



Physicians' psychosocial barriers to different modes of withdrawal of life support in critical care: A qualitative study in Japan[☆]

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ARTICLE INFO

Article history:

Available online 22 November 2009

Keywords:

Brain death
End-of-life care
Mechanical ventilation
Percutaneous cardiopulmonary support
Physicians
Withdrawal of life support
Japan

ABSTRACT

Despite a number of guidelines issued in Anglo-American countries over the past few decades for forgoing treatment stating that there is no ethically relevant difference between withholding and withdrawing life-sustaining treatments (LST), it is recognized that many healthcare professionals in Japan as well as some of their western counterparts do not agree with this statement. This research was conducted to investigate the barriers that prevent physicians from withdrawing specific LST in critical care settings, focusing mainly on the modes of withdrawal of LST, in what the authors believe was the first study of its kind anywhere in the world. In 2006–2007, in-depth, face-to-face, semistructured interviews were conducted with 35 physicians working at emergency and critical care facilities across Japan. We elicited their experiences, attitudes, and perceptions regarding withdrawal of mechanical ventilation and other LST. The process of data analysis followed the grounded theory approach. We found that the psychosocial resistance of physicians to withdrawal of artificial devices varied according to the modes of withdrawal, showing a strong resistance to withdrawal of mechanical ventilation that requires physicians to halt the treatment when continuation of its mechanical operation is possible. However, there was little resistance to the withdrawal of percutaneous cardiopulmonary support and artificial liver support when their continuation was mechanically or physiologically impossible. The physicians shared a desire for a “soft landing” of the patient, that is, a slow and gradual death without drastic and immediate changes, which serves the psychosocial needs of the people surrounding the patient. For that purpose, vasopressors were often withheld and withdrawn. The findings suggest what the Japanese physicians avoid is not what they call a life-shortening act but an act that would not lead to a soft landing, or a slow death that looks ‘natural’ in the eyes of those surrounding the patient. The purpose of constructing such a final scene is believed to fulfill the psychosocial needs of the patient’s family and the physicians, who emphasize on how death feels to those surrounding the patient. Unless withdrawing LST would lead to a soft landing, Japanese clinicians, who recognize that the results of withdrawing LST affect not only the patient but those around the patient, are likely to feel that there is an ethically relevant difference between withholding and withdrawing LST.

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Introduction

The question of whether to withdraw life-sustaining treatment (LST) from dying patients is a relatively new issue in Japan. Only

[☆] We deeply thank the 35 informants who took part in this research for sharing their experiences, feelings, and opinions. We also appreciate the advice we obtained from Naoki Yahagi, professor of Emergency and Critical Care Medicine; Akira Akabayashi, professor of Medical Ethics; and Satoshi Kodama, lecturer of Medical Ethics, all at The University of Tokyo. This research was funded by unrestricted research grants provided by The Mitsubishi Foundation and Mitsui Sumitomo Insurance Welfare Foundation.

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a few empirical studies have been undertaken to explore in depth the experiences and attitudes of Japanese physicians to LST (Aita & Kai, 2009; Aita, Miyata, Takahashi, & Kai, 2008; Asai, Fukuhara, & Lo, 1995; Asai et al., 1997; Asai et al., 1999). Lack of legal and medical frameworks pertaining to the withdrawal of LST, combined with an insufficient end-of-life education, both for care providers and the public, has aggravated problems for dying patients, their families, physicians, the mass media, and even prosecutors (Aita & Kai, 2006). To deal with these problems, the Ministry of Health, Labor and Welfare of Japan issued basic guidelines for the decision-making process in end-of-life care in 2007 (Ministry of Health, Labor and Welfare of Japan, 2007). The first government guidelines were formulated after several incidents of possibly inappropriate

accusations against some physicians regarding withdrawal of mechanical ventilation from dying patients made headlines (Aita & Kai, 2006). However, these guidelines pertained only to the due process of decision-making that focused on respecting the wishes of the patients and their families and emphasized a team approach. Some important questions, including under what circumstances a physician would not be charged with murder after halting LST, remained unanswered. In late 2007, the Japanese Association for Acute Medicine (JAAM) announced a set of guidelines (Japanese Association for Acute Medicine, 2007) for the withdrawal of LST, which included specific circumstances under which physicians would be allowed to withdraw treatment from dying patients, including brain-dead patients.

A recent study reported that Japanese physicians avoided withdrawing mechanical ventilation in ordinary clinical settings mainly because of the fear of possible police investigation and criminal accusation (Aita et al., 2008). However, other recent reports in Japan stated that physicians withdrew other artificial aids such as percutaneous cardiopulmonary support (PCPS) and artificial liver support. A recent study investigating factors influencing physicians' decisions regarding the withdrawal of mechanical ventilation from dying patients demonstrated that besides the social and legal problems involving the police and mass media, physicians' psychosocial barriers to withdrawal of mechanical ventilation influence their decisions, and highlighted that the physicians believed that they would be shortening the patient's life if they withdrew mechanical ventilation (Aita & Kai, 2009). Instead, Japanese physicians tended to stop treating patients by withholding some other treatments such as vasopressors and supplemental oxygen (Otani & Ishimatsu, 2007).

An earlier study conducted in the United States reported differences in the forms and characteristics of LST that helped explain why physicians prefer withdrawing some LST to others (Asch & Christakis, 1996). This study was conducted to explore the physicians' psychosocial barriers that prevented them from withdrawing specific LST by focusing on the modes of withdrawal of LST. For that purpose, we compared the withdrawal of mechanical ventilation with that of other artificial devices such as PCPS and artificial liver support. We believe that this study would reveal some cultural factors that can make differences in end-of-life decision-making. We also hope that the findings of this study would provide a new perspective on a long-standing debate in the Anglo-American countries and western Europe regarding the existence and nature of an ethical difference between withholding and withdrawing LST (Levin & Sprung, 2005; Vincent, 2005).

Methods

This study explores physicians' psychosocial barriers regarding the withdrawal of some specific LST by focusing on their relevant perceptions, recognitions, and experiences. The scarcity of similar previous research in Japan led us to conduct a qualitative, exploratory study using in-depth, face-to-face interviews of emergency and critical care physicians in the country. Qualitative research is needed when trying to understand social, emotional, and experiential phenomena in clinical settings (Oeyen, 2007). This study was approved by the Institutional Review Board of the Graduate School of Medicine, The University of Tokyo.

Recruitment of informants

Informants were physicians with experience in working at emergency and critical care facilities in Japan. Purposeful sampling (Creswell, 2007; Patton, 2002) was performed to identify eligible informants of different ages and from different types of hospitals in

terms of operator, classification, geography, and size of the institution to compare their similarities and differences. Because of the sensitive nature of this research at a time when the nation was not yet well prepared for an open debate about the withdrawal of LST, the informants were asked for research participation individually so that they would not feel pressured to make politically correct responses during interviews but frankly tell their experiences and recognition related to the research question. No previous acquaintances were solicited for interviews for the same purpose. Neither the snowball sampling method nor existing networks were used in an effort to ensure protection of informants' identity. A small number of informants were selected from physicians who were members of the JAAM committee that worked on the medical association's guidelines for the withdrawal of LST. The committee began working on compiling the guidelines in 2004. The great majority of informants were clinicians who were members of the JAAM and the Japanese Society of Intensive Care Medicine (JSICM). Many members of the JAAM are also affiliated with the JSICM because in Japan, emergency patients needing critical care are usually treated at designated tertiary care facilities with both emergency and critical care functions. Interviews were conducted until theoretical saturation (Strauss & Corbin, 1998) was reached, that is, until no new themes or relevant data were further obtained. This occurred when 35 informants had been interviewed.

Data collection and analysis

Semistructured interviews were conducted with 35 physicians (Table 1) from across the nation from September 2006 to

Table 1
Characteristics of informants.

# ^a	Age	Hospital affiliation
1	55	Private university
2	47	Government
3	57	National university
4	47	Private university
5	47	Private
6	52	National university
7	56	Private university
8	43	Private
9	51	Private university
10	65	Private university
11	52	Private university
12	52	Private
13	28	Government
14	46	National university
15	38	Private university
16	61	Private university
17	31	Private
18	34	Private university
19	53	Local government
20	73	Private university
21	58	Private university
22	39	Private
23	54	Local government
24	43	Private university
25	39	Local government
26	40	Local government
27	59	Private
28	55	Government
29	60	Local govt. university
30	46	Local govt. university
31	32	Local govt. university
32	36	Private
33	47	National university
34	49	Private university
35	56	Private university

^a Each informant was given an ID number. The gender of informants is not disclosed to ensure protection of identity of the informants.

December 2007. The male–female ratio was 31:4 and median age was 49 years, which were similar to those of the membership of JAAM. Four of the 35 informants were members of the JAAM committee that compiled the association's guidelines for the withdrawal of LST. Two informants were physicians who had authored journal articles related to end-of-life issues in critical care. Other informants were clinicians who were members of the JAAM or the JSICM. Written consent was obtained from each informant, and all interviews except one were recorded and transcribed verbatim. The informant who declined the recording gave permission for note taking and generating a rough transcript during the interview. All the interviews, with duration ranging 0.5–3 h (average 1 h per informant), were conducted by the principal investigator, mostly in a quiet environment at the informants' workplace, such as in a counseling or conference room. Interviews began with questions about the informants' demographic background, followed by questions on their experiences of withdrawal of LST—including mechanical ventilation, PCPS, artificial liver support, and vasopressors—and questions about their feelings, concerns, and dilemmas regarding withdrawal of LST. An initial interview guide, a rough framework of the interview questions, was developed by identifying domains of inquiry from a literature review and gradually modified for later interviews through constant comparative analysis (Strauss & Corbin, 1998), thereby generating new questions for the ensuing informants. A preliminary analysis was thus conducted after each interview. Open-ended questions to follow-up details and unexpected responses were added appropriately during each interview. Appendix A shows the interview guide for the 35th informant.

The process of data analysis followed the grounded theory approach (Strauss & Corbin, 1998). Analysis of the transcripts was carried out using the open-coding process, in which the transcripts were reviewed line by line, conceptual labels were attached, and similar concepts were grouped together to form categories. To enhance credibility of the analysis, member checks (Lincoln & Guba, 1985) were conducted by showing or sending research results and analysis to three informants who had different clinical and demographic characteristics from each other. At first, the principal author met two of the three informants. One was a member of the JAAM committee that worked on its guidelines for the withdrawal of LST, and the other was a senior neurosurgeon who had provided patients' families with the choice of withdrawing all LST from brain-dead patients, which the research results indicated as a minority practice. The two senior informants stated that the results and analysis adequately explained the circumstances surrounding the issue. To enhance the trustworthiness of the findings (Lincoln & Guba, 1985), the research results and analysis were then sent to the third informant, who was in his 30s and selected from informants in younger generations. His feedback indicated that the results adequately reflected his and his colleagues' experiences, and the analysis was revealing. Additional procedures to ensure the trustworthiness of the findings included debriefing with other researchers and rigorous documentation of research activities to permit a critical appraisal of the methods.

This research dealt with a very touchy issue in Japan; therefore, the authors took every effort to protect the informants' privacy. Some of the efforts were related to the sampling method mentioned earlier, and other efforts related to data collection and filing. The interview data were transcribed by the principal author, and the informants were assured that the confidentiality of the collected data would be maintained by removing the identifying details from the transcripts and filing them separately in a locked cabinet in the principal author's office.

Results

Differences among withdrawal of mechanical ventilation, PCPS, and artificial liver support

Data analysis revealed that most informants did not choose to withdraw mechanical ventilation from dying patients under ordinary clinical settings, but withdrew other artificial devices such as PCPS and artificial liver support. In this study, the application of PCPS focuses on its role in cardiopulmonary resuscitation. Data analysis identified the following different characteristics of the three treatment aids (Table 2):

The length of time from withdrawal of life support till cardiac arrest

The most common reason cited by the informants regarding their unwillingness to withdraw mechanical ventilation was the immediate cardiac arrest of the patient following withdrawal. Informant 21 stated, "Different from other LST, the withdrawal of mechanical ventilation could lead to the cardiac arrest of the patient in a few minutes. You know it would be really stressful to see that situation. I would not want to face that situation."

Because of the short time period between withdrawal of mechanical ventilation and cardiac arrest of the patient, some informants considered the withdrawal of mechanical ventilation as a life-shortening act. Informant 32 stated, "As a physician, I would not draw the line between life and death by my own hands." As a result, some informants believed that the physicians, and not the underlying conditions, would be responsible for the patient's death if the patient dies immediately after the withdrawal of mechanical ventilation. Representing similar sentiments, Informant 24 stated, "I know the withdrawal of mechanical ventilation would drastically lower the blood pressure and could cause cardiac fibrillation soon. I am sure that the drastic changes would make me feel that it is me who is driving the patient to his death. It would be very painful for me."

However, the physicians stated that they were not bothered by the withdrawal of PCPS, despite the shorter length of time from withdrawal of the device until the patient's cardiac arrest.

Differences in the modes of withdrawal

Data revealed that PCPS and artificial liver support were withdrawn only if their continuation became impossible, owing to the

Table 2

Differences among withdrawal of mechanical ventilation, percutaneous cardiopulmonary support, and artificial liver support.

	The length of time from withdrawal of life support till cardiac arrest	The modes of withdrawal
MV ^a	Minutes	MV can be withdrawn when its continuation is possible in terms of its mechanical operation
PCPS	Seconds or minutes	1. Patient's physiological limitation 2. Patient's physiological limitation and mechanical limitations of the device 3. Withholding the next blood or fluid transfusion 4. Withholding the replacement of its parts or the entire device
Artificial liver support	Hours or days	1. Patient's physiological limitation and no choice for transplant 2. Patient's physiological limitation and limitation of national health insurance coverage

^a MV stands for mechanical ventilation.

patients' physiological conditions or other reasons, including mechanical limitation of the artificial devices.

The data revealed four patterns of withdrawal of PCPS:

1. *Patient's physiological limitation*: Reinforcing this pattern, Informant 3 explained, "When we diagnose the physiologically futile nature of treatment continuation, we have to consider halting it, and the team discusses it. When we stop the device, it is almost the time of death of the patient."
2. *Patient's physiological limitation and mechanical limitation of the circuit device*: As Informant 26 stated, "We eventually face a situation in which PCPS' circuit does not work any more. It happens when the circuit has insufficient amount of blood taken from vein in accordance with the deterioration of the patient's condition."
3. *Withdrawal of PCPS by withholding the next blood or fluid transfusion*: Large amounts of blood and fluid are often necessary to continue operating the device. The medical team has to decide whether to withhold the next blood or fluid transfusion, depending upon their diagnosis regarding the futility of future treatment. Informant 31 stated, "We decide to stop providing more blood or fluid when it is clear that further treatment will be futile. When we stop the supply of more blood and fluid, it causes the device to stop working gradually, thereby withdrawing PCPS."
4. *Withholding the replacement of its parts or the entire device*: Highlighting this pattern, Informant 33 explained, "In some cases, it would be possible to continue treating with PCPS as a life-prolonging measure if we replace the device with a new one after maxing out the first one. But it costs about ¥300,000 (US\$3,000) each. Then the medical team and the family consider whether to stop the treatment, which means not to replace the device with a new one when the patient's condition is diagnosed as too severe to recover even with the new one."

Similarly, in the case of artificial liver support, the informants withdrew care from patients who were diagnosed to have neither a chance for recovery nor a choice for liver transplant. Informant 30 stated, "When the liver shows no sign of recovery while using the device and there is no chance of liver transplant either, we have to withdraw the treatment because it is the limitation of the treatment." Some informants added that the use of artificial liver support is also limited by national health insurance coverage. Emphasizing the financial limitation, Informant 6 stated, "Plasma-pheresis can be covered by national health insurance up to 10 times per patient. Further life prolongation could be possible if we continue the plasma exchange therapy, but the hospital would have to cover the cost. ... We will continue the treatment beyond the insurance coverage as long as the patient has some chance for recovery. If not, it would be really tough to continue the treatment exceeding the limitation of the health insurance coverage."

Meanwhile, in the case of mechanical ventilation, its withdrawal takes place when mechanical operation of the ventilator can be continued, even though its continuation serves only to prolong the patient's dying process.

Desire for a "soft landing"

Most informants shared the view that the final phase of the patient's life should be made peaceful by avoiding or easing drastic changes, even in the case of brain-dead patients. Of the 35 informants, 32 did not consider withdrawing mechanical ventilation from brain-dead patients under ordinary clinical settings. An approach for a soft landing was observed characteristically in the use of vasopressors, which showed three patterns:

1. *Partial withholding*: When the blood pressure decreases, the dosage is not increased.
2. *Partial withdrawal and partial withholding*: When the blood pressure is maintained, the dosage is decreased to a certain level, and then, the dosage is not increased even if the blood pressure begins to decrease. This is done in case of brain-dead patients whose somatic maintenance lasts for more than a certain period of time. Informant 18 explained, "We sometimes observe that blood pressure is maintained in some cases of brain-dead patients for a period more than what we had expected. In those cases, we decrease the vasopressor dosage gradually to a certain level at which the blood pressure can be maintained, and after a while, when the blood pressure begins going down, we do not increase the dosage."
3. *Withholding the next ampule of vasopressor*: This third pattern takes the form of withholding care, which means that the medication is stopped when the current ampule is over. Informant 26 explained, "When the patient's family wishes to stop LST, we withhold the next ampule of vasopressor."

Many of the informants stated that a soft landing is necessary for the family. Representing this view, Informant 30 explained, "We are concerned about how the final phase of the patient looks in the eyes of the family." Informant 24 added, "At that point, we have finished treating the patient, but care for the family is still on. We believe that the process for making the family accept the fact that the patient is dying is very important and usually time consuming."

Paradoxical situation created by the desire for a soft landing

The desire for a soft landing coupled with the circumstances in Japan, where the withdrawal of mechanical ventilation could cause problems involving the police and mass media, has created a paradoxical situation in some cases. Maintaining mechanical ventilation in brain-dead patients is believed necessary because withdrawal of the device could cause immediate cardiac arrest; however, it can be withdrawn from patients who are dying but whose conditions are less severe than those of brain-dead patients because it might not result in an immediate cardiac arrest but could lead to death sometime later. In the latter case, the direct linkage between the withdrawal of the device and the patient's death would not be evident. Concerning this situation, Informant 10 stated, "We don't extubate a brain-dead patient because it would result in an immediate cardiac arrest. But it is possible for us to consider withdrawing the device from an end-stage patient when the family wants us to withdraw LST, if the patient is in a state that is less severe than brain death and the patient is unlikely to expire right after the withdrawal of mechanical ventilation."

Some senior informants stated that they sometimes withdrew mechanical ventilation from patients who had no chance of recovery because of severe respiratory failure in order to guide the patients to a soft landing after the withdrawal of the device. Concerning this handling, Informant 1 stated, "In order to withdraw the device, we sometimes provide more treatment to the patient to improve his respiratory condition well enough to take out the device, intending that the patient would expire after a while, like in a few days. At the deathbed, nobody outside the medical team would think that the death of the patient was the direct result of the withdrawal of the device."

Discussion

The findings suggest that the modes of withdrawal of LST are related to physicians' psychosocial barriers that prevent them from withdrawing a certain type of LST. A number of informants

mentioned their resistance to immediate cardiac arrest, which follows withdrawal of mechanical ventilation. However, the time between the withdrawal of life support and cardiac arrest in the patient is shorter in some cases of withdrawal of PCPS than that of mechanical ventilation. Therefore, there seems to be another factor at work, which the findings suggest is the modes of withdrawal.

If mechanical ventilation is withdrawn from patients, including brain-dead patients, it would take place when its mechanical operation can still be continued. However, PCPS was withdrawn mainly when the mechanical operation of the device became impossible because of the patient's physiological limitation, or withdrawal was performed by either withholding subsequent treatment or the medical team decided not to replace some parts or the entire machine with new ones. In artificial liver support, the treatment was halted mainly when there was neither a chance for recovery nor a choice for liver transplant, or when the health insurance coverage was used up for a patient for whom the physicians had concluded that further treatment would be futile. Meanwhile, withdrawal of mechanical ventilation involves halting of the treatment by a physician when it is possible to keep the treatment going in terms of mechanical operation. Under the circumstances, the action of switching off the ventilator and extubating, even from dying patients, is believed to bring a psychological burden on physicians. Therefore, it is believed that the informants perceive the nature of this act as life shortening. This perception is true for withdrawal of mechanical ventilation, but not for PCPS or artificial liver support, and results in a sense of guilt in the informants because they, as well as those around them, perceive the physicians, and not the underlying conditions, to be responsible for the death of the patient. At the same time, the action of extubation makes withdrawal of mechanical ventilation apparently visible to the family as well as themselves and other medical staff. Meanwhile, withdrawal of PCPS and artificial liver support is much less visible. The difference may contribute to making the withdrawal of PCPS and artificial liver support acceptable to the physicians.

The physicians place importance on providing a soft landing for patients; hence, medication was often withdrawn in an effort to create what they observe as a calm and peaceful death. The relationship between the modes of withdrawal of life support and physicians' psychological resistance could also explain why vasopressors are well utilized when physicians intend a soft landing for their patient. Withdrawal of vasopressors takes the following forms: partial withholding, partial withdrawal followed by partial withholding, and withholding the use of the next ampule. The second pattern was mentioned in a recent article in Japan (Otani & Ishimatsu, 2007).

A number of informants recognized the withdrawal of mechanical ventilation as an abrupt life-shortening act and avoided it, but the same informants did not hesitate or resist manipulating the dosage of vasopressors to provide a soft landing, even though the act is apparently a life-shortening one. In contrast, it seemed that they positively utilized the nature of the medication that is convenient to provide a soft landing and did not question the ethics of intentionally creating the final scene, but were rather more concerned about how the final scene would look to the family and medical staff, including themselves.

The reason the physicians do not consider the gradual withdrawal of vasopressors as a life-shortening act may be that it does not result in an immediate cardiac arrest but leads to a slow death. The time-consuming mode of death seems to explain why the physicians prefer the manipulation of the medication to realize a soft landing. This could be interpreted as what the physicians avoid is not a life-shortening act but an act that would not lead to a soft landing or a slow death that looks 'natural.' It could also suggest that the visibility of extubation goes against the physicians'

preference for a soft landing that should appear 'natural.' The Japanese physicians' maneuver to construct 'natural' death seems to be somewhat similar to that of their British counterparts in a study that suggested that 'natural death' in intensive care is primarily constructed during medical work by means of interactional strategies through which the events of treatment withdrawal are seen to have no directly causative link to death (Seymour, 2000). Another study conducted in U.K. also reported how intensive care clinicians engage in a strategic practice of withdrawing technological support slowly in order to 'mimic' the decline of 'natural' death (Harvey, 1997).

The physicians perceive a soft landing as a way to help the family accept the patient's death. Thus, a family-oriented end-of-life care was observed in this study, as was previously reported in Japan (Aita et al., 2008; Aita, Takahashi, Miyata, & Kai, 2007; Akabayashi, Fetters, & Elwyn, 1999; Asai et al., 1995; Hoshino, 1997; Kai, Ohi, & Yano, 1993; Kimura, 1998; Long, 1999). In a similar attempt to support the family at the end-of-life clinical settings, Japanese physicians often perform cardiopulmonary resuscitation for the dying patient with the sole purpose of "keeping the patient alive" so that family members can be called and come to the hospital to be at the patient's bedside at the time of death (Asai, et al., 1997; Fetters & Danis, 2002; Long, 2004). Family members feel an obligation to be at their family member's bedside at the time the patient's heart stop beating (*shini me ni au*) in Japan (Fetters, 1998). It is the felt reality for many people in Japan that the dying person and the family share the dying process and the death itself, and that even after the diagnosis of brain death the family continues to share the dying process with the patient (Morioka, 2001). A dying patient is not a lone quality separate from social relationships that create it, sustain it, and give it meanings (Kellehear, 2008). Ignoring this fact about dying as a social relationship will indeed bring physicians, inevitably, predictably and unnecessarily, into conflict with families of comatose patients (Bernat, 2005). Many cultures share the view that 'making' a death good or bad is an active process in which both dying people and those around them participate (Seale & van der Geest, 2004), but family involvement and social continuity seem to be more dominant theme in Japan (Asai et al., 1995; Long, 2004).

However, the soft-landing approach suggests that the end-of-life process does not always occur in the context of the family's informed consent. It is considered a well-intended paternalistic approach so that the moral responsibility for the patient's death is not shared with family members, different from findings in a U.S. study (Slomka, 1992). However, it is also possible that the Japanese physicians' intention may fail to serve the actual wishes of the family. At the same time, the physicians try to create a deathbed scene that looks calm and peaceful partly for their own psychological comfort. The physicians' tendency of avoiding drastic changes in dying patients is observed even when dealing with brain-dead patients, which has been previously reported (Aita, 2008). Therefore, the physicians' approach to realize a soft landing may be better termed as a family- or physician-oriented end-of-life care.

Previous studies reported some similarities observed both in the United States and Japan regarding what constitutes good death, such as a peaceful death and a death in which the dying person is surrounded by caring family (Long, 2000; Long, 2004). However, Japanese physicians' preference for a slow death is in contrast to American physicians' preference observed in a previous study (Asch & Christakis, 1996), and that it may partly explain why most of the Japanese physicians do not withdraw mechanical ventilation from brain-dead patients (Aita, 2008). This preference could also explain the occurrence of the paradoxical situation and why the physicians do not perplex themselves with causing the paradox and do not consider that something might be inconsistent or unethical in their conduct.

Making efforts to realize a soft landing apparently prolongs the dying process. According to a common Anglo-American view, prolonging the dying process is not in the patient's best interests, as it goes against the ethical principles of beneficence and non-maleficence (Winter & Cohen, 1999). However, Japanese physicians usually do not share this view. If the dying process is prolonged by going against the patient wishes, it is considered unethical in Japan, similar to the Anglo-American countries. However, in Japan, patients rarely prepare advance directives (Akabayashi, Slingsby, & Kai, 2003) because there is no widespread effective policy in place for this purpose. Under these circumstances, it may be natural for physicians from a country where collective decision-making is the norm both in and outside medicine to make end-of-life decisions by placing a priority on the feelings of the family. However, it is needless to say that physicians have to at least communicate with the family to find out what the patient, not the family, would want under certain medical circumstances.

In the Anglo-American countries, a number of guidelines for forgoing treatment have stated for the past two decades that there is no ethically relevant difference between withholding and withdrawing LST (American Heart Association, 1992; American Medical Association, 1992; American Thoracic Society, 1991; British Medical Association, 2001; Hastings Center, 1987; President's Commission for the Study of Ethical Problems in Medicine and Biomedical and Behavioral Research, 1983; Task Force on Ethics of the Society of Critical Care Medicine, 1990) because they both offer the same results. Our findings indicate that Japanese physicians may not share this view. The difference between the Japanese and the mainstream Anglo-American view could be partly explained by the extent to which physicians perceive the effects of withholding and withdrawing LST. In the view of mainstream bioethicists and physicians in the Anglo-American countries, the results may concern only the individual patient; however, Japanese physicians recognize that the results affect not only the patient but also those around the patient, such as the family and the medical staff. If withholding and withdrawing LST have different effects on healthcare professionals and patients' families, there can be an ethically relevant difference (Melltorp & Nilstun, 1997).

Despite these guidelines, it is widely recognized, even in the Anglo-American countries and western Europe, that many healthcare professionals do agree that there is an ethical difference between withholding and withdrawing LST (Faber-Langendoen, 1994; Iserson, 1996; Levin & Sprung, 2005; Society of Critical Care Medicine Ethics Committee, 1992; Solomon, 1993; Sprung, Eidelman, & Pizov, 1996; Sulmasy & Sugarman, 1994). A previous article stated that there is tension between the guidelines and the attitudes of many healthcare professionals (Melltorp & Nilstun, 1997). Another article reported that the gap between the clinicians' feelings and the principles of ethical guidelines remained inadequately addressed by the bioethical literature (Cook, Rocker, Giacomini, Sinuff, & Heyland, 2006). Although further investigation is necessary to learn if Japanese and western physicians share common concerns about this issue, our findings regarding the modes of withdrawal of life support might provide a perspective for examining the reasons for the gap. Further study is necessary to examine matters related to emotion and psychology of clinicians, which we believe is important when dealing with end-of-life issues.

This study has some limitations. First, our findings are based on interviews with 35 physicians, and thus, the generalizability of our results is limited. This qualitative study revealed the existence of the paradoxical situation; however, it is not designed to assess its prevalence, and future studies will need to confirm the findings and assess its prevalence. In addition, it should also be noted that Japanese physicians with different specialties might act differently regarding the issue of LST.

Conclusions

This study investigated the details of Japanese emergency and critical care physicians' psychosocial barriers concerning the withdrawal of life support by comparing the modes of withdrawal of mechanical ventilation with those of other LST. The Japanese physicians in the study believed that withholding and withdrawing LST have apparently different effects on them and that they wanted to avoid withdrawal of life support, which they consider an act of life shortening. The truth, however, may be that they wanted to avoid withdrawal of life support that would not lead to a soft landing, or slow death, although the physicians themselves were not aware of it. Withdrawal of mechanical ventilation would have to take place when its continuation is still possible in terms of mechanical operation and immediate cardiac arrest is induced when it is withdrawn, which goes against the physicians' wishes of realizing a soft landing. Withdrawal of PCPS also goes against the realization of a soft landing, but its withdrawal would take place at a time when withdrawal is inevitable. The physicians positively utilized the gradual withdrawal of vasopressors as a measure to guide the patient into what they believe is a calm and peaceful ending that looks 'natural'. The purpose of realizing such a final scene is believed to fulfill the psychosocial needs of the patient's family and the physicians, who place importance on how the death and dying looks to those surrounding the patient. This preference that seems to be related to the physicians' perception of death and dying as a social relationship is likely to be one of cultural factors for the difference in end-of-life decision-making.

Appendix A. Interview guide

- Informants' experiences related to withdrawal of mechanical ventilation, percutaneous cardiopulmonary support, artificial liver support, and vasopressors from dying patients.
- If withdrawn, what they thought when they withdrew the treatments. If not withdrawn, why?
- Descriptions of the withdrawal of the treatment, including how the withdrawal took place under what circumstances, and the informants' physical actions they took when withdrawing the treatments.
- What they perceive the characteristics of the treatments to be.
- What they think is important when dealing with patients at the end of life.
- Informants' individual attitudes toward withholding and withdrawing LST, including psychosocial differences between the two on the part of physicians.

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