

# Process of Decision-Making of Anti-Cancer Treatment in Elderly Patients with Advanced Lung Cancer

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## Abstract

The aim of this study was to identify the decision-making process of anti-cancer treatment in elderly patients with advanced lung cancer. Semi-structured interviews were conducted with 17 patients aged 70 and above to collect data on their feelings and thoughts from the time of diagnosis till they made treatment decisions. The data was analyzed using the Modified Grounded Theory Approach that was modified by Prof. Yasuhito Kinoshita. We found the process to be composed of six categories. The results showed that elderly patients with advanced lung cancer were **panicked over unavoidable death** when informed of stage IV lung cancer and offered suggestions about anti-cancer treatment. However, trying to accept the situation where death is imminent, patients **reconsidered having cancer in older age and recognized a desire to survive even in older age**. This process diverged into two paths: one group of patients **changed their ideas from radical to life-prolonging treatment by recognizing a desire to survive even in older age** and then made anti-cancer treatment decisions by **carefully choosing treatment that would allow to carry on their usual way of life**; the other group of patients made treatment decisions by **carefully choosing physicians to whom they could entrust their life in older age**. These findings suggest that it is important for nurses to: 1) encourage patients to talk in order to have them think about what they have valued and want to value in the rest of their life; 2) assess if patients prefer to decide on their own by carefully choosing treatment or entrust treatment decisions to physicians; and 3) offer support according to patients' preferences.

## Keywords

Advanced Lung Cancer, Elderly, Anti-Cancer Treatment, Decision-Making

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## 1. Background

Lung cancer is the leading cause of cancer deaths in Japan; it is a disease whose incidence increases with advancing age [1]. The number of incident cases of lung cancer among those aged 75 and above has increased twofold compared to 10 years ago, and is continuing to increase [2]. Elderly people with lung cancer are expected to increase further in Japan, which is becoming a super-aged society. In addition, lung cancer is a disease that is usually found at an advanced stage and this contributes to limited curative treatment options for many patients [3] [4] [5].

In recent years, however, more treatment options for patients with advanced lung cancer without surgery indication have been available owing to the development of anti-cancer drugs and supportive care. Further, more treatment options have been available for elderly patients as well [4]. For those who have already had stage IV lung cancer at the time of diagnosis, physicians may offer the option of anti-cancer drug treatment together with the option of no treatment or the suggestion of palliative care. In this case, the patient has to make an extremely difficult choice.

In cancer treatment decision-making, patients have difficulty in organizing and making an important and life-affecting decision about medical information in a short period of time with insufficient information [6]. Additionally, it is difficult for patients to understand the explanations offered by physicians, which cause psychosocial distress, because the physicians simultaneously offer both treatment recommendations and diagnosis announcements [7]. Furthermore, in addition to these situations, elderly cancer patients suffer age-related physiologic decline including hearing loss, memory loss, and cognitive impairment [8]. These patients may be prone to having problems in understanding and organizing information. Moreover, elderly people tend to prefer a passive role in treatment decision-making, as it has been reported that elderly people “want to let their health care professionals decide” or “want to follow what family members want” [9]. Treatment decision-making with satisfaction should be difficult for them. From these findings, we presume that unless the elderly diagnosed with advanced lung cancer can understand the illness and treatment in a short period of time and make treatment decisions with satisfaction, their remaining lives and quality of life will be affected. Therefore, when elderly patients with advanced lung cancer make treatment decisions, support should be offered so that they can live their life in their own way, despite having cancer in older age.

Previous studies on cancer treatment decision-making have found patient decision-making process and structure in the surgical treatment of breast cancer [10] [11]; roles of breast cancer patients in information search and decision-making [12] [13]; factors influencing cancer treatment decision-making [14]; and contents of support by nurses in decision-making about cancer treatment [15]. However, none have considered decision-making regarding elderly lung cancer patients, who are expected to increase in Japan in the future [16].

This study aimed to identify the processes of how elderly patients diagnosed with advanced lung cancer make anti-cancer treatment decisions, in order to obtain implications for nursing practice that supports anti-cancer treatment decision-making in elderly patients.

## 2. Methods

### 2.1. Design

This study used a qualitative and descriptive research design with the Modified Grounded Theory Approach modified by Prof. Yasuhito Kinoshita, which is suitable for research in the area of human services and is an excellent method for identifying phenomena of a process-related nature and for determining the dynamics [17]. We assumed this method was suited to the present study as its objective was to identify the processes of how elderly patients diagnosed with advanced lung cancer make anti-cancer treatment decisions.

### 2.2. Definition of Terms

#### **Advanced lung cancer**

Stage IV lung cancer that has spread to lymph nodes and other organs.

#### **Anti-cancer treatment**

Treatment aimed at controlling cancer, including anti-cancer drug therapy, radiation therapy, chemo-radiotherapy, and immunotherapy.

#### **Decision-making**

The process that patients make a choice to receive anti-cancer treatment after they diagnosed as advanced lung cancer.

### 2.3. Participants

We included patients who were aged between 70 and 90 years, diagnosed with stage IV lung cancer, decided to receive anti-cancer treatment, physically and emotionally able to be interviewed, and consented to participate. We excluded those who had severe cognitive decline or psychological distress, which was determined by physicians. These participants were recruited at two hospitals specialized for cancer treatment.

### 2.4. Data Collection

The data collection period was from July 2016 to February 2017. We asked physicians to select target candidates at two facilities in Osaka Prefecture. Then, the researchers explained the outline of the project to the patients and obtained consent.

Selection criteria of this study were: patients diagnosed with stage IV lung cancer, aged over 70 and under 90, mentally and physically stable, and of sound mind. Exclusion criteria of this study were: a decline in cognitive function and difficulty of communication.

Semi-structured inter-views were conducted to collect data on how the par-

participants made treatment decisions when they received suggestions about anti-cancer treatment, what the key determinant in decision-making was, feelings and thoughts until they made decisions, and so on. The content of the interviews was recorded on an IC recorder with the participants' consent. An interview was conducted with each patient within one month of anti-cancer treatment decision making in a semi-private room that provided privacy at the hospital's outpatient department or ward. The interview lasted for approximately 35 - 45 minutes. Additionally, data on demographics, diagnosis, and treatment were collected from the medical record, with the participants' consent.

## 2.5. Data Analysis

Interview data was analyzed using the Modified Grounded Theory Approach of Prof. Kinoshita [17]. Our study's analytic focus was "elderly patients with lung cancer who made anti-cancer treatment decisions." Our analytic themes were "a series of processes of how patients felt and thought about the advanced lung cancer, and how they considered, acted, and made treatment decisions after having received an explanation of anti-cancer treatment."

The analysis procedure is as follows: 1) the researchers chose one case who had spoken in detail as the first informant and read the transcribed data thoroughly; 2) focusing on parts of the data related to the theme of our analysis, the researchers interpreted what they might mean for the participants and generated concepts; 3) for each concept, the researchers created an analysis worksheet in which the names of concepts, definitions, concrete examples, and theoretical memos were written down; 4) from the subsequent concepts, the researcher continued to analyze the data by comparing extremes and similarity; 5) after the data of all participants were analyzed, categories were generated by examining the relationships between concepts; 6) once all the categories were generated, the researchers created a diagram by examining the interrelationships between the categories and explicated storylines to explain them; 7) in order to ensure the relevance and dependability of the data analysis, the researchers were regularly advised by a supervisor on the generation of concepts and categories, and on the creation of a diagram to confirm consistency regarding the contents of analysis.

## 2.6. Ethical Considerations

This study was approved by the Ethical Review Committee of Osaka Medical College (number: nursing 30 [0936]) and the Ethical Review Committee of the institution where the research was conducted (approved number: 2016-086). The researchers explained orally and in writing to the participants about the following: the purpose and methods of the study, voluntary participation, the right to withdraw, avoidance of harm, protection of private information, assurance of anonymity, handling of data, and the possibility of publishing the study results. The researchers obtained the participants' consent to participate in writing. The researchers took sufficient care to ensure that the participants' psychological and

physical distress and burden of hours spent in participation were minimal.

### 3. Results

#### 3.1. Overview of the Participants (Table 1)

The study sample consisted of 17 participants. The average age was 76.4 (70 - 86) years; 13 were men and 4 were women.

Treatment options for participants were: a) clinical trials or standard treatment, 7 participants; b) to receive or not receive anti-cancer agents, 4 participants; c) to receive or not receive oral molecular targeting agents, 3 participants; d) anti-cancer agents or palliative care alone, 3 participants.

Eight participants received treatment to alleviate cancer symptoms including pleural fluid, cancer pain, and symptoms of brain metastasis. Three participants had previously suffered other cancer. Interviews lasted about 43 minutes on average.

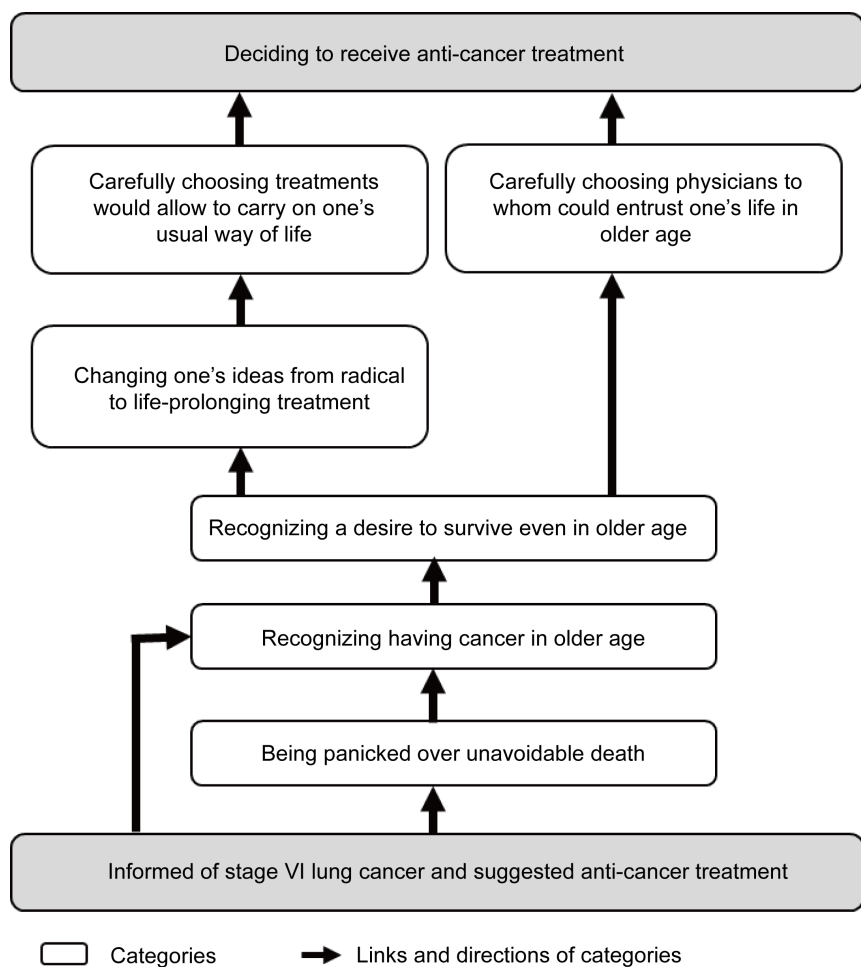
Whether to receive or not receive oral molecular targeting agents.

**Table 1.** Overview of participants.

ID	Age	Sex	Treatment options	Patients' Final decisions	Treatment to alleviate cancer symptoms	Previous cancer history
1	Early 80s	M	Clinical trials or standard treatment	Standard treatment (oral molecular targeting agents)	-	○
2	Late 70s	M	Anti-cancer agents or palliative care alone	Anti-cancer agents (oral)	-	-
3	Late 80s	M	Whether to receive or not receive oral molecular targeting agents	Oral molecular targeting agents	○	○
4	Early 80s	F	Whether to receive or not receive oral molecular targeting agents	Oral molecular targeting agents	-	-
5	Late 70s	M	Anti-cancer agents or palliative care alone	Anti-cancer agents (iv)	○	-
6	Late 70s	M	Clinical trials or standard treatment	Clinical trials (anti-cancer agents; iv and oral)	-	○
7	Early 70s	M	Clinical trials or standard treatment	Clinical trials (anti-cancer agents; iv)	○	-
8	Early 70s	M	Clinical trials or standard treatment	Clinical trials (anti-cancer agents; iv and oral)	○	-
9	Early 70s	M	Clinical trials or standard treatment	Clinical trials (anti-cancer agents; iv)	○	-
10	Early 80s	M	Whether to receive or not receive anti-cancer agents	Anti-cancer agents (iv)	-	-
11	Early 70s	F	Clinical trials or standard treatment	Standard treatment(anti-cancer agents; iv)	-	-
12	Late 70s	M	Anti-cancer agents or palliative care alone	Anti-cancer agents (iv)	-	-
13	Early 70s	M	Whether to receive or not receive anti-cancer agents	Anti-cancer agents (iv and oral)	-	-
14	Late 70s	F	Clinical trials or standard treatment	Clinical trials (anti-cancer agents; iv)	○	-
15	Late 70s	M	Whether to receive or not receive anti-cancer agents	Anti-cancer agents (iv)	-	-
16	Late 70s	F	Whether to receive or not receive oral molecular targeting agents	Oral molecular targeting agents	○	-
17	Late 70s	M	Whether to receive or not receive anti-cancer agents	Anti-cancer agents (iv)	○	-

### 3.2. Storyline (Figure 1)

Elderly patients with advanced lung cancer **were panicked over unavoidable death** when informed of stage IV lung cancer and offered suggestions about anti-cancer treatment. However, trying to accept the situation where death is imminent due to advanced cancer, they **reconsidered having cancer in older age**, which resulted in **recognizing a desire to survive even in older age**. Those patients who had multiple cancer, long history of smoking, or many relatives with cancer, were not **panicked over unavoidable death** but **reconsidered having cancer in older age** after they had been diagnosed. This process diverged into two paths after **recognizing a desire to survive even in older age**: one group of patients **changed their ideas from radical to life-prolonging treatment** after **recognizing a desire to survive even in older age** and then made anti-cancer treatment decisions by **carefully choosing treatments that would allow them to carry on their usual way of life**; the other group of patients made treatment decisions by **carefully choosing physicians to whom they could entrust their life in older age**.



**Figure 1.** Decision-making process of anti-cancer treatment in elderly patients with advanced lung cancer.

### 3.3. Description of Generated Concepts and Categories (Table 2)

Fourteen concepts and 6 categories were formed from the transcripts. The six categories of the decision-making process of anti-cancer treatment in elderly patients with advanced lung cancer will be explained showing concrete examples. We explain **Table 2** as follows: “Bold-Italic” represents concepts, “Italic” represents a concrete example, and (ID) the number of each participant.

#### 1) Being panicked over unavoidable death

This category illustrates that upon being informed of advanced lung cancer, the participants were upset and felt uneasy about facing death.

This category included 2 concepts: *Being upset about imminent death* and *Being confused about ineligibility to receive radical treatment*.

##### *Being upset about imminent death*

*“It was really a great shock. When I heard it is incurable, I thought, Oh! Is my life ending now?”* (ID10)

*“I thought cancer equals death, like getting cancer itself means losing life. Early detection gives better prognosis, that’s what I’ve heard. Then, I thought having metastasis means it’s too late.”* (ID15)

##### *Being confused about ineligibility to receive radical treatment*

*“Even if it’s a cancer, some people are somehow saved by cutting the lung in half. Why can’t only I have an operation?”* (ID7)

#### 2) Reconsidering having cancer in older age

**Table 2.** Categories and concepts comprising the decision-making process of anti-cancer treatment in elderly patients with advanced lung cancer.

Category	Concept
<b>Being panicked over unavoidable death</b>	Being upset about imminent death
	Being confused about ineligibility to receive radical treatment
<b>Reconsidering having cancer in older age</b>	It is unavoidable to have cancer at this age
	Even though I have cancer, it all depends on how you look at it
<b>Recognizing a desire to survive even in older age</b>	Conflicting feelings between “I have lived enough” and “I still want to live”
	Want to live until I can no longer live
<b>Changing one’s ideas from radical to life-prolonging treatment</b>	Determining one’s own medical conditions
	Positively reconsidering life-prolonging treatment
<b>Carefully choosing treatments would allow to carry on one’s usual way of life</b>	Carefully examining whether or not taking a chance with life-prolonging treatments in older age are worthwhile
	Fulfilling their own way of life
	Obtaining approval of family about their choices
<b>Carefully choosing physicians to whom could entrust one’s life in older age</b>	Carefully choosing physicians
	Focusing on information only from physicians
	Entrusting treatment decisions to physicians

This category illustrates that although the participants were initially upset by having advanced cancer, they changed their ideas about aging, death, and living. It can be explained as follows that; they reconciled to the having cancer could not help at advanced age, and they found good point with having cancer despite its seriousness.

This category included 2 concepts: ***It is unavoidable to have cancer at this age*** and ***Even though I have cancer, it all depends on how I look at it***.

***It is unavoidable to have cancer at this age***

*“I thought having cancer is my own fault. I’ve been smoking for some 40 or 50 years. So, I guess I deserve it.”* (ID12)

***Even though I have cancer, it all depends on how I look at it***

*“If I will still live more, and become unable to move, I don’t want to tell my daughter or my old wife to push my wheelchair. When I consider that I won’t be able to live that long, I feel very much relieved.”* (ID2)

**3) Recognizing a desire to survive even in older age**

This category illustrates that, being aware of a life crisis, the participants experience conflicting feelings between having lived enough and still wanting to live, and recognized their desire to live if possible until they no longer can live.

This category included 2 concepts: ***Conflicting feelings between “I have lived enough” and “I still want to live”*** and ***Want to live until I can no longer live***.

***Conflicting feelings between “I have lived enough” and “I still want to live”***

*“It’s not that I’ve lived enough up to now. I noticed in myself that I still want to be saved. Then, I have to cooperate with my life.”* (ID4)

*“I thought I’m old enough, my life is slowly coming to an end. I might want it to finish. But, I thought that it is a little too early.”* (ID13)

***Want to live until I can no longer live***

*“My daughter and I were pleased when we heard that my cancer is EGFR positive. I am glad that effective drugs are available and I could be saved.”* (ID 16)

*“Because there may be a possibility of my living out my life, I am thinking about living until I can no longer live.”* (ID 7)

**4) Changing one’s ideas from radical to life-prolonging treatment**

This category illustrates that in order to survive, participants reconsider the suggested treatment for prolonging life after they have decided regarding their medical conditions, *i.e.*, that they are in a stage where they cannot be radically treated any more.

This category included 2 concepts: ***Determining one’s own medical conditions*** and ***Positively reconsidering life-prolonging treatment***.

***Determining one’s own medical conditions***

*“When my doctor said, ‘We can’t give you surgery. We can’t give you radiotherapy, either. Your choices are only chemotherapy and immunotherapy,’ I felt like he was saying that the treatment options were narrowed due to this pleural*



*fluid. My friend looked up the meaning of pleural fluid and taught me about it.”* (ID11)

***Positively reconsidering life-prolonging treatment***

*“Because I assume that if I am offered some treatment, my life will be a little more prolonged, I couldn’t resist saying, ‘Doctor, my treatment should be life-prolonging treatment from now on.’”* (ID1)

*“My doctor told me neither surgery nor radiation therapy works for me. The only remaining options are anti-cancer medications. In that case, I’ll take a chance with that medicine. And it would be fine with me if I can live even just for months.”* (ID2)

**5) Carefully choosing treatments would allow to carry on one’s usual way of life**

This category illustrates that participants examine whether or not suggested treatments are worthwhile in light of their medical conditions, age, and previous ways of life, and that upon obtaining approval of the family, they choose treatments would allow to carry on their usual way of life.

This category included 3 concepts: ***Carefully examining whether or not taking a chance with life-prolonging treatments in older age are worthwhile***, ***Fulfilling their own way of life***, and ***Obtaining approval of family about their choices***.

***Carefully examining whether or not taking a chance with life-prolonging treatments in older age are worthwhile***

*“Because I’m living on a pension, I don’t want to live with paying such a high medical cost. Then, I would rather join the clinical trial. That doesn’t require the burden of expense. If the treatment won’t cure me, it doesn’t matter.”* (ID7)

*“I prefer the way of imposing no burden on my body. I told so to the doctor. Because I don’t want to give my wife too much trouble.”* (ID6)

***Fulfilling their own way of life***

*“If possible, the best way would be to stay home and receive treatment while helping my wife with something. I wanted to choose the way to receive treatment while continuing to live my ordinary life.”* (ID 1)

***Obtaining approval of family about their choices***

*“I received an explanation about the treatment again together with my three children and husband. My doctor properly gave an explanation even in front of my children. My children also OK’d my choice of treatment.”* (ID11)

**6) Carefully choosing physicians to whom could entrust one’s life in older age**

This category illustrates that participants determine whether or not a physician can be entrusted with their life in older age based on their persistent will to live.

This category included 3 concepts: ***Carefully choosing physicians***, ***Focusing on information only from physicians***, and ***Entrusting treatment decisions to physicians***.

**Carefully choosing physicians**

*“I happened to find the doctor’s biographical information, such as alma mater, membership of the Japan Lung Cancer Society. This doctor must be trustworthy, I was sure.” (ID 13)*

*“I want to completely trust my doctor. By watching the doctor’s responses, I figure out right away if the doctor is reliable. I’m 74, old enough. Based on the responses to patients, I was sure I could trust him.” (ID15)*

**Focusing on information only from physician**

*“I am handing over all decisions to my doctor. Advice from my relatives who are physicians are static to me. They are actually making me confused. I just block them.”(ID3)*

**Entrusting treatment decisions to physicians**

*“I trust and entrust my doctor. I am desperately depending on him.”(ID 14)*

*“I think my doctor is considering the best possible treatment for me. I know nothing of the treatment options. I’m an amateur about health care. I have no knowledge, so I just receive the treatment my doctor suggested me.”(ID12)*

**4. Discussion****1) Recognizing a desire to live by being panicked over imminent death**

The participants who felt a threat to life when informed of advanced lung cancer experienced a feeling of unrest when panicking over the possibility of their death, and changed their ideas to the fact that it is unavoidable to have cancer at this age and even though they have cancer, it all depends on how they look at it. Reconsideration of having cancer in an advanced age led to recognition of a desire to survive even in older age. The ability to reconsider is a coping mechanism in which, when diagnosed with advanced lung cancer, the participants reconsider their way of their remaining life and having cancer in older age. This may be attributed to the strength of the elderly. Because the meaning of death in old age is greatly affected by health status [18], the participants who were aware of having advanced cancer recognized that given their own health status, it is impossible to live long, and resulted in associated death. Because death, about which they were thinking in a vague way up until now, had become more real, having cancer in older age caused them to reassess it. Therefore, how to accept death, change values [19], and how to accept cancer, aging, and death are key for elderly people to live better.

The participants recognized a desire to survive after they reconsidered aging, death, and living. Recognizing a desire to survive resulted in a stronger desire to live and led the participants to address living independently even though they were aware of a limited life expectancy due to cancer.

This is also consistent with the findings of an earlier study focused on elderly patients with metastasis, which found that some elderly individuals wanted to live a little longer by receiving treatment [20]. It may be important for the elderly to still have the will to live even if they understand their short life expectancy

and reflect on their lives.

### **2) Carefully choosing treatments would allow to carry on one's usual way of life**

The participants diagnosed with advanced lung cancer made treatment decisions by changing their ideas from radical to life-prolonging treatment and carefully choosing treatments would allow to carry on their usual way of life, after recognizing a desire to survive even in older age. Previous studies have shown that as people become older, they tend to be more passive in medical decision-making by themselves [21]. However, the present study found that the participants independently chose the treatment that would allow to carry on their usual way of life after changing their ideas from radical to life-prolonging treatment and reflecting on their lives, which may be a new finding.

The participants were able to change their ideas from radical to life-prolonging treatment because they were able to discern what was happening to them after knowing that they had metastasis and fewer treatment options, as well as through the attitude of the physicians and properly understanding that the treatments suggested for them were aimed at prolonging their life and not at cure. People are said to develop integrity with increased wisdom such as insight, discernment, and an objective and flexible attitude toward things as they age [22]. The participants, therefore, could grasp their situations more objectively by making use of the wisdom that they had so far accumulated.

The participants were also searching for treatment options that would impose less burden on health care cost and their bodies. Furthermore, they valued their previous way of life, carefully choosing treatments to maintain their usual way of life. Carefully choosing treatments with which the participants could value their way of life was made possible because they were able to think about what they wanted to value in their limited remaining life by properly understanding that the purpose of the treatments was to prolong life. Therefore, it is important for nurses to support in a way that patients can properly understand the relationship between the degree of disease progression and its treatment, and find out what they want to value for the rest of their lives.

The participants made treatment decisions after they ascertained their family's consent to their decisions. Because the Japanese have strong tendencies to follow family members' opinions and prioritize harmony [23], it is important for nurses to support in a manner that families can understand the treatment decisions made by a patient.

### **3) Carefully choosing physicians to whom could entrust one's life in older age**

Some participants made treatment decisions by carefully choosing physicians to whom could entrust their life in older age after they had recognized their desire to survive even in older age. Some participants said, "I'm an amateur about health care." Participants may have felt difficulty in understanding advanced cancer and their situation. It has been reported that in treatment deci-

sion-making, patients tend to play a passive role if they are in a potentially life-threatening situation [24]. Considering themselves amateur, participants may have found it difficult to understand their medical condition and treatment, and in order to survive, participants may have decided to let the physicians make treatment decisions.

Additionally, some participants avoided information obtained from sources other than physicians. This was because increased information about illness or treatment may have confused them, or they may have been afraid that their feelings of trust in physicians were disturbed. Thus, participants who felt that their life was threatened found it difficult to understand illness and treatment. They may have maintained mental stability by using a coping method that interrupts information from being received. It is said that providing information is important in patients' decision-making [25] [26]. However, this study indicated that in the case of patients who become more uneasy by the provision of information, it is important to provide information based on their need.

Groopman and Hartzband [27] indicated that while it is advantageous for patients to make quick decisions in a short period of time, in terms of being relieved from stress due to decisional conflict, they may make wrong decisions. Further, if the outcome proves to be undesirable, patients will regret their choice. Thus, the patients, who find it difficult to make treatment decisions by themselves and entrust treatment decisions to physicians without correct understanding and careful choice of treatment, may regret their own decisions if undesirable outcomes occur [28]. Nurses, therefore, need to observe carefully whether or not a patient develops psychological distress after treatment decision-making.

## 5. Implications for Nursing Practice

The findings of this study suggested that in the decision-making process of anti-cancer treatment in elderly patients with advanced lung cancer, there were participants who carefully chose treatments that would allow to carry on one's usual way of life and participants who carefully chose physicians to whom could entrust one's life in older age. Thus, it was indicated that nurses need to assess how patients prefer to make treatment decisions as well as to offer emotional support for the impact immediately after diagnosis.

The participants who preferred to make treatment decisions by carefully choosing treatments would allow to carry on one's usual way of life were able to change their ideas to life-prolonging treatment by understanding the evaluation of their medical conditions and treatment, and then made decisions by thinking about what they want to value in their remaining life. Nurses are required to support elderly people in order that they can properly understand their medical conditions and the purpose of the treatment. To that end, nurses need to encourage patients to talk about their conception of treatment, educate them to understand treatment information from physicians and clinical test results, and

interact with them based on their acceptance of illness. We believe that it is important for nurses to encourage patients to talk in order that they can think about what they have valued and want to value from that point onwards.

The participants in this study were concerned about decreased physical strength when carefully choosing their treatment. It is crucial for nurses to offer objective information in order that patients can visualize a specific treatment allowing them to incorporate daily activities while undergoing it and think about methods for preventing decreased physical strength together with the patients. Furthermore, the findings suggested that it is crucial for nurses to support patients to have an opportunity to articulate their ideas about their treatments to their families and important others and discuss the treatment they chose.

The participants who preferred to make treatment decisions by carefully choosing physicians to whom could entrust their life in older age limited the information they incorporated and carefully chose their physicians. Nurses, therefore, need to listen carefully to the feelings of patients and interact with them in an accepting manner. It is important for nurses to assess whether or not the patients want to receive more information than the information about illness and treatment explained by physicians, and offer information based on patients' needs and help them organize information in order that they are not confused. Furthermore, as patients may be at a higher risk of becoming critical as a result of bad news or changes in medical conditions, it is important for nurses to assess whether or not a patient has hesitant feelings or doubts on a long-term basis and prospectively offer nursing support.

Also, it is important that nurses explain this process of decision making of anti-cancer treatment in elderly patients to doctors and medical staff. We believe that it is important that nurses coordinate with doctors and medical staff to support elderly patients with advanced lung cancer so that they can make a decision according to their intention.

## 6. Limitations and Future Issues

This study targeted at the elderly people who decided to receive treatment. Further investigations are necessary to include the elderly who decide not to receive treatment and explore their decision-making support.

## 7. Conclusions

1. The process of decision-making of anti-cancer treatment in elderly patients with advanced lung cancer was composed of six categories, diverged into two paths after recognizing a desire to survive even in older age. Elderly patients made a decision regarding anti-cancer treatment by **carefully choosing treatments that would allow them to carry on with their usual way of life**, or **carefully choosing physicians to whom they could entrust their life in older age**.

2. The results show that elderly patients independently chose the treatment

that would allow them to carry on with their usual way of life after changing their ideas from radical to life-prolonging treatment and reflecting on their lives.

3. It was suggested that nurses need to assess if elderly patients prefer to carefully choose treatments that would allow them to carry on with their usual way of life or to select physicians to whom they could entrust their life in older age.

4. It is important that doctors, nurses and medical staff understand this process of decision-making regarding anti-cancer treatment in elderly patients with advanced lung cancer, and support them to live their own lives even if they suffer from the disease. In addition, nurses need to coordinate the medical team members that support elderly patients.

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