



Survey for the Opinion of Medical Students and Medical Staff on a Financial Incentive System for Deceased Organ Donation in an Asian Country

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ABSTRACT

Background. Financial incentives for deceased organ donation are associated with many controversial ethical issues. This study examines the perspectives of medical students and staff members on financial incentives for the families of brain-dead organ donors.

Methodology. A structured survey form was used between December 7, 2017 and January 28, 2018 to elicit opinions on financial incentives for the families of brain-dead organ donors. Forty-three medical staff members and 81 medical students participated in the survey voluntarily. The opinions on the financial incentive system and the relationship between willingness to give information about organ donation to families and a financial incentive system were assessed.

Results. The majority of the participants (81.4%) had positive thoughts on organ donation. More than half of the participants (60.5%) thought that the financial incentive system did not erode the ethical purity of organ donation. As charge doctors, most respondents (84.6%) were willing to give information about organ donation to family members in the presence of financial incentives. However, the percentage decreased significantly to 60.5% when financial incentive was no longer factored into consideration ($P < .001$).

Limitation. The study population is small, and the participants are not representative of the general population.

Conclusion. The opinions of medical students and medical staff on financial incentives for deceased organ donation were generally positive. Financial incentives proved to be a potential influencing factor as an option of organ donation to be given to families.

A RECENT consensus statement from a working group of international scholars suggested that the number of deceased organs available for transplantation can be increased by reducing currently existing disincentives and implementing financial incentives under strict legal governance [1]. Previous studies acknowledge that financial incentives are associated with controversial ethical issues and might be a source of public controversy without proper guidance [2]. The financial incentive system for deceased organ donors is criticized for various reasons: (1) offering financial incentive is no different than paying for organs; (2) financial incentives for deceased donor families are neither kind nor fair; (3) pilot experiments of financial incentives

are fundamentally wrong; and (4) removal of disincentives to donation should be a priority [3]. Organ donation after brain death should obviously be a financially neutral act [3].

This research was supported by the Keimyung University Research Grant of 2017.

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However, the need for a financial incentive system can be interpreted differently according to the existing social infrastructure. Many Asian countries do not implement a mandatory choice or presumed consent system. In this situation, where voluntary consent to donate is the most important factor, an appropriately timed and well-informed discussion on organ donation should be conducted with family members so that they have the opportunity to make an informed decision. Most papers about the financial incentives for organ donors' families primarily deal with ethical issues; the possible effects of a financial incentive system on the primary physicians' practice are rarely discussed [1–9]. Financial incentives may affect a physician's practice when he/she has to decide whether information about organ donation should be given to the family of a brain-dead patient.

This study investigates opinions on the financial incentive system for the family members of organ donors and the possible effect of financial incentives on health care providers when they make decisions about whether they would provide information about organ donation to family members.

METHODS

A structured questionnaire was used to investigate the opinions of medical students and medical staff members of a single university hospital on a financial incentive system for organ donation after brain death. Eighty-one medical students and 43 medical staff members volunteered to participate in this survey. All medical students were in junior or senior year and were in their clinical training period. The study was conducted from December 7, 2017 to January 28, 2018. The questionnaire comprised 9 questions about death, organ donation after brain death, and a financial incentive system for organ donation. The details of the questionnaire are listed in Table 1. Q1 asked about opinions on organ donation after brain death, and Q2 assessed the baseline knowledge about the financial incentive system. Q3–5 assessed the opinions of the participants regarding a hypothetical situation where they are the physician in charge of a brain-dead patient. The questions focused on their view of organ donation from a brain-dead patient, perspectives regarding their obligation to provide information about organ donation to the patients' families, and the burden of giving information about organ donation to the families. Q6–7 asked about their willingness to give information about organ donation depending on the existence of the financial incentive system. Q8–9 asked about participants' opinions of financial incentives for organ donation.

To conduct a reliability analysis, we scored the responses from 5 items (Q1, Q3, Q4, Q6, Q7) in the questionnaire unidimensionally on favoring organ donation and 2 items (Q8, Q9) in the questionnaire unidimensionally against financial incentives. These items were analyzed using item-to-total correlations and Cronbach's coefficient alpha to determine their scale unidimensionality and internal consistency reliability. Item-to-total analysis revealed the correlation between the respective items and summated score (without the respective items) and the coefficient alpha if the respective item was deleted. Statistical analysis was conducted using SPSS version 21.0 (IBM, Armonk, NY, United States). The questionnaire was designed and created with the help of the Korean Policy and Research Groups.

RESULTS

All participants completed the survey without dropping out. The mean age of participants was 32.5 years (standard deviation, 12.8), and 67.7% of the participants were male. Fifty-eight percent were not religious and 68.5% were not married. Table 2 summarizes the characteristics of the participants.

Table 3 summarizes the responses of the participants to each question and displays the correlation between the respective item and sum of the total score (without the respective item) and the internal consistency of the scale if the respective item was deleted. The total Cronbach's alpha of question about favoring organ donation (Q1, Q3, Q4, Q6, Q7) was .677 and going against the financial incentives (Q8, Q9) was .663, indicating an acceptable level of internal reliability.

The majority of the participants (81.4%) had positive opinions of organ donation (Q1); however, most (83.9%) were not aware of the existence of a financial incentive system (Q2). In the hypothetical situation, when participants were physicians in charge of a brain-dead patient, 61.3% responded positively about organ donation from the patient (Q3), and 83.0% responded that it was their duty to give proper information to patients' families about organ donation (Q4). However, 57.3% responded that conversation about organ donation would be a burden (Q5).

Table 4 summarizes the participants' responses regarding willingness to give information about organ donation to the families of brain-dead patients depending on the existence of the financial incentive system and their opinions on that. Most of the participants (84.6%) reported a willingness to discuss organ donation when financial incentives exist (Q6). In contrast, without financial incentives, this willingness decreased to 60.5% (Q7). Especially regarding negative responses, no one responded negatively about willingness to give information in the presence of financial incentives. However, in the absence of financial incentives, 12.1% responded that they would not provide information of organ donation to family members. Figure 1 illustrates these changes. More than half of the participants (60.5%) responded that a financial incentive system would not erode the ethical purity of organ donation, and only 16.9% agreed on an association between financial incentives and erosion of ethical purity (Q8). Regarding the appropriate economic value of financial incentives (Q9), 51.6% mentioned that the economic value of financial incentives should be more than 5,000,000 KRW (\$4640).

DISCUSSION

Scholars and members of the transplantation community have proposed providing financial incentives to donors' families through a legally regulated system over and beyond compensation for expenses incurred through donation [6]. However, there are 4 key ethical considerations associated with providing financial incentives even in a regulated system: undue inducement to donate, "crowding out,"

Table 1. Questionnaire on Attitudes Regarding Financial Incentives

Baseline characteristics			
Age:	Sex: M/F	Married: Yes/No	Religion:
Category (Medical student; Medical staff: Neurology/Neurosurgery/Internal medicine/etc)			
Q1. Do you think positively about organ donation after brain death? (Strongly positive/Positive/Undecided/Negative/Strongly negative)			
Q2. Do you know about the financial incentive system for the families of organ donors? (Yes/No)			
Based on the scenario below, answer the following questions:			
You are a neurosurgeon working in a general hospital. Three days ago, a 46-year-old female presented at the emergency room with loss of consciousness and was diagnosed with subarachnoid hemorrhage. She was admitted to the intensive care unit and received medical therapy. However, her neurologic signs deteriorated even after intensive treatment. On the follow-up CT scan performed this morning, the hemorrhage had worsened and the brain was more swollen. Now there is no self-respiration, no response to pain, no pupil reflex, and no brain stem reflex, suggesting brain death. An EEG revealed a flat waveform.			
Her vital signs are being maintained by mechanical ventilation, and the functions of internal organs are preserved. There is no documented statement of her opinion about organ donation. Her family understands the severity of her medical condition and poor prognosis, but they do not yet know her status of brain death. You are going to meet her family and discuss further treatment this afternoon.			
Q3. What do you think about organ donation from her? (Strongly positive/Positive/Undecided/Negative/Strongly negative)			
Q4. Do you think that you, as a medical professional, have a duty to give her family information about organ donation in this situation? (Strongly yes/Yes/Undecided/No/Strongly no)			
Q5. Do you feel that it is stressful to be burdened with the task of giving information about organ donation to her family? (Strongly yes/yes/Undecided/No/Strongly no)			
In addition to the situation above, supposing that you are in a system such as that detailed below, answer the following questions. (System 1)			
In my country, there is an official financial incentive system for the privilege and respect for organ donation. The details of financial incentives include a reduction of medical expenses, support for funeral service expenses, and support for body transportation. In addition, the cost of relatives' travel expenses during the organ donation process is supported, and a wreath is sent to the funeral.			
Q6. In system 1, where donors' families receive financial incentives for organ donation, would you give information about organ donation to your patient's family? (Strongly yes/Yes/Undecided/No/Strongly no)			
(System 2)			
In my country, financial incentives for organ donation are forbidden to preserve the purity of organ donation. This is to prevent the families of a patient from deciding on organ donation for the economic benefit of the financial incentives rather than for the pure intention of giving life. Therefore, even if the family decides to donate her organs, they will not receive any financial incentives <i>except the essential cost of the donation process</i> .			
Q7. In system 2, where there is no financial incentives for organ donation, will you give information about organ donation to your patient's family? (Strongly yes/Yes/Undecided/No/Strongly no)			
Q8. Do you think that the financial incentive system for the families of organ donors erode the purity of organ donation? (Strongly yes/Yes/Undecided/No/Strongly no)			
Q9. What do you think is an appropriate amount for a financial incentive (the economic value of the incentive) for organ donation?			
<ul style="list-style-type: none"> • Financial incentives are not appropriate • ~ ₩3 million (~\$2784.22) • ₩3~5 million (\$2784.22~\$4640.37) • ₩5~10 million (\$4640.37~\$9280.74) • ≥ ₩10 million (≥ \$9280.74) 			

exploitation, and commodification [10]. The ethical debate remains at a standstill, and the prospect of advancing normative discourse about financial incentives is unlikely to occur for several reasons [10,11]. The standstill is primarily driven by the National Organ Transplant Act of 1984, which prohibits the exchange of "valuable consideration" for organs [11].

The ethical soundness of any proposed strategy, including financial incentives to increase organ availability, must be grounded on empirical data, standard clinical medical ethics, and risk-benefit analysis. We examined the possible

effect of financial incentives on the behavior of medical professionals who play a critical role in communicating the options regarding organ donation to the families of brain-dead patients. This is especially important in countries where a mandatory choice system or presumed consent system is not implemented. In most countries with an "opt-in" system, a significant portion of organs are abandoned because the appropriately timed information and an opportunity to make a decision were not given to the families of potential organ donors. In previous literature, the reported consent rate for organ donation in Europe is 50%

Table 2. Characteristics of the Participants (N = 124)

Variables	No. (%)		
	Medical student (n = 81)	Medical staff* (n = 43)	Total (N = 124)
Age (y)	24.4 ± .76	47.7 ± 10.9	32.5 ± 12.8
Sex			
Male	53 (65.4%)	31 (72.1%)	84 (67.7%)
Female	28 (34.6%)	12 (27.9%)	40 (32.3%)
Religion			
Catholicism	8 (9.9%)	10 (23.3%)	18 (14.5%)
Christianity	17 (21.0%)	15 (34.9%)	32 (25.8%)
Buddhism	1 (1.2%)	1 (2.3%)	2 (1.6%)
None	55 (67.9%)	17 (39.5%)	72 (58.1%)
Marital status			
Married	1 (1.2%)	38 (88.4%)	39 (31.5%)
Single	81 (98.8%)	5 (11.6%)	85 (68.5%)

*Eight of the staff were from the Neurology department; 6 were from Internal Medicine; and 29 were from other departments.

~80%, with approximately 85% of families being requested to donate [12–17]. However, in Asian countries, even the percentage of families who are asked about organ donation option is not well investigated. It is expected that a much

lower proportion of families are being asked about organ donation in Asian countries than in Western countries, which have advanced sociomedical systems and public consensus. We think that the need for a financial incentive system should be interpreted differently according to the existing social infrastructure for organ donation.

In this study, the participants were generally supportive of organ donation. The most significant finding was that the willingness to provide organ donation option decreased from 84.6% to 60.5% in the absence of financial incentives, even among the participants who were mostly in favor of organ donation. It was interesting to observe that no one responded negatively about giving the option of organ donation, despite the presence of a financial incentive. Only a small number of participants thought that financial incentives eroded the ethical purity of organ donation, and more than half responded that an economic value of more than ₩5 million (\$4,640) should be provided. There have been several studies detailing the various opinions of health care professionals on this subject [9,18,19].

From an ethical point of view, decision-making on organ donation should be economically neutral. This idea is based on the principle that human beings should be

Table 3. Responses Regarding Organ Donation

Baseline attitude and knowledge						Item–Total Correlation	α if Item Deleted
Q1. Positivity about organ donation after brain death							
	Strongly positive	Positive	Undecided	Negative	Strongly negative		
Medical student	20 (24.7%)	44 (54.3%)	14 (17.3%)	3 (3.7%)	- (0%)		
Medical staff	17 (39.5%)	20 (46.5%)	6 (14.0%)	- (0%)	- (0%)		
Total	37 (29.8%)	64 (51.6%)	20 (16.1%)	3 (2.4%)	- (0%)	.427	.628
Q2. Knowing the financial incentive system for the families of organ donors							
	Yes		No				
Medical student	11 (13.6%)		70 (86.4%)				
Medical staff	9 (20.9%)		34 (79.1%)				
Total	20 (16.1%)		104 (83.9%)			-	-
As a doctor in charge of a brain-dead patient							
Q3. Positivity about organ donation from my brain-dead patient							
	Strongly positive	Positive	Undecided	Negative	Strongly negative		
Medical student	8 (9.9%)	37 (45.7%)	29 (35.8%)	7 (8.6%)	- (0%)		
Medical staff	12 (27.9%)	19 (44.2%)	9 (20.9%)	3 (7.0%)	- (0%)		
Total	20 (16.1%)	56 (45.2%)	38 (30.6%)	10 (8.1%)	- (0%)	.412	.638
Q4. Feeling of obligation about giving information about organ donation to families							
	Strongly yes	Yes	Undecided	No	Strongly no		
Medical student	22 (27.2%)	49 (60.5%)	9 (11.1%)	1 (1.2%)	- (0%)		
Medical staff	12 (27.9%)	20 (46.5%)	8 (18.6%)	3 (7.0%)	- (0%)		
Total	34 (27.4%)	69 (55.6%)	17 (13.7%)	4 (3.2%)	- (0%)	.530	.582
Q5. Feeling burden about giving information about organ donation to families							
	Strongly yes	Yes	Undecided	No	Strongly no		
Medical student	9 (11.1%)	35 (43.2%)	18 (22.2%)	18 (22.2%)	1 (1.2%)		
Medical staff	3 (7.0%)	24 (55.8%)	1 (2.3%)	12 (27.9%)	3 (7.0%)		
Total	12 (9.7%)	59 (47.6%)	19 (15.3%)	30 (24.2%)	4 (3.2%)	-	-

Table 4. Willingness to Give Information About Organ Donation and Opinion About Financial Incentives

Baseline attitude and knowledge					Item–Total Correlation	α if Item Deleted
Q6. If financial incentive exists, willingness to give information about organ donation...						
	Strongly Yes	Yes	Undecided	No	Strongly no	
Medical student	15 (18.5%)	55 (67.9%)	11 (13.6%)	- (0%)	- (0%)	
Medical staff	8 (18.6%)	27 (62.8%)	8 (18.6%)	- (0%)	- (0%)	
Total	23 (18.5%)	82 (66.1%)	19 (15.3%)	- (0%)	- (0%)	.571 .585
Q7. Unless financial incentive exists, willingness to give information about organ donation...						
	Strongly yes	Yes	Undecided	No	Strongly no	
Medical student	6 (7.4%)	46 (56.8%)	21 (25.9%)	6 (7.4%)	2 (2.5%)	
Medical staff	3 (7.0%)	20 (46.5%)	13 (30.2%)	7 (16.3%)	- (0%)	
Total	9 (7.3%)	66 (53.2%)	34 (27.4%)	13 (10.5%)	2 (1.6%)	.286 .697
Q8. Erosion of the purity of organ donation by financial incentive						
	Strongly yes	Yes	Undecided	No	Strongly no	
Medical student	2 (2.5%)	10 (12.3%)	23 (28.4%)	33 (40.7%)	13 (16.0%)	
Medical staff	1 (2.3%)	8 (18.6%)	5 (11.6%)	26 (60.5%)	3 (7.0%)	
Total	3 (2.4%)	18 (14.5%)	28 (22.6%)	59 (47.6%)	16 (12.9%)	.521 -
Q9. Appropriate amount of financial incentives (the economic value of incentives)						
	₩0	~₩3 million	₩3~5 million	₩5~10 million	≥₩10 million	
Medical student	2 (2.5%)	9 (11.1%)	20 (24.7%)	19 (23.5%)	31 (38.3%)	
Medical staff	11 (25.6%)	9 (20.9%)	9 (20.9%)	7 (16.3%)	7 (16.3%)	
Total	13 (10.5%)	18 (14.5%)	29 (23.4%)	26 (21.0%)	38 (30.6%)	.521 -

respected, not in the sense of receiving financial compensation but in terms of their bodily autonomy. However, while ethical norms have stagnated in our time, science (especially medical technology related to organ

transplants) questions the ethical norms we follow. In resolving the issue of organ shortage, conflicts exist between our needs and our current code of ethics. Today, following the development of transplant medicine, we have

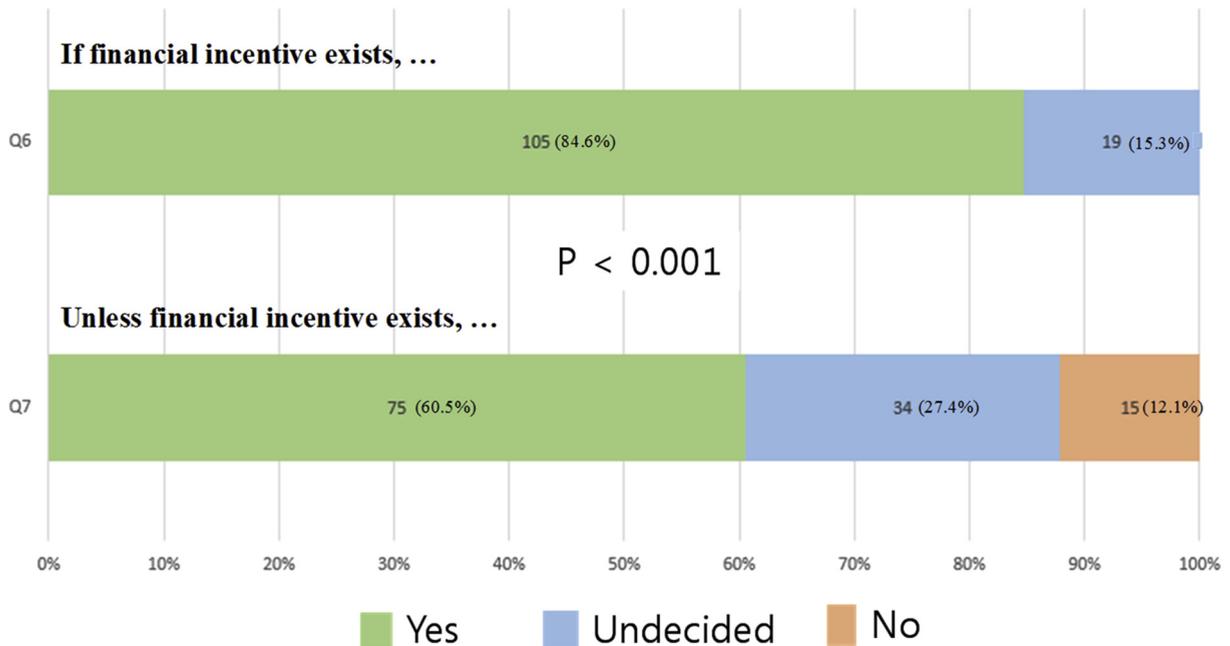


Fig. 1. The change of willingness to give an option of organ donation to families

reached the most rational legalized policies in an effort to prevent the breach of ethical foundations. These policies may not be perfect, but we are continuously trying to make the most rational judgments between science and ethics. We believe that there should be in-depth national community consultations on the legitimacy of the financial incentive system. Some families may be fully or partially influenced by the advantages of financial incentives. However, we believe that some economic compensation can be justified by social consensus when many patients are dying due to organ shortages that could be partially resolved by a financial incentive system.

Only a small percentage of potential donors are being asked about organ donation as an optional end-of-life decision in many Asian countries, and the physician's point of view or belief plays a critical role in the decision-making process. If we, including local authorities and the general population, agreed on the importance of organ donation, the promotion of organ donations would not be the sole responsibility of medical professionals. The authorities of many Asian countries must consider establishing an advanced system that links potential donors to the organ donations process. Financial incentives are not free from ethical conflicts, but they may play a role in compensating for an incomplete social system.

This study has many limitations. First, the sample size is small, with only 124 participants; it is thus impossible to generalize the findings of this. Second, bias may have been present when the participants were enrolled. The participants of the study were volunteers from a single institution, and they were not specialists in the management of brain-dead patients. Third, the questionnaire used in this study was not validated; it was designed with the help of a professional survey authority, but may not appropriately reflect all the perceptions related to this subject.

CONCLUSION

In conclusion, a financial incentive proved to be a factor influencing the chance of information for organ donation being communicated to the families of brain-dead patients. Although there were a lot of positive opinions on organ donation, the willingness to give an option of organ donation to families significantly decreased in the absence of a financial incentive system. The concern of eroding the ethical purity of organ donation was a minority opinion, indicating that a certain amount of financial compensation could be justified without resistance according to this study.

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