing eye-donation. Public awareness for eye-donation is done through mass medias. Though basic level awareness is there in public, actual rate of eye donation is very less. Responsibility of eye donation

and keratoplasty is carried out by Ophthalmologist and/or eye-bank personals. Though basic level awareness is there in public, actual rate of eye donation is very less. Many people do “pledge” for eye donation. But actual decision of eye donation is taken by relatives of deceased (Expired) person. Tertiary care hospitals with ICUs and trauma centers have high morbidity rates and cornea procurement rates can be higher with readily available patient investigation, previous treatment and other data. Cornea can also be collected more easily than from home-death donations, in sterile hospital environs. Counseling of relatives ‘at that prime event’ in pre-sensitized target people can serve our purpose. Medical and paramedical staffs, working in various faculties are in close proximity to relatives of that person. These staffs can serve as catalyst via last minute counseling of relatives of deceased persons. Thereby, scientific knowledge and awareness about eye-donation and keratoplasty in these ‘catalyst’ themselves becomes an importance issue.

We conducted a study and purpose of our study was to determine degree of awareness about eye-donation and keratoplasty, amongst Medical and paramedical staff. Ours was a cross sectional study using “Structured questionnaire”, conducted at a tertiary health care centre in central India. Study involved 300 volunteers, 75 from each group-1.MBBS students, 2.PG students 3.Medical teaching staff 4.Staff nurses, working in various departments of the government medical college and hospital. Those working in dept. of ophthalmology were excluded from study. Participants were informed that the information collected therein that questionnaire will not be disclosed with identity of name to anywhere and they were asked to answer all these questions themselves without help from friends/ colleagues/ books, etc. and mark the most appropriate answer. Questionnaire included questions regarding consent for eye-donation, documents required for it, places where eye-donation can be done, contraindications for eye-donation, regarding eye banking, complications and prognosis after keratoplasty, beliefs and misbeliefs regarding eye-donation and keratoplasty.

MATERIALS AND METHODS

RESULTS

Table 1: Eye banking

	Medical Students			Post graduate students			Medical teachers			Nursing staff			
	Sufficie nt	Insuffici ent	Don't know.	Sufficie nt	Insuffici ent	Don't know.	Sufficie nt	Insuffici ent	Don't know.	Sufficie nt	Insuffici ent	Don't know.	
Compared to requirement, number of eye-donation are	1 (1.33%)	66 (88%)	8 (10.67%)	4 (5.34%)	64 (85.33%)	7 (9.34%)	5 (6.67%)	68 (90.67%)	2 (2.66%)	5 (6.67%)	58 (77.33%)	12 (16%)	
Donated eyes may be sent from registered eye-bank to other centers	Yes 15 (20%)	No 9 (12%)	Don't know 51 (68%)	Yes 42 (56%)	No 7 (9.33%)	Don't know 26 (34.67%)	Yes 33 (44%)	No 13 (17.33%)	Don't know 29 (38.67%)	Yes 39 (52%)	No 15 (20%)	Don't know 21 (28%)	
After eye donation donor is transplanted to recipient/patient.	Cornea 69 (92%)	Comple te eyeball 5 (6.67%)	Don't know 1 (1.33%)	Cornea 63 (84%)	Comple te eyeball 5 (6.67%)	Don't know 7 (9.33%)	Cornea 69 (92%)	Comple te eyeball 1 (1.33%)	Don't know 5 (6.67%)	Cornea 39 (52%)	Comple te eyeball 15 (20%)	Don't know 21 (28%)	
Cornea/com plete eyeball/Don 't know.	Corneal blindness is	Reversi ble	Irreversi ble	Don't know	Reversi ble	Irreversi ble	Don't know	Reversi ble	Irreversi ble	Don't know	Reversi ble	Irreversi ble	Don't know

57 (76%)	9 (12%)	9 (12%)	51 (68%)	15 (20%)	9 (12%)	53 (70.67%)	7 (9.33%)	15 (20%)	45 (60%)	11 (14.67%)	19 (25.33%)
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Table 2: Consent and documents for eye donation,

	Medical Students			Post graduate students			Medical teachers			Nursing staff		
	Yes	No	Don't know	Yes	No	Don't know	Yes	No	Don't know	Yes	No	Don't know
'Preregistration' or 'will' of deceased (died) person is must	30 (40%)	10 (13.33%)	35 (46.67%)	27 (36%)	28 (37.33%)	20 (26.67%)	42 (56%)	15 (20%)	18 (24%)	40 (53.33%)	19 (25.33%)	16 (21.34%)
Consent of next kin of died person is needed	45 (60%)	10 (13.33%)	20 (26.67%)	69 (92%)	3 (4%)	3 (4%)	61 (81.33%)	11 (14.67%)	3 (4%)	66 (88%)	7 (9.33%)	2 (2.67%)
Affidavit of Court/ Tahsildar is needed	18 (24%)	24 (32%)	33 (44%)	14 (18.66%)	49 (65.34%)	12 (16%)	3 (4%)	58 (77.34%)	14 (18.66%)	10 (13.33%)	32 (42.67%)	33 (44%)
Death certificate of died person from registered medical practioner is needed	62 (82.67%)	1 (1.33%)	12 (16%)	60 (80%)	2 (2.67%)	13 (17.33%)	65 (86.66%)	4 (5.34%)	6 (8%)	59 (78.66%)	11 (14.67%)	5 (6.67%)

Table 3: Place of eye-donation

	Medical Students			Post graduate students			Medical teachers			Nursing staff		
	Yes	No	Don't know	Yes	No	Don't know	Yes	No	Don't know	Yes	No	Don't know
Home of died person	45 (60%)	21 (28%)	9 (12%)	58 (77.33%)	8 (10.67%)	9 (12%)	69 (92%)	3 (4%)	3 (4%)	32 (42.66%)	18 (24%)	25 (3.34%)
Hospital where death occurred	63 (84%)	3 (4%)	9 (12%)	52 (69.34%)	13 (17.33%)	10 (13.33%)	73 (97.34%)	1 (1.33%)	1 (1.33%)	54 (72%)	6 (8%)	15 (20%)

Table 4: Eye-donation in special situation

Eye-donation can be done in patients with	Medical Students			Post graduate students			Medical teachers			Nursing staff		
	Yes	No	DK	Yes	No	DK	Yes	No	DK	Yes	No	DK
Spectacle use	6 (8%)	59 (78.67%)	10 (13.33%)	7 (9.33%)	63 (84%)	5 (6.67%)	2 (2.67%)	69 (92%)	4 (5.33%)	7 (9.33%)	41 (54.67%)	27 (36%)
Contact lens use	8 (10.67%)	44 (58.67%)	23 (30.66%)	11 (14.67%)	4 (5.33%)	21 (28%)	8 (10.67%)	54 (72%)	13 (17.33%)	16 (21.33%)	20 (26.67%)	39 (52%)
Cataract surgery done	14 (18.66%)	55 (73.33%)	6 (8%)	8 (10.67%)	52 (69.33%)	15 (20%)	4 (5.33%)	56 (74.67%)	15 (20%)	15 (20%)	56 (74.67%)	4 (5.33%)
Glaucoma surgery done	24 (32%)	42 (56%)	9 (12%)	12 (16%)	42 (56%)	21 (28%)	9 (12%)	42 (56%)	24 (32%)	11 (14.67%)	45 (60%)	19 (25.33%)
Hypertension	30 (40%)	30 (40%)	15 (20%)	5 (6.67%)	59 (78.66%)	11 (14.67%)	5 (6.67%)	63 (84%)	7 (9.33%)	6 (8%)	52 (69.33%)	17 (22.67%)
Diabetes	36 (48%)	27 (36%)	12 (16%)	15 (20%)	47 (62.67%)	13 (17.33%)	8 (10.67%)	50 (66.67%)	17 (22.67%)	16 (21.33%)	44 (58.67%)	15 (20%)
HIV infection	45	24	6 (8%)	67	5	3 (4%)	70	4	1	70	0	5

	(60%)	(32%)		(89.33%)	(6.67%)		(90.33%)	(5.33%)	(1.33%)	(90.33%)		(6.67%)
Septicemia	42	15	18	33	19	23	43	13	19	55	7	13
	(56%)	(20%)	(24%)	(44%)	(25.33%)	(30.67%)	(57.33%)	(17.33%)	(25.33%)	(73.33%)	(9.33%)	(17.33%)
Bronchial Asthma	18	36	21	9	56	10	4	66	5	5	59	11
	(24%)	(48%)	(28%)	(12%)	(74.67%)	(10.33%)	(5.33%)	(88%)	(6.67%)	(6.67%)	(78.67%)	(14.67%)
Disseminated cancer	51	12	12	35	11	29	57	3	15	53	10	12
	(68%)	(16%)	(16%)	(46.67%)	(14.67%)	(38.67%)	(76.67%)	(4%)	(20%)	(70.67%)	(10.33%)	(16.67%)

Table 5: Possible Complications after Keratoplasty

Condition	Medical student			PG student			Medical teacher			Nursing staff		
	Yes	No	DK	Yes	No	DK	Yes	No	DK	Yes	No	DK
Graft rejection	58 (77.33%)	8 (10.67%)	9 (12%)	69 (92%)	3 (4%)	3 (4%)	72 (96%)	0	3 (4%)	61 (81.33%)	5 (6.67%)	9 (12%)
Graft failure	60 (80%)	9 (12%)	6 (8%)	70 (93.33%)	2 (2.67%)	3 (4%)	70 (93.33%)	1 (1.33%)	4 (5.33%)	59 (78.66%)	4 (5.33%)	12 (16%)
Graft infection	60 (80%)	3 (4%)	12 (16%)	73 (97.33%)	0	2 (2.67%)	71 (94.66%)	2 (2.67%)	2 (2.67%)	66 (88%)	4 (5.33%)	5 (6.67%)
Glaucoma	48 (64%)	9 (12%)	18 (24%)	43 (57.33%)	6 (8%)	26 (34.67%)	29 (38.67%)	10 (13.33%)	36 (48%)	40 (53.33%)	6 (8%)	29 (38.67%)
Recurrence of corneal opacity	50 (66.67%)	6 (8%)	19 (25.34%)	51 (68%)	12 (16%)	12 (16%)	51 (68%)	13 (17.33%)	11 (14.67%)	40 (53.33%)	23 (30.67%)	12 (16%)

Table 6: Beliefs and misbeliefs

	Medical Students			Post graduate students			Medical teachers			Nursing staff		
	Yes	No	DK	Yes	No	DK	Yes	No	DK	Yes	No	DK
Transmission of trait of personality of donor can occur through donated eye.	18 (24%)	27 (36%)	29 (40%)	0	75 (100%)	0	0	75 (100%)	0	3 (4%)	64 (85.33%)	8 (10.67%)
Reflection of 'soul' occurs through donated eyes.	18 (24%)	30 (40%)	27 (36%)	0	75 (100%)	0	0	75 (100%)	0	3 (4%)	72 (96%)	0

DISCUSSION

Eye Banking⁶

Eye bank is an organization which deals with the collection, storage and distribution of cornea for the purpose of corneal grafting, research and supply of the eye tissue for other ophthalmic purposes.

Functions of an eye bank include:

1. Promotion of eye donation by increasing awareness about eye donation to the general public.
2. Registration of the pledger for eye donation.
3. Collection of the donated eyes from the deceased.

4. Receiving and processing the donor eyes.
5. Preservation of the tissue for short, intermediate, long or very long term.
6. Distribution of the donor tissues to the corneal surgeons.
7. Research activities for improvement of the preservation methodology, corneal substitute and utilization of the other components of eye.

Eye collection centres

These are the peripheral satellites of an eye bank for better functioning. One

collection centre is viably located at an urban area with a population of more than 200,000. About 4-5 collection centres are attached with each eye bank.

Functions of eye collection centre are:

- Local publicity for eye donation.
- Registration of voluntary donors.
- Arrangement for collection of eyes after death.
- Initial processing, packing and transportation of collected eyes to the attached eye bank

Facts about eye donation

- Almost anyone at any age can pledge to donate eyes after death; all that is needed is a clear healthy cornea.
- The eyes have to be removed within six hours of death.
- Eye donation gives sight to two blind persons as one eye is transplanted to one blind person.
- The eyes can be pledged to an eye bank and can be actually donated to any nearest eye bank at the time of death.
- The donated eyes are never bought or sold.
- Eye donation is never refused.
- The eyes cannot be removed from a living human being in spite of his/her consent and wish.

Corneal transplantation offers the potential for sight restoration to those who are blind from corneal diseases. This, however, is dependent on people willing to pledge their eyes for donation, and relatives willing to honor that pledge upon the death of the person. We all know, additional efforts are needed to improve awareness of eye donation in the community. Mass media communication, counselling by eye bank counsellors is being done. Additional strategy can be- end point counseling of relatives of deceased person by their own physicians/surgeons/nurses. For which study was done to know whether these staff are aware of eye donation or not. In our study:

- Participants were aware about insufficiency of eye-donation, consent and documents needed for eye donation
- They had lack of certainty about place of eye donation
- All, specially nursing staff showed lack of scientific knowledge regarding contraindications of eye-donation
- This lack of knowledge may leads to improper counseling of donors resulting in less eye donation

Overcoming these deficit may help in proper “End stage counseling” which in turn will increase hospital retrieval of eyeball

SIMILAR STUDIES

A study about “Awareness and knowledge on eye donation among university students” by Bharti MK, *et al.*¹⁷ shows

that, Four hundred (400) students studying first year Medicine, Dentistry, Laboratory Technology, Pharmacy, Biomedicine and Bioengineering degree courses in the University of Malaya were assessed on their awareness and knowledge on eye donation using an open ended questionnaire. The results of this study indicate that there is a need to educate the young adults in our society about corneal transplantation so that they can in turn motivate other members of society and their own family members to become eye donors, thus facilitating the availability of donor corneas for corneal transplantation in Malaysia. Another study “Eye donation: Mere awareness and willingness not enough. Only a catalyst can improve corneal harvesting rates” by Bageshri Gogate et al.¹⁸ mentions that, although mass media can prime a community in awareness and improve willingness to donate, only a catalyst in those few crucial hours after death can actually ensure that the corneas are harvested. Raising awareness through mass media is a necessary, but not sufficient condition, to improve human organ harvesting. The focus should be on having more “catalysts” who will help to facilitate the reaction. Another study “What does the medical student know about eye donation/corneal transplant? The University of Nigeria scenario.” By Okoye OI et al.¹⁹ shows, medical students lack adequate knowledge about some aspects of eye donation and corneal transplantation. This may be a predictor of the level of awareness among the general public. Concerted innovative education and information dissemination strategies are required at this stage of national development to address the misconceptions surrounding eye donation and corneal transplant. There is a need to target medical students as future motivators, counsellors and eye donors. A study on “Medical students' perception on eye donation in Delhi” by Meghachandra M Singh, et al.¹ mentions- first-year medical students were well aware about eye donation and most of them were inclined to pledge for eye donation. The perceived reasons for not donating eyes need to be considered while creating awareness about eye donation in the community. The medical students could be actively involved as volunteers in eye donation campaigns, wherein after proper training in counseling techniques, they can act as counselors for eye donors. They can also contribute by participating in creating awareness and motivating the people for eye donation during their postings in the community medicine.

CONCLUSION

Medical and paramedical staff lacks adequate knowledge about some aspects of eye donation and corneal transplantation. This may be a predictor of the level of awareness among the general public. Concerted innovative education and information dissemination

strategies are required to address the misconceptions surrounding eye donation and corneal transplant. There is a need to target medical students, medical and paramedical staff as future motivators, counselors and eye donors. This would help advance the eye donation rates and hence in turn, keratoplasty.

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