Importance of Education in Organ Donation

Tonguç Utku Yılmaz

Abstract

Objectives: Transplanting is the sole therapy for the majority of organ insufficiencies, but the lack of organ donation limits transplanting. We evaluated the effect of education about “Organ Donation and Transplantation” over the false beliefs of the participants.

Materials and Methods: This interventional study was performed in a military unit between January and March 2010. Data on organ donation and demographic characteristics were collected by a questionnaire. The researcher gave the lesson, and then collected the data by the same questionnaire 2 months later.

Results: The rate of volunteering for organ donation increased from 45.4% to 84.8% (P < .001). Rate of consent for organ donations by relatives increased from 41% to 80.3% (P < .001). Also, general knowledge about organ donation increased from 34.8% to 93.7% (P < .001). Wrong beliefs about organ donation disappeared after the education. The entire organ donation rate among the volunteer participants increased from 60% to 84% (P < .001). No significant relation was found between volunteering to donate organs, and education and economic status.

Conclusions: Education could correct false information and might lead to higher organ donation rates. This education (which gave positive results in a military unit) could become widespread.

Key words: Transplantation, Wrong Beliefs, Religion, Volunteering, Military

Introduction

Transplanting solid organs has been considered a promising option only a few decades ago. Advances in understanding the immunologic pathways and improvements in surgical techniques have transformed the hopes for success into realities. Today, transplanting solid organs is a common therapeutic strategy for patients with end-stage organ failure with promising effects for survival and quality of life.

Organ donation is a person giving his or her permission while alive for the donation of their organs after death. However, because of a lack of donation, the number of patients on the waiting list is increasing. As deceased donation rates are low (especially in our country), most donations are done from the relatives of the patients. The rate of live donation in Turkey is 75%, whereas the rate of deceased donation in European countries is more than 80%. On the other hand, there are more than 15 000 patients waiting for a kidney and 1000 patients waiting for a liver in Turkey. And the demand is increasing with time.

Previous studies have shown that socioeconomic status, religion, sex, age, and education have played important roles in the volunteering for organ donation. Among these factors, incorrect beliefs about transplant and donation were great obstacles. To increase donation rates, it is impossible to change the economic status, religion, sex, age, and graduated schools. However, it is possible to give correct information about myths about organ donation. The sources of information are media, health workers, and religious figures. These sources could be used for education of organ donation.
For this reason, we attempted to evaluate the effects of education, given by a physician, on the attitudes of participants toward organ donation. We sought to measure the knowledge about organ donation among participants before and after receiving the education and observe any changes owing to the education.

Materials and Methods

This interventional study was performed on a military base between January and March 2010. All of the soldiers in a unit were examined. The permission for the study was given by the director of the unit. All participants were male Muslims. Although they were similar in age and of the same sex, they were from different economic statuses and educational levels.

The data were collected by questionnaires. We benefited by the 2 studies of Bilgel and associates that had been performed in a Turkish population. In the questionnaire, participants were asked whether or not they had heard of organ donation and organ transplants; what was the source of that information; and whether or not they would be willing to donate their own and/or their relative’s organs. If they were not willing, they were asked for the reason. They were also asked what brain death was. They also were asked what one had to do for organ donation.

After taking the questionnaire, they were given a lesson about Organ Donation and Transplantation. True answers to the questions in the questionnaire were given in the lesson. This lesson was made up mainly using these subtitles:

- What is an organ transplant and what is the situation of organ transplanting in Turkey?
- Which organs can be donated, and what are the criteria for organ donation?
- What are the legal issues surrounding organ transplant?
- What is the opinion of Supreme Board of Religious Affairs giving examples from the Koran?
- What is brain death and what is a vegetative state of life?
- What is the cost-effectiveness of an organ transplant?
- Who can donate his or her organs?
- How is the organ distribution system set up in Turkey?
- What does one need to do for an organ transplant?

Also, illustrative materials such as brochures, photographs, and posters were used. During 2 months of education, brochures and posters about organ donation stayed on the walls of all the public areas.

Ages, education levels, and economic statuses of the participants were evaluated first. Economic statuses were classified according to ratios of incomes to the minimum wage (which is designated by the Ministry of Labour and Social Security). Also, knowledge about brain death, understanding the criteria for organ donation, volunteering for organ donation, consent for the organ donation of relatives, and information sources also were evaluated. Participants answered the questions just before the lesson and 2 months after the lesson to evaluate whether it remained in their minds after a time.

Statistical analyses were performed with SPSS software for Windows (SPSS: An IBM Company, Version 11.0, IBM Corporation, Armonk, NY, USA). Comparative analyses for changes during the time were evaluated by the McNemar test. The chi-square test was used to determine the relations of demographic findings and volunteering of organ donation. One-way ANOVA was used to compare education levels, source of information, and economic status, according to volunteering. P values < .05 were accepted as significant.

Results

The median age was 20.4 years (range, 20 to 30 y) (P < .005 in Kolmogorov-Smirnov test). In the first questionnaire, 132 participants answered the questions, but only 4 of them (3%) did not answer the second one. The education levels were 22 primary school (16.7%), 98 secondary school (74.2%), and 1 postgraduate (9.1%). Economic status were 40 low (30.3%), 76 moderate (57.6%), and 16 high income (12.1%). Of the participants, 60 were willing to donate their organs for transplant (45.5%). In the first questionnaire, 64 participants (48.5%) said that they knew something about organ transplant. Among these participants (n=64), the sources of the information were 39 from media (61%), 19 from health workers (29.6%), and 6 from friends (9.4%). Volunteering of organ donation was not found to be related with education level (P = .36) or economic status (P = .89), or source of information (P = .38; Tables 1 and 2).
Of the participants, 60 of them claimed to be willing to donate their organs for transplant (45.5%). Among them, 36 were willing to donate their whole body (60%), while only liver, kidney, and heart were willing to be donated by 16 (26.6%), 6 (10%) and 2 persons (3.4%). A total of 72 participants (54.5%) refused to donate their organs. Reasons for refusal were religious beliefs (28) (38.9%), no reason (24) (33.3%), the belief that the recipient would have sins with his organs (6) (8.3%), the fear that the donor would be killed before his or her natural death (6) (8.3%), more than one reason (6) (8.3%), and the belief that they would need their organs after death (2) (2.8%). A total of 78 participants (59%) said that they would not consent to donating a relative’s organs, while 54 participants (41%) agreed to. The reasons for refusal were fear of taking responsibility (10) (45.5%), religious beliefs (10) (45.5%), no reason (2) (9%). Although the fears disappeared after the lesson, and religious beliefs for refusal decreased significantly ($P < .0001$), participants who did not want to donate their organs also did not want to donate their relatives’ organs.

None of the participants had a donation card, and none of them had talked about organ donation with their relatives before. Only 46 of them (34%) knew where to go to tell should they want to volunteer to donate their organs. It was found that only 52 of the participants (39.4%) thought that patients with brain death were candidates for organ donation and 80 had false beliefs (60.6%) that patients living in a vegetative state were candidates for organ donation. None of the participants had an idea what the criteria were for organ donation.

When given the same questionnaire 2 months after the lesson, there were 128 participants. All were told that they had been given information about organ donation, and that the source of that information had been a health worker (Table 3). The number of participants willing to donate their organs increased to 112 (87.5%). The difference was statistically significant ($P < .0001$). Among them, 94 were willing to donate their whole organs (83.9%), while only liver, kidney, and heart were willing to be donated by 4 (3.6%), 12 (10.7%) and 2 participants (1.8%). The rate of volunteering to donate whole organs increased significantly after the lesson ($P < .0001$). Only 16 participants (12.1%) did not change their minds. The reasons for refusal were religious beliefs (10) (62.5%) and no reason (6) (38.5%). The fears disappeared after the lesson, and religious beliefs for refusal decreased significantly ($P < .0001$).

Table 1. Characteristics and organ donation volunteering of the participants.

<table>
<thead>
<tr>
<th>Education</th>
<th>Volunteering of organ donation (n=132)</th>
<th>$P^*$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary school</td>
<td>10/22 (45.5%)</td>
<td>.36</td>
</tr>
<tr>
<td>Secondary school</td>
<td>48/98 (49%)</td>
<td></td>
</tr>
<tr>
<td>Postgraduate</td>
<td>2/12 (16.6%)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Economic status</th>
<th>Volunteering of organ donation (n=132)</th>
<th>$P^*$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low income</td>
<td>18/40 (45%)</td>
<td>.89</td>
</tr>
<tr>
<td>Moderate income</td>
<td>30/76 (39.5%)</td>
<td></td>
</tr>
<tr>
<td>High income</td>
<td>12/16 (75%)</td>
<td></td>
</tr>
</tbody>
</table>

*One-way ANOVA test was used.

Table 2. Organ donation volunteering of the participants who had information about organ donation.

<table>
<thead>
<tr>
<th>Source of information</th>
<th>Volunteering of organ donation (n=64)</th>
<th>$P^*$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Media</td>
<td>35/64 (54.6%)</td>
<td>.38</td>
</tr>
<tr>
<td>Health workers</td>
<td>19/64 (29.6%)</td>
<td></td>
</tr>
<tr>
<td>Friends</td>
<td>6/64 (9.4%)</td>
<td></td>
</tr>
</tbody>
</table>

* One-way ANOVA test was used.

Table 3. Change of attitudes after the education.

<table>
<thead>
<tr>
<th>Before the education (n=132)</th>
<th>After the education (n=128)</th>
<th>$P^*$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organ donation volunteering</td>
<td>60/132 (45.5%)</td>
<td>112/128 (84.8%)</td>
</tr>
<tr>
<td>Donation of whole organs</td>
<td>36/60 (60%)</td>
<td>94/112 (84.8%)</td>
</tr>
<tr>
<td>Consent for organ donation of relatives</td>
<td>54/132 (41%)</td>
<td>106/128 (80.3%)</td>
</tr>
<tr>
<td>Knowledge of what to do for organ donation</td>
<td>46/132 (34.8%)</td>
<td>120/128 (93.7%)</td>
</tr>
<tr>
<td>Knowledge of brain death</td>
<td>52/132 (39.4%)</td>
<td>124/128 (96.8%)</td>
</tr>
</tbody>
</table>

*McNemar test was used.

Volunteering increased significantly ($P < .0001$). The reasons for refusal were fear of taking responsibility (10) (45.5%), religious beliefs (10) (45.5%), no reason (2) (9%). Although the fears disappeared after the lesson, and religious beliefs for refusal decreased significantly ($P < .0001$), participants who did not want to donate their organs also did not want to donate their relatives’ organs. After the lesson, 124 participants (96.8%) mentioned that the patients with brain death were candidates for organ donation. However 4 (3.2%) forgot what brain death was. Those were participants who did not want to donate their organs. Participants who had bad idea about the criteria about organ transplant mentioned at least 1 criterion (blood
group accordance; absence of cancer, infection, and brain death) after the lesson. This was statistically significant \( (P < .0001) \). The question for “What to do for organ donation?” was answered as “talk with the relatives” by 110 participants (86%), which was significant. The participants who did not want to donate their organs responded by saying “nothing” for this question. The rest of them chose “Attending an organ transplant centers.”

**Discussion**

Although there have been substantial improvements in graft and patient survival rates, increased demand, with the limited number of organs, represents the most significant limitation of organ transplant.4, 6 The key to the organ supply dilemma is to promote awareness of organ donation and volunteering to donate. The best way to do this is through education in all levels.4 As was seen in this study, most participants lack information or have incorrect information and wrong beliefs about organ donation. We tried to show that the military is the one place where education about organ transplant had been given successfully.

Most participants had heard no information about organ donation. By our education, though, they not only heard, but also learned about organ donation. The rate of organ donation volunteering before our education was similar with previous population-based studies performed in Turkey (57%).3 Prior studies of people in their twenties, like our study, had been performed using university students.2, 8, 9-11 Those studies found that volunteering rates were between 34.9% and 91.1%.2, 8, 9, 11-13 The volunteering ratio in a population-based study in Pakistan was 59.9%.14 Volunteering rates among university students in United States and Saudi Arabia were between 64% and 70.6%,10, 15, 16 Our second volunteering rate (84.8%) was over the rates of most of the studies. Awareness in our study was higher than rates in the studies among university students and the general population. This showed that giving lessons of this kind improves organ donation awareness even among persons who did not have a graduate level education. Most studies mentioned that younger age was an important factor for organ donation.3, 17 However, 1 study showed no association between age and organ donation.14

Ratios of whole organ donation in studies performed in Turkey were found to be 25.3% to 83.3%.2, 3, 9, 12 Rates volunteering of whole-organ donation in studies performed in other countries were 63% to 96% in population-based studies and 64% to 70.6% in studies among university students.10, 15, 16 In our study, whole-organ donation volunteering increased more than the several times that of what is given in previous literature.

Beside the discipline, the military is a place for education and training. “Organ Transplant” is one of the lessons given in the military education program. The components were prepared from the scientific and religious data (Turkish Supreme Board of Religious Affairs, Shariah Academy of the Organisation of Islamic Conference, The Grand Ulema Council of Saudi Arabia, and The Iranian Religious Authority).5, 10, 14 Incorrect beliefs and attitudes obtained from prior national studies were mentioned in the lesson.

There was no significant relation between education level and organ donation volunteering. Although the rate of organ donation volunteering was up to 75% in postgraduates, the difference was not significant. However, a strong relation has been mentioned in the literature.3, 9, 17 This is probably because of the low number of postgraduates used in our study. Although the education levels were low when compared with studies performed among university students, the rate of organ donation volunteering was higher in our study after the education. Although the economic status is an important factor for volunteering in some population-based studies,14, 17 there also have been studies pointing out no relation.3, 9 Most of the participants in our study were not economically independent. This could have been a factor for this difference from other studies. However, the results were similar to a previous study performed on graduate students who were dependent on their families.9

Media, health workers, religious figures, and friends are the some sources of information of the population.5, 17, 18, 19 Media is the main source of information in the literature with the ratio of 55% and 95%. This was similar to our results.18, 19 A recent study suggested that the success of media in last 10 years had been one of the most important factors for donation increase in Turkey.16 However, a study by Bilgel and associates showed that there had not been a significant increase in 12 years.3
Some misleading news might confuse the population also. The media was the primary source of information, but only 48.5% of the participants were aware of organ donation, and they were not completely informed. Although media is widespread, it should provide correct information to society without being confusing. Conversely, friends had less of an effect on the information both in our study and in the literature.17

For information, medics played 29.6% of the participants in our study. The rate was 23% in Brazil and 12.2% in Pakistan.14, 17 This is another target for education. For this reason, there have been many studies on the attitudes of medical students.8-10, 12, 15 In 1 study, only 23.1% of Turkish physicians had an organ donation card, and 30% of them would not consent to donate their relatives’ organs.12, 20 In another study, only 27% of the doctors and 11% of the nurses would be willing to donate their organs.21 If the awareness of health workers increased regarding organ donation, then they would be used as information sources more. As the awareness of health workers increases, the rate of health workers in the source of information would increase also. It was interesting that participants who had been informed by health workers would not like to donate their organs in our study. This means that health workers’ information were not effective on increasing organ donation. Half of the participants who had been given information from health workers before, had incorrect beliefs about organ transplanting and did not want to donate their organs. The responsibility for education of organ donation and for giving information about the importance of organ donation should be given to the medics.

Religious beliefs were a major reason for refusal to donate organs in our study. Religion was found to be 16.1% to 30% of the reasons in the study performed in Turkey, and in 33% in a study in Pakistan.3, 8, 14 However, it is known that religion is not against organ donation. Also, in a study performed in Turkey, 86% of the religious workers approved organ donation as an honorable act in Islam, and 77% of them had been in favor of the public becoming better informed.22 The Quran says: “And whoever saves a life it would be as if he saved the life of all the people.” In our study, after the education, 18 participants who thought that religion is against organ donation changed their minds. Also, in a study be Kılıç and associates, 40% of the university students did not know whether religion is for or against organ donation.2 Although Islamic opinion strongly favors organ donation, surveys show that religious belief is the primary reason why persons refuse to donate. There was a thought that “Organs would be needed after death in our second lives.” This thought has been mentioned in the literature at a rate of 2.8% to 5.7%.3 A similar rate in our first questionnaire of 2.8% disappeared after the education like other wrong believes. The belief, “Recipient would have sins with his organs,” which is related with religious thoughts, disappeared after education. The fear of being “killed before death” was lower than in previous studies.6, 9 This thought disappeared after being given the education by learning what brain death was. The rates of consent to donate relatives’ organs were between 47.7% and 55% in the literature, which is similar to our first results.3, 9, 14 However, this rate increased to 80.3% after education. Lack of information, with the emotional attitudes, made the participant feel responsible for the wrong decision. This behavior also was effective in not talking about organ donations with relatives.

As in most studies, education is the key factor.23 After education, rates for organ donation significantly improved. Scientific and religious information about organ donation given by a doctor, with the illustrative techniques, is effective even in a population that has low economic and education levels. Wrong beliefs about religion are not unchangeable. If explained logically, the wrong beliefs can be corrected in most adults. The ideas of only 10 participants (7.8%) failed to change. Apart from religious beliefs, fears like being “killed before death” (that were related to a lack of information about brain death) disappeared after the lesson. Although some terms had been irrelevant at first for the participants, they remembered at least 1 of them 2 months later. While none of the participants knew what to do to donate organs before the lesson, they preferred to talk with relatives after the lesson. This consciousness is a way to spread information and awareness about organ donation.

As the study population was restricted to a special area, and they were of the same age and sex, this led to some limitations. Also, a limited time given for education was another limitation of this study. However, the study had successful results.

Educational programs could be performed in populations similar to military units, and “donation cards” could be signed by the participants after the
education programs. In this way, the rate of organ donation could be increased. Conversely, new studies performed in larger populations are warranted. Specific factors affecting organ donation like religion, media, education, and economic status should be investigated separately to determine the net effect.

References