



Barriers to Brain Death Notifications From Emergency Departments

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ABSTRACT

Purpose. Emergency departments (EDs) are a new focus of interest in recent years as a possible solution for increasing organ donations, as, EDs are full of missed opportunities. In this study, we aimed to determine the barriers to the identification and referral by emergency medicine physicians (EMPs) of potential brain death (BD) cases.

Materials and methods. The participants of the study consist of 252 EMPs who had answered the questionnaire sent via e-mail.

Findings. The following causes were found in the questionnaire: (1) negative attitudes and lack of knowledge about organ donation in society (63.1%); (2) religious beliefs (57.5%); (3) family refusal (57.1%); (4) disruption of bodily integrity (45.6%); (5) inadequate knowledge of doctors (50.4%); (6) difficulties in predicting the prognosis of the patient and diagnosing BD in EDs (40.1%); (7) fear of negative reactions from relatives of patients (37.7%); (8) the absence of an organ procurement unit (OPU) (36.5%); (9) lack of ideal candidates (27%); (10) increased workload in EDs (23.8%); and (11) fear of legal problems arising (23.8%). Of the participants, 42.9% stated that there was an OPU in their hospital. Of the participants, 15.8% reported that they have good communication with the OPU.

Conclusions. Negative attitudes and lack of knowledge about organ donation in society, religious beliefs, inadequate knowledge of EMPs, and the absence of an OPU in hospitals are important barriers to organ donor notification from EDs. Increasing social awareness and increasing of the level of knowledge of EMPs and close cooperation between OPU and EDs will significantly contribute to the increase of organ donor notifications from EDs.

DESPITE the fact that organ transplantation rates are increasing all over the world, the number of patients waiting for an organ transplantation continues to increase and the demand is not met [1].

Turkey has the world's highest rate of live organ donors with a rate of 47.5 donors per million people in 2017 [2]. However, the rate of cadaveric organ donors is only 7 per 1 million people [2]. Since non-heart-beating donors are ineligible for transplantation and organ donation due to legal reasons, the only source of cadaveric organ donation are patients diagnosed with brain death (BD) in our country. Despite the growing number of organ donations in recent years, according to national health statistics in 2018, more than 25,000 patients in Turkey are experiencing a shortage of donations [3].

Emergency departments (EDs) have been a new focus of interest in recent years as possible remedies for increasing

donations [4,5]. In addition to intensive care units, EDs are facilities where the care and end-of-life decision is made in the case of patients with nonsurvivable injuries. Because of intensive care unit occupancy in Turkey, admission of patients to these special units can take more than 24 hours [6]. During this time, patients may become unstable and die. In this situation, the only place where these patients can be identified and reported as organ donors is the EDs. Early reporting of potential organ donors in EDs and early initiation of donor care in EDs provide the viability of organs for transplantation [7]. These also allow a time to for the

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patient's family to understand, consider, and accept organ donation [8,9]. Several studies have also shown that referral of potential organ donors from the EDs is associated with an increased likelihood of success of organ retrieval and with an increased number of organs transplanted per donor [9,10]. However, it is known that emergency medicine physicians (EMPs) have difficulty in determining BD and notifying the relevant authorities, and EDs are full of missed opportunities regarding potential organ donors [4,5,11–15].

In this study, we aimed to determine the barriers to the identification and referral by EMPs of potential BD cases.

MATERIALS AND METHODS

The study was approved by the Noninterventional Clinical Research Ethics Board of Hacettepe University in Turkey. The clarity and comprehensibility of the questions were tested before the study with a group of 17 physicians that included 8 emergency medicine specialist doctors and 9 emergency medicine research assistants. The responses of this sample were excluded from the current study.

The questionnaires were sent to the 602 emergency medicine specialist doctors and 842 emergency medicine research assistants whose e-mail addresses were registered in the electronic database of the Emergency Medicine Physicians Association of Turkey, and only one-time access was allowed with the same e-mail address. The rate of participation in the questionnaire in the research assistants group was 9.8% (n = 83) and 28% (n = 169) in the specialists group; the overall response rate was 17.4% (n = 252).

The questionnaire had 2 parts. The first part of the questionnaire was designed to determine demographic characteristics such as age, sex, duration of work as an emergency doctor, and type of hospital of employment.

In the second part of the questionnaire, participants were asked about barriers to identifying and reporting potential organ donors in EDs. Participants were asked to select the appropriate answers from 13 items and to fill in the "other" option for additional considerations.

Statistical Analysis

Data were analyzed using the statistical package program SPSS 17.0 (IBM, Armonk, New York, United States). Descriptive statistics such as percentages, means, and frequencies were used to analyze the research data. Numerical variables were expressed as mean or median (range, minimum to maximum); categorical variables were summarized with numbers and percentages. To compare the percentages of the response of the research assistants and the specialists on the barriers to reporting potential organ donors, *z* scores were used (n > 30). In addition, independent sample *t* test and χ^2 test were used to compare the groups. A *P* value of < .05 was considered significant.

RESULTS

When compared with the research assistants (n = 83), the average age and working time of the specialists (n = 169) was higher. The average number of organ donors reported by specialists was 3.1 and it was more than the average number of organ donors (2.2) that was witnessed by research assistants (Table 1).

There were no significant differences between the research assistants and specialists in terms of their (1) sex, (2) favor of organ donation, (3) organ donation card signing, and (4) the presence of an organ procurement unit (OPU) in their hospitals (Table 2).

Nearly 42.9% (n = 108) of the participants stated that there was an OPU in their hospitals. A total of 19.4% (n = 49) of the participants did not know whether they had an OPU in their hospitals. Only 15.8% (15.2% of the research assistants, 16% of the specialists) of those who had an OPU stated that they had regular meetings and close communication with the OPU (Table 2).

The barriers to identifying and reporting organ donors in the emergency department are shown in Table 3. There were no significant differences between the barriers about organ donor notifications determined by the research assistants and specialists.

DISCUSSION

There are a few studies on barriers related to organ donor reporting from EDs in the literature, and reasons such as crowding, time and resource limitation, difficulties in predicting the prognosis of the patients in the EDs, difficulties in communication with family, and intensive care bed occupancy as barriers have been identified in these studies [4,11,12,14,15]. Crowding in EDs is an increasing health problem all over the world. Since limited time and facilities are used to keep the patient alive in emergency service practice, the reporting of potential organ donors is often ignored and a large number of potential donors are lost. Unlike the other studies in the literature, in this study, the reasons unrelated to EDs (ie, negative attitudes and lack of knowledge about organ donation in society, religious beliefs, family refusal for organ donation, and disruption of bodily integrity) were reported as barriers to the referral of organ donors at a higher rate than the reasons related to EDs (ie, crowding, lack of time, and resources).

Many factors such as culture, religion, and ethical values of society are influential in organ donation [16–18]. In

Table 1. Comparison of Research Assistants and Specialists in Terms of Age, Average Working Time, Average Number of Reported Organ Donation, or Witnessed Organ Donation

Features	Research Assistants (n = 83)	Specialists (n = 169)	<i>P</i>
Average age (y), (min-max)	31.4 (24–48)	37.1 (28–57)	.026*
Average working time at EDs (y), (min-max)	3.3 (1–5)	10 (1–25)	.000*
Average number of reported organ donation for specialists or be witnessed organ donation for research assistants, (min-max)	2.2 (1–5)	3.1(1–10)	.011*

Abbreviation: ED, emergency department; max, maximum; min, minimum.

**P* < .05.

Table 2. Comparison of the Research Assistants and Specialists in Terms of Gender, in Favor of Organ Donation, Having an Organ Donation Card, the Presence of an Organ Procurement Unit, Regular Meetings, and Close Communication With an Organ Procurement Unit

Features	Research Assistants		Specialists		P
	n	%	n	%	
Sex					.636
Men	52	62.7	111	65.7	
Women	31	37.3	58	34.3	
In a favor of organ donation and organ transplantation	75	90.4	158	93.5	.377
Signed an organ donor card	17	20.4	39	23	.641
The presence of an OPU					
Yes	33	39.8	75	44.3	.138
No	28	33.7	67	39.7	
Unaware	22	26.5	27	16	
Regular meetings and close communication with the OPU	5	15.2	12	16	.911

Abbreviation: OPU, organ procurement unit.

Turkey, where this study was carried out, the rate of families' refusal of organ donations is approximately 75% in reported cases of BD [19]. It is known that health providers do not feel comfortable talking about organ donation issues [15,20,21]. In a society that does not have positive thoughts about organ donation, doctors may experience increased stress when talking to family members about issues such as organ donation and BD, and increased fear of negative reactions from family members. Moreover, the preconception that somehow the organ donation request will be refused may prevent the reporting of potential organ donation cases [22]. In order to raise public awareness about the subject, studies need to be done to inform society, the support of religious leaders must be provided, and mass media must be

used effectively [23–26]. However, these efforts will show their effect in the immediate and long-term future.

Although most EMPs claimed that they support organ donation, few of them had registered as donors in this study. This contradiction was reported in the studies and investigated the attitudes of health care providers [18,27–29]. It is hard to consider physicians are independent of the values, beliefs, and culture of the society in which they live in. In some studies in the literature, it has been shown that the thoughts of family and society are influential in health providers' decisions about organ donation [20–27]. However, physicians ought to be role models and lead the society in health-related subjects. For this reason, it is important to determine the reasons for negative thoughts and behaviors of EMPs about BD and organ

Table 3. Barriers to Organ Donor Notification From the Emergency Departments

Barriers	Research Assistants (n = 83)		Specialists (n = 169)		Total (n = 252)		P
	n	%	n	%	n	%	
Negative attitudes and lack of information in society	56	67.5	103	60.9	159	63.1	.308
Religious beliefs	52	62.7	93	55	145	57.5	.246
Family refusal for organ donation	50	60.2	94	55.6	144	57.1	.488
Disruption of bodily integrity	42	50.6	73	43.2	115	45.6	.268
Inadequate knowledge of doctors	40	48.2	87	51.5	127	50.4	.623
Difficulties in predicting the prognosis of the patient and diagnosing brain death	35	42.2	66	39.1	101	40.1	.637
Fear of negative reactions from relatives of patients	32	38.6	63	37.3	95	37.7	.841
The absence of organ procurement unit	27	32.5	65	38.5	92	36.5	.353
Lack of ideal candidates	19	22.9	49	29	68	27	.306
Increase in workload of doctors in emergency departments	14	16.9	46	27.2	60	23.8	.071
Fear of legal problems arising	23	27.7	37	21.9	60	23.8	.310
Negative effects of mass media	20	24.1	32	18.9	52	20.6	.338
Other							
Intensive care unit occupancy	5	6	9	5.3	14	5.5	.819
Ethical values	2	2.4	3	1.7	5	1.9	.704

Abbreviation: ED, emergency department.

transplantation, since this can ultimately encourage physicians to report potential candidates for organ donation.

In this study, approximately half of emergency physicians reported a lack of information about the subject, and 40% of those stated that difficulties in predicting the prognosis of the patient and diagnosing BD in EDs served as barriers to reporting potential candidates for organ donation. In many studies in the literature, it has been determined that there are insufficiencies in the training given in medical faculties in the areas of organ donation and transplantation, and that it is necessary to update the medical curriculum [28–30]. The deficiencies related to the subject continue during and after specialization training. The main task of EMPs is to report cases of lethal injuries leading to coma, apnea, and an absence of brain stem reflexes; in addition, EMPs should provide the patient's family with adequate and clear information about the health status of the patient and begin donor treatment. It has been determined that EMPs have a lack of knowledge and experience in many subjects, such as knowing their roles and responsibilities about organ donation, who to contact to refer a potential donor, whether the hospital has formal guidelines for declaring BD, how to approach family members, and how to recognize a potential organ donor [4,13,14,17,21]. Training should include the above-mentioned topics and confusion should be eliminated [13–15]. In order to increase organ donation and the reporting of potential organ donors, related information must be provided and awareness raised from the first years of medical school and continued after specialization training. Training for health providers can lead to increased positive thoughts and attitudes about organ donation and transplantation.

Compared to other reasons, raising fears of legal problems and the creation of additional workloads were found at a lower rate as barriers to reporting potential organ donors in EDs compared to reasons unrelated to ED. Knowing legal regulations and standard referral criteria, as well as being in a close communication with OPU, will reduce concerns of EMPs about legal problems.

In this study, 36.5% of EMPs reported the absence of an OPU in hospitals to be a barrier to reporting potential organ donors. The presence of organ procurement coordinators in hospitals accelerates the functioning of the process while decreasing the concerns of EMPs about diagnosing BD, increasing the workload, and facing legal problems. In addition, the inclusion of organ procurement coordinators in the process also increases the rate of family consent [31–33]. Increasing the number of OPUs will cause an increase in the number of BD notifications.

In this study, the cooperation between the OPU and EDs was found to be weak. Regular visits to the EDs by OPU coordinators are important for the reporting of higher numbers of potential organ donors from the EDs [6,13,15]. In fact, the inclusion of an emergency medicine physician among OPU coordinators can make a significant contribution to raising awareness among EMPs [15].

The absence of an ideal candidate was identified as a barrier to reporting potential organ donors from the EDs by

27% of the participants in this study. In fact, EDs are full of missed opportunities in terms of potential organ donors. EMPs have encountered and will continue to encounter many potential organ donors during their professional lives. Increasing the awareness of EMPs will contribute to more potential organ donors being reported from EDs.

In this study, lower rates of reporting for reasons related to the ED, such as crowding and additional workload, may be due to the low number of potential donor notifications. Although the average working duration of the specialists in the EDs was 10 years, the physicians had witnessed a small number of cases in their emergency service practices. However, identification and referral of potential BD cases were rare in this study; as a result, these reasons may not be perceived as a barrier by EMPs.

Limitations

This study reflects the opinions of a limited number of emergency physicians in a specific area. According to data in Turkey (2017), there are 906 research assistants and 1825 emergency medicine specialists working in EDs. The physicians participating in the study represent 9.2% of EMPs in Turkey. EMPs that support organ donation notifications from EDs are more likely to participate in this study.

CONCLUSIONS

More than half of the doctors reported social, cultural, and religious reasons that were not directly related to EDs, and half of them reported lack of information on BD and organ donation as barriers to reporting potential organ donors in the EDs. For the purpose of increasing the potential organ donor notifications in EDs, public studies to increase social awareness about organ donation and transplantation, and training to increase the knowledge and awareness of EMPs are necessary. Moreover, this study revealed that there is a lack of communication between EDs and OPU. If close communication between EMPs and organ procurement coordinators is ensured, it may really help to overcome barriers, whether related directly or indirectly to EDs, of reporting potential organ donors.

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