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Awareness and Attitude Toward Eye Donation among Medical Students in Qassim University – A Cross-sectional Study, 2019

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Abstract

AIM: The aim of the study was to evaluate the level of awareness and attitude for eye donation among medical students of Qassim University.

METHODS: All medical students of Qassim University were invited to participate in this cross-sectional study in 2019. The survey contains 10 questions regarding knowledge for different aspects of eye donation, one question on their attitude to donate eye, and one question to specify reasons for reservation for eye donation which were inquired. Awareness score of 50% and more was defined as "good awareness." Awareness was associated to variables such as gender, grade of medical school, and if they attended ophthalmology course.

RESULTS: Of the 600 students, 386 were surveyed. The good knowledge regarding eye donation was in 19.2% (95% CI 15.2; 23.1) participants. Attitude to donate eye was positive in 102 (26.4% [95% CI 22.0; 30.8]) participants. One hundred and seventy-nine (46.5%) participants were undecided for eye donation. The level of knowledge was positively and significantly associated to attitude to donate eyes. (OR = 2.44 [95% CI 1.4; 4.2], p = 0.001). The awareness was not associated to gender (p = 0.97) and years in medical college (p = 0.6). Attending ophthalmology course did not significantly affect the knowledge about eye donation (p = 0.8). Lack of adequate information was the main barrier among 146 (37.6%) students for their unwillingness for eye donation.

CONCLUSIONS: Awareness about eye donation among medical students was low. Health promotion, inclusion of eye donation in undergraduate curriculum, and ophthalmic training are recommended to improve both knowledge and attitude of medical students.

Introduction

Corneal pathologies although declined, still contribute substantially to the global burden of visual disability [1]. Most of them could be treated by corneal transplant and vision could be restored that remains stable even after 5 years [2]. Although it is leading organ to be transplanted with highest success rate, the demand is far more than supply [3]. In Saudi Arabia, many keratoplasty surgeries are performed, but only two of them were using local donated eyes [4], [5]. To increase corneal harvesting locally, all efforts should be done. Medical students are the future first-line health staff that interacts with terminal patients and their relatives. If they have adequate knowledge and positive attitude toward eye donation, they will be able to counsel and convince for eye donation.

Assessment of awareness and attitude regarding eye donation among health staff has been carried out in Indian and African subcontinent [6], [7], [8]. However, to the best of our knowledge, only one survey targeting medical students has been conducted in Riyadh, Saudi Arabia, recently [9].

We conducted a survey targeting medical students of Qassim University of Saudi Arabia and present the level of awareness and attitude for eye donation and their determinants.

Methods

The ethical committee of Qassim University approved of this cross-sectional survey. All medical students of this university were study population. Those agreeing to participate were surveyed. Their identity was delinked from the analyzed data.

Approximately, there are six hundred medical students (as a total population) in the college of medicine at Qassim university. The acceptable level of knowledge among medical students will be in 74% [6]. To achieve 95% confidence interval and acceptable error margin of 5% with clustering effect of 2, we need to survey at least 397 medical students.

The survey comprised three sections; demographic data, 10 questions related to knowledge about eye donations, one question about student's willingness to donate his/her own eyes, and one question regarding barrier for not donating eyes. The correct

answer for each question was based on the consensus response of three expert cornea specialists. This was compared to the response of medical student. If there was agreement in the reply +1 score was awarded. If student had wrong answer or did not know the answer, 0 score was given. The sum of all 10 questions of knowledge was further graded as "5 and more" (good knowledge) and "<5 score" (poor knowledge).

The SurveyMonkey® software was used to collect data [10]. The data were then transferred into a spreadsheet of Statistical Package for the Social Sciences (SPSS 25) (IBM, Chicago, USA). The qualitative data were presented as frequencies and percentage proportions. The quantitative data were first plotted to study its distribution. In case of normal distribution, their mean and standard deviations were estimated. The knowledge score grade was associated to other variable to calculate odds ratio, its 95% confidence interval, and two-sided p values. $p < 0.05$ was considered as statistically significant.

Results

Of the 600 medical students, 386 (64%) participated in the present survey. The demographic profile of the participants is given in Table 1.

Table 1: Profile of medical students (survey participants)

Age	Mean	22.0	
	SDV	1.9	
		Number	Percentage
Gender	Male	260	67.4
	Female	126	33.6
Marital status	Married	7	1.8
	Unmarried	379	98.2
Education level	1st year	84	21.8
	2nd year	61	15.8
	3rd year	90	23.3
	4th year	99	25.6
	5th year	52	13.5
Had ophthalmology course	Yes	135	35
	No	251	65

The rate of "Good grade" of knowledge regarding eye donation was 19.2% (95% CI 15.2; 23.1) among medical students.

The response to each of 10 knowledge related questions is given in Table 2.

Table 2: Response of the study participants to the questions about eye donation

(n=386)	Correct answer		Wrong answer	
	#	%	#	%
Which part of the donated eye is transplanted to the needy eye patient?	171	44.3	251	65.0
In which eye diseases donated eye is useful?	126	32.6	260	67.4
When should eye should be taken from donor?	169	43.8	217	56.2
How much time it takes to collect donated eye?	43	11.1	243	63.0
Can you tell eye patient who donated eyes to him/her?	35	9.1	351	90.9
How many persons can gain vision using a donor's eyes?	80	20.7	306	79.3
Who can decide if your eyes can be donated?	386	100.0	0	0.0
If you have undergone eye surgery, can you donate your eyes?	43	11.1	343	88.9
How long a donated eye can be preserved for transplantation?	19	4.9	367	95.1
Does Islam religion permit you to donate your eyes?	172	44.6	214	55.4

All medical students knew who can give consent for eye donation. Few participants knew about duration of harvested tissue can be preserved (5%) and recipient can be informed about donor's identity (9%).

Attitude to donate eye was positive in 102 (26.4% [95% CI 22.0; 30.8]) medical students. It was negative in 105 (27.2% [95% CI 22.8; 31.6]) medical students. Of the surveyed medical students, 179 (46.5%) were undecided about their own eye donation.

Among those who expressed willingness to donate their eyes, the response to possible barrier for not donating is given in Table 3.

Table 3: Reasons for not willing to donate eyes

Reasons for not willing to donate eyes	Number	Percentage
Religion does not permit	22	5.7
Objection from family	52	13.5
Worried about body status after eye removal	67	17.1
Medical history makes one ineligible for eye donation	39	10.1
Need more information to decide	146	37.8
Other	42	10.9

Lack of adequate knowledge was the main reason for undermined status of medical students for eye donation.

Among 74 medical students with good knowledge about eye donation, willingness to donate eyes was in 31 (41.9%) students. Among 234 participants with poor level of knowledge, willingness to donate eye was in 71 (30.3%) of medical students. The level of knowledge about eye donation was positively and significantly associated to attitude to donate eyes (OR = 2.44 [95% CI 1.4; 4.2], p = 0.001).

Among 160 male students, level of knowledge about eye donation was good in 50 (19.2%) students while it was good in 24 (19%) of 126 female students. The association of knowledge regarding eye donation to gender of medical students was not statistically significant (p = 0.97).

The variation of good level of knowledge about eye donation by the academic year of the medical students was not statistically significant ($\chi 2 = 0.3$, df = 4, p = 0.6).

The level of knowledge about eye donation among medical students did not differ by their attendance to ophthalmology course in the university (OR = 0.94 [95% CI 0.5; 1.6], p = 0.8).

Discussion

Medical students of Qassim University had low rate of knowledge about eye donation and use of donated eye. Their willingness to donate their own eyes was also low and was positively associated to the lack of awareness about eye donation. The level of knowledge did not vary by gender and seniority in medical college.

This is perhaps the first study of future doctors who would be front line battalion interacting with

patients and their relatives and potent motivators for eye donation. In view of low knowledge and attitude, there is urgent need to intervene in Qassim region of Saudi Arabia.

The low level of awareness noted in the present study matched with the findings of a study targeting Nigerian medical students [11]. This is in contrast to high level of awareness about eye donation and corneal transplant displayed by Malaysian students and medical students of Delhi [8], [12]. Involving medical students in World Sight Day activities, health promotion about eye donation, inclusion of this issue in curriculum of medical students, and use of social media to increase awareness could be some strategies to improve awareness regarding eye donation, corneal transplant [13], [14].

In our study, there was variation in knowledge about different component of eye donation and corneal tissue utilization for restoring eyesight. Medical students were fully aware about who can give consent for eye donation and when but knowledge about when to remove donor tissue and need to maintain anonymity of the donor was very poor. The variation in awareness about different aspects of eye donation and transplant was also noted among medical students in other studies [7], [15].

Nearly one-third of participation was by female students in the present study. With such participants profile, it is surprising not to find gender difference in knowledge level. Health promotion for eye donation and corneal transplant, therefore, need not be separate and gender specific in the study area.

The awareness about eye donation and corneal transplant was not different by student's number of years in medical college. With as low as 13% of awareness, effect of level in medical college is least expected. The package for health promotion, therefore, could be common for all.

In the study area, there are no eye bank and few cornea surgeons mainly doing corneal graft using imported cornea. Thus, exposure of tissue harvesting and utilization to the medical students is minimum. This explains low awareness and challenges that lay ahead for improving the knowledge and willingness to donate eye among participants.

The barriers identified for eye donation among these educated population are worth noting. Religious taboo for eye donation is nonexistent. However, this information is still not reached to 5% of medical students. A common practice of providing artificial eye shell and maintain esthetic look of cadaver after eye removal should be conveyed to medical students.

Improving the knowledge will improve the attitude of medical students. Then, they will be good promoters of eye donation and increase generation of local donor material. It will be too early to study the impact of any intervention done to address the identified barriers.

Conclusions

The overall awareness of medical students regarding eye donation was low. We can improve students' knowledge and attitude toward eye donation through health promotion, inclusion of eye donation in undergraduate curriculum, and good ophthalmic training. Further multicenter studies in addition to population-based surverys are needed.

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