Usefulness of Questions from Patients and Their Families in Medication Guidance —Role of the Pharmacist in Integrated Therapy for Blood Cancer—

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This report describes how good medication guidance may be provided to patients with blood cancer and discusses the role of the pharmacist in raising the satisfaction of patients and family members with treatment. Chemotherapy for blood cancer causes a variety of severe adverse reactions, giving patients and their families a feeling of anxiety towards it. It is therefore necessary for pharmacists to provide medication guidance in order to reduce anxiety towards drugs during long-term chemotherapy.

In the present study, we examined questions regarding chemotherapy from patients and their families for 32 cases in the past 3 years. The 485 questions asked were classified according to subject as follows: 1) Adverse reactions-40%, 2) Chemotherapy protocol-12%, 3) Blood transfusions-7%, 4) Effects of chemotherapy-6%, 5) Granulocyte-colony stimulating factor (G-CSF)-6%, 6) Method of use-4%, 7) Drugs preventing opportunistic infections-4%, 8) Administration method-3%, 9) Chemotherapy in outpatient ward-3%, 10) High-dose chemotherapy-3%, 11) Discharge and short stay at home-1%, 12) Drop-out-1%, 13) Drawing blood-1%, 14) Color of chemotherapy agents for injection-1%, and 15) Differences between treatment strategies at other hospitals-1%.

Key words — medication guidance, blood cancer, chemotherapy, anxiety, integrated therapy

Introduction

Currently, cancer chemotherapy is performed under various protocols including combination chemotherapy and high-dose chemotherapy, resulting in a remarkable improvement in cure rate¹⁾.

In the case of leukemia, even if symptoms due to the primary disease are improved when complete remission is achieved by induction chemotherapy, the patients may begin to suffer from adverse reactions, such as bone marrow depression, various infections, alopecia, stomatitis, nausea, and vomiting²⁾. These adverse reactions cause patients and their families to experience various levels of anxiety.

In this regard, it is necessary to examine how adequate patient instruction by a pharmacist can reduce chemotherapy anxiety and helps to assure the patients and their families.

We focused on a variety of anxieties, complaints and questions obtained from patients and their families during chemotherapy, and then discussing them in terms of the role of pharmacists in the integrated treatment of blood cancer.

Integrated treatment by medical staff at Nishi-Kobe Medical Center

Pharmacists and other medical staff at Nishi-Kobe Medical Center supported patients and their families through appropriate medication guidance that reduced their anxiety about drugs³⁻⁵⁾.

The members in integrated treatment consisted of physicians, pharmacists, nutritionists, psychiatrists, psychologist, nurses, and so on. The role of each staff member in medication guidance is summarized in **Table 1**.

Physicians played a leading role in medical care, together with reducing patient anxiety through daily rounds of the patients.

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Table 1. Role of Each Staff Member in Medication Guidance at Nishi-Kobe Medical Center.

Physician	To play a leading role in medical care To reduce patient anxiety through daily rounds of the patients
Pharmacist	To the effects of the drugs, as well as potential adverse reactions, To explain the most suitable method of drug administration To provide medication guidance with regards to patient and family anxiety
Nutritionist	To provide nutrition guidance and encouraged patients to improve meal menus to reduce anorexia resulting from adverse reaction to the drugs
Psychiatrist	To support the mental care of the patients as well as their families through daily rounds of the patients To provide counseling to the patients and their families To advise the medical staff to promote understanding of the actions or words of the patients
Psychologist	To provide psychological care to the patients and their families to reduce mental stress
Nurse	To provide total nursing care to patients and their families, including mental health care To coordinate patients, families and medical staff To assure quality of life (QOL) during hospitalization

Pharmacists played an important role in pharmaceutical care by explaining the effects of the drugs, potential adverse reactions, and the most suitable method of drug administration in order to reduce patient and family anxiety.

Nutritionists provided nutrition guidance and encouraged patients to improve meal menus to reduce anorexia resulting from adverse reaction to the drugs. During the chemotherapy term, nutritionists explained the reason why raw foods were prohibited after pharmacists explained bone marrow depression caused by chemotherapeutic agents.

Psychiatrists supported the mental care of the patients as well as their families through daily rounds of the patients and providing counseling to the patients and their families. They advised pharmacists to promote understanding of the actions or words of the patients.

Psychologists provided psychological care to the patients and their families to reduce mental stress. Psychologists could grasp the most effective time for psychological care after discussion with pharmacists regarding the times when the adverse reactions of chemotherapeutic agents would occur most severely.

Nurses provided total nursing care to patients and their families, including mental health care, coordinate patients, families and medical staff and assure quality of life (QOL) during hospitalization. Nurses and pharmacists cooperated to avoid noncompliance with drug therapy.

Subjects

The subjects of this study included 32 patients (16 males and 16 females) admitted between September 1998 and August 2001 with the diagnosis of blood cancer. There were 5 patients treated in the pediatric department and 27 in the internal department of immunohematology. Patients ages ranged from 4 years old to 87 years old (mean 48.7 years old). The mean hospitalization period was 96 days. During the hospitalization period, medication guidance was provided an average of 19.5 times. The number of patients with malignant lymphoma, acute myelocytic leukemia, acute lymphatic leukemia and multiple myeloma were 16, 11, 4 and 1, respectively. **Table 2** shows a list of chemotherapeutic agents administered to 32 patients.

Methods

Initially, the physician explained the present chemotherapy to the patients and their families. Thereafter, a pharmacist regularly attended the bedside 1–3 times per week to provide medication guidance. Anxieties, complaints and questions about chemotherapy were obtained from the patients and their families during medication guidance.

Table 2. Chemotherapeutic Agents Administered to 32 Patients.

Chemotherapeutic agents	Number of cases
Cytarabine	21
(High-dose chemotherapy)	(3)
Cyclophosphamide	20
(Peripheral blood stem cell transplantation)	(1)
Etoposide	19
Vincristine	17
Methotrexate	12
(High-dose chemotherapy)	(3)
(Peripheral blood stem cell transplantation)	(1)
Daunorubicin	11
Idarubicin	9
Pirarubicin	8
Enocitabine	8
Doxorubicin	7
Aclarubicin	5
L-asparaginase	4
Mitoxatrone	4
Carboplatin	4
Mercaptopurine	2
Bleomycin	2
Dacarbazine	2
Vindesine	2
Hydroxycarbamide	2
Tretinoin	2
Melphalan	2
(Peripheral blood stem cell transplantation)	(1)
Vinblastine	1
Procarbazine	1
Ubenimex	1
Ranimustine	1
Fluorouracil	1
Actinomycin D	1

Results and Discussion

1. Classification of anxieties, complaints and questions about chemotherapy from patients and their families

The anxieties, complaints and questions about chemotherapy are summarized in **Fig. 1**. There was a total of 485 questions. Among these, there were 194 questions about adverse reactions(40%), 57 questions about chemotherapy protocol (12%), 33 questions about blood transfusions (7%), 28 questions about the effects of chemotherapy (6%), and other questions. The details of the anxieties, complaints and questions are shown in **Table 3**. There were some questions that were difficult for patients and their families to ask their doctor, or that they had already asked but wanted to ask the pharmacist to obtain a second opinion.

There was no relation among questions from patients and their treatment times. Among various chemotherapeutic agents, there were no obvious differences in the contents of questions.

Questions related to adverse reactions accounted for the largest percentage of the questions, 40%, suggesting the necessity of supportive care from pharmacists. It is of special interest that non-physical aspects other than adverse reactions were accounted for (60%). Coates *et al.* asked patients to identify and rank the side effects of their cancer chemotherapy⁶⁾. The incidence of non-physical side effects was 54 %, which is in good accordance with our present research. These common results suggest further consideration of these factors.

Classification of the questions regarding adverse reactions

Fig. 1. Classification of Anxieties, Complaints and Questions about Chemotherapy from Patients and their Families.

1) Adverse reactions (194) 40%, 2) Chemotherapy protocol (57) 12%, 3) Blood transfusions (33) 7%, 4) Effects of chemotherapy (28) 6%, 5) Granulocyte-colony stimulating factor (28) 6%, 6) Usage method (20) 4%, 7) Drugs preventing opportunistic infections (17) 4%, 8) Administration method (16) 3%, 9) Chemotherapy at the outpatient ward (15) 3%, 10) High-dose chemotherapy (13) 3%, 11) Discharge and short stay at home (7) 1%, 12) Drop-out (5) 1%, 13) Drawing blood (4) 1%, 14) Color of chemotherapeutic agents for injection (3) 1%, 15) Differences in the treatment strategies at other hospitals (3) 1%, 16) Others (42) 9%. There were 485 questions.

is summarized in **Fig. 2**. Among 194 questions regarding adverse reactions, the main questions were related to decreased WBC [white blood cell] (43 questions), and opportunistic infections (36 questions). The rest were as follows : alopecia (23 questions), drug allergies (12 questions), stomatitis (9 questions), adverse reactions due to drugs other than chemotherapeutic agents (8 questions), and so on.

2. Examples of medication guidance

Typical medication guidance between patients and pharmacists is described below as Examples 1 through 9.

Example 1 : 1) Adverse reactions [Decreased WBC]

A patient undergoing chemotherapy for the first time said, "Why do I get fatigued when WBC counts decrease ? I'm afraid of becoming bedridden."

Medication guidance : 1) If you take care of preventing infections by hygienic conditions, you will not always develop infections when WBC is decreased. 2) Keeping yourself clean prevents you from getting fatigued and becoming bedridden. In response, the patient said, "I will prevent infections carefully."

As shown in Example 1, patients feel anxiety about the decrease in WBC counts. However, detailed medication guidance regarding WBC helped the patients overcome their anxiety about decreased WBC counts, which led patients to a more positive attitude while undergoing the severe chemo-

Table 3. Contents of Anxieties, Complaints and Questions.

1) Adverse reactions	194
① Decreased WBC (43)	
· Why don't WBC promptly return to the normal levels?	10
· Why do I get fatigued when WBC counts decrease? (Example 1)	9
· Why do WBC decrease?	6
· How do WBC change after administration of antitumor agents?	6
· My WBC didn't decrease. Is this proof that the drug was not effective?	6
· My WBC decreased. Does this mean the drug was effective?	2
· If I eat food other than hospital food with decreased WBC, will I catch sepsis?	2
· Why is the raw food contraindicated when WBC have decreased?	2
② Opportunistic infections (36)	
· What happens if I catch pneumonia? (Example 2)	11
· I feel so scared of infections.	7
· Why do we catch herpes?	4
· Did I catch pneumonia because I did not gargle often?	3
· Why do I feel pain in my chest and feel short of breath?	3
· What will happen if my decayed tooth becomes aggravated?	2
· My gingiva has become swollen. It is painful when I eat.	2
· The physician suddenly started using antibiotics. Is my infection severe?	1
· I caught pneumonia. Isn't this a hospital infection?	1
· I have to receive a pneumonectomy. Aren't the antibiotics and antifungal agents that have been administered to me effective?	1
· Am I responsible for adverse reactions?	1
③ Alopecia (23)	
· When will my hair grow again?	11
· What do you think about purchasing a wig? (Example 3)	7
· What is a down cool cap? Can I expect any effect?	2
· What can I do to reduce alopecia?	2
· I don't want my children to see me without hair.	1
④ Drug allergies (12)	
· Why does allergy occur?	4
· I hope to continue the agent despite my allergy because my doctor said that it was probably the most effective drug at the beginning of chemotherapy. (Example 4)	3
· I am afraid of allergy.	3
· Why does allergy occur 5 to 7 days after the administration of antitumor drugs?	2
⑤ Stomatitis (9)	
· I cannot take meals because of stomatitis.	5
· What should I do to prevent stomatitis?	3
· Why did stomatitis happen to me?	1
⑥ Adverse reactions due to the drugs other than chemotherapeutic agents (8)	
· I developed lumbago when a drug to increase WBC was administered.	5
· I always vomit after intravenous drips of amphotericin B.	3
⑦ Misunderstandings of adverse reactions (7)	
· I suffer from severe vomiting. Bone marrow inhibition is also strong. I have no appetite. Such treatment will only aggravate the disease.	7
⑧ Counterplan for infections in the ward (6)	
· I cannot remain in bed forever.	4
· I am afraid of being isolated in a single room.	2
⑨ Dysgeusia (6)	
· Something is wrong with my taste sensation.	6

⑩ Decreased platelet (4)	
· I have severe purpura. Doesn't it disappear as long as my platelet count is low?	3
· Why does my platelet count go down so sharply?	1
⑪ Infertility caused by gonadal failure (4)	
· Will the frequent use of chemotherapeutic agents influence fertility in the future? (Example 5)	4
⑫ Vomiting (4)	
· I am exhausted because I keep vomiting.	4
⑬ Influence on the nails, i.e., deformation and color-change (4)	
· The pattern of my nail changed (turned black etc.).	3
· My nails detached.	1
⑭ Influence on the eye function (4)	
· I cannot see well.	3
· I contracted conjunctivitis and have persistent lacrimation.	1
⑮ Peripheral nerve disorder (4)	
· My fingers have become numb.	4
⑯ Hepatic and renal disorders (3)	
· Doesn't too much use of antitumor drugs adversely influence the liver and kidney?	3
⑰ Other adverse reactions (17)	
· I cannot handle all of these adverse reactions.	6
· I have no adverse reactions. Is the drug effective?	3
· I used to be able to eat but now cannot because of anticancer drugs. When will I be able to eat again?	2
· I have had no menstruation since treatment with anticancer drugs.	2
· Can adverse reactions damage the central nerve?	1
· The skin of the sole of my foot has become swollen and peeled. I can no longer walk.	1
· Will adverse reactions damage the heart muscle?	1
· I lost my voice.	1
2) Chemotherapy protocol	57
· Why do I have to undergo chemotherapy so many times?	23
· Why is the drug withdrawal period provided?	11
· Does tentative discontinuation of chemotherapy mean that my disease is incurable?	6
· Does tentative discontinuation of chemotherapy lead to a prolonged hospitalization period?	5
· Why do so many kinds of anticancer drugs have to be used? Why are so many drip infusion bottles suspended from the infusion pole?	4
· Other patients have completed treatment and have been discharged. Why hasn't my chemotherapy come to an end?	3
· Doesn't the discontinuation of chemotherapy due to adverse reactions adversely influence my disease?	2
· Does the use of many anticancer drugs mean that my disease is serious?	2
· During the course of treatment, the contents of chemotherapy have become different from those described by the physician.	1
3) Blood transfusions	33
· What will happen if I catch AIDS or Hepatitis C?	5
· I am afraid of other people's blood going into my body. I don't want a blood transfusion.	5
· Platelet transfusions have been done every day this week. Is this OK?	5
· Why doesn't my platelet count go up despite platelet transfusions?	5
· Why do blood transfusions frequently cause allergies?	4
· I receive so much blood. Does this mean that my disease is serious?	4
· I cannot handle all of these transfusions.	2

· If I catch AIDS, don't I get my family into trouble?	2
· I have anemia. Why don't I get blood transfusion? Doesn't anemia require transfusion?	1
4) Effects of chemotherapy	28
· Is chemotherapy really effective?	7
· Will chemotherapy cure me completely? (Example 6)	6
· Will my physician make a solemn promise of a complete cure from the present chemotherapy? (Example 6)	6
· Are the previous drugs ineffective for recurrence?	4
· My doctor said that the previous drugs were ineffective. Are the next drugs effective?	2
· Why is it that the same drug at the same dose was given to me and other patients who had the same disease but it was not effective for me alone?	2
· Do I have to go through more chemotherapy if the disease recurs?	1
5) Granulocyte-colony stimulating factor	28
· If a drug to increase WBC is used, how does the leukocyte count fluctuate?	10
· Isn't it possible to use a drug to increase WBC before chemotherapy?	7
· Why doesn't the leukocyte count go up despite the use of a drug to increase WBC?	4
· Why does the effect of a drug to increase WBC decrease if it is repeatedly used many times?	2
· The leukocyte count went up excessively after the use of a drug to increase WBC.	2
· Doesn't my disease become aggravated if a drug to increase WBC is used?	1
· Isn't it possible to increase the dose of a drug to increase WBC?	1
· Is it no problem to use a drug to increase WBC repeatedly?	1
6) Usage method	20
· How should I gargle? (For how many seconds? How should I gargle when I have severe nausea? Many types of gargles are prescribed. In what order, should I use them?)	8
· What can I add to amphotericin syrup to make its taste better?	5
· How should I use oblate?	4
· How should I fill the powder drug in a capsule?	2
· I always choke when I inhale amphotericin. What is the best way of inhaling it?	1
7) Drugs preventing opportunistic infections	17
· Too many types of drugs are prescribed. I cannot take all of them.	6
· I don't want inhalation.	4
· Do I get infections at once if I stop gargling and inhalation?	3
· I hate gargling.	2
· I don't want to take these drugs.	2
8) Administration method	16
· What is intraspinal injection? Why is the drug injected into the hips?	6
· Why is the drug injected into the vessel below the shoulder (superior vena cava)?	6
· Why does my headache persist for 2 weeks after intraspinal injection into hips?	1
· What is intramuscular injection? Why is the drug injected into my bottom?	1
· Why can't the drip infusion, intramuscular injection and intraspinal injection of anticancer drugs be conducted on the same day?	1
· Why was it necessary to implant a reservoir?	1
9) Chemotherapy at the outpatient ward	15
· What precautions are necessary for continuing chemotherapy at the outpatient ward? (Example 7)	8
· Is massive chemotherapy also used at the outpatient ward?	5
· Why is treatment given at the outpatient ward? What should I do if my condition gets worse at home?	2

10) High-dose chemotherapy	13
· Do adverse reactions increase in proportion to the increase in dose?	7
· Do patients sometimes die due to severe adverse reactions?	4
· Does high-dose chemotherapy mean that my disease is severe?	2
11) Discharge and short stay at home	7
· I do not want to be discharged from the hospital until I am completely cured by chemotherapy. (Example 8)	5
· I do not want a short stay at home until the scheduled chemotherapy is completed. (Example 8)	2
12) Drop-out	5
· What will happen if I stop chemotherapy now and go home?	4
· I want to keep working, so I reject chemotherapy.	1
13) Drawing blood	4
· Is it OK to collect blood even though I am receiving blood transfusions?	2
· Don't I lose all of my blood?	1
· Why do you have to take my blood so often?	1
14) Color of chemotherapeutic agents for injection	3
· After drip infusion of red anticancer drugs, my urine immediately turned red. Didn't the anticancer drug simply pass through my body without being absorbed?	2
· I am scared of blue antitumor drugs.	1
15) Differences in the treatment strategies at other hospitals	3
· Why are drugs for opportunistic infections different from those given at other hospitals?	2
· Why is the timing of antibiotic administration different from that performed at other hospitals?	1
16) Others	42
· Are there many patients who are receiving similar chemotherapy? (Example 9)	10
· Sometimes the explanation given by the physician and the medical care given by the nurse are different. Is this OK?	7
· A celebrity who had the same disease died. Did drug therapy fail in that patient?	6
· Are better drugs expected in the future?	5
· Everybody tells me to "hold on!" during chemotherapy. How should I hold on?	4
· Sometimes the medical care given is different between the nurses even though their jobs are the same.	3
· Due to the decrease in platelet, my menstruation was stopped by a drug. Does this return to the original state after completion of treatment?	3
· Why is it necessary to promote urination so much?	2
· Drip infusion apparatus makes me so afraid that I tremble all over.	2

therapy.

Example 2: 1) Adverse reactions [Opportunistic infections]

A patient with a prolonged persistent decrease in leukocytes said "I'm afraid of catching pneumonia if I do nothing for my decreased leukocytes. What happens if I catch pneumonia?"

Medication guidance: 1) Antibiotics have already been prescribed, which reduces the risk. Even if you catch pneumonia, the symptoms will be less severe compared with that in patients who are not being given these drugs. 2) Regular gargling and hand washing can effectively reduce the risk.

In response, the patient said, "I shall do everything to prevent infections more carefully."

As shown in Example 2, patients feel severe anxiety regarding opportunistic infections. When they became aware of the importance of cooperation between patients and staff, they were able to overcome their anxiety about pneumonia. The most important point for medication guidance is to sympathize with the patient and promote a strong will to overcome the blood cancer.

Example 3: 1) Adverse reactions [Alopecia]

The 7 questions regarding "purchasing a wig" were asked by women. All patients said, "What do you think about pur-

Fig. 2. Classification of the Questions Regarding Adverse Reactions.

① Decreased WBC (43) 22%, ② Opportunistic infections (36) 19%, ③ Alopecia (23) 12%, ④ Drug allergies (12) 6%, ⑤ Stomatitis (9) 5%, ⑥ Adverse reactions due to the drugs other than chemotherapeutic agents (8) 4%, ⑦ Misunderstanding of adverse reactions (7) 4%, ⑧ Counterplan for infections in the ward (6) 3%, ⑨ Dysgeusia (6) 3%, ⑩ Decreased platelet (4) 2%, ⑪ Infertility caused by gonadal failure (4) 2%, ⑫ Vomiting (4) 2%, ⑬ Influence on the nails, i.e., deformation and color-change (4) 2%, ⑭ Influence on the eye function (4) 2%, ⑮ Peripheral nerve disorder (4) 2%, ⑯ Hepatic and renal disorders (3) 2%, ⑰ Other adverse reactions (17) 9%.

chasing a wig? I don't want to purchase a wig, because it conceals the real me', and it does not directly relate to cancer treatment."

Medication guidance : 1) If you wear a wig when you go out or stay overnight at home, you may create time when you can forget about the disease. 2) A wig is not merely a means of hiding alopecia from others, but can also be an effective means of diversion. 3) Diversion is an important factor in overcoming painful, long-term chemotherapy. In response, the patients said, "I shall wear a wig for a diversion." "If I wear a wig, my family may be able to change their mood." As a result, all patients voluntarily purchased wigs.

In Example 3, it is interesting that the patients did not want to purchase a wig until they were ready to accept alopecia. The problem of appearance is important, especially for female patients undergoing cancer chemotherapy, and is reflected in the number of questions (23 questions) regarding alopecia. The pharmacist should try to understand the complex uncertainties of the patient about buying a wig, and inform them that a wig is an important tool for diversion, which may enable them to overcome severe chemotherapy. Subsequently, the patients were convinced of the necessity of a wig and all bought one. Their anxieties about alopecia were overcome by purchasing wigs.

Example 4 : 1) Adverse reactions [Drug allergies]

Drug allergies are sometimes found in patients undergoing

cancer chemotherapy. A patient who had to discontinue a drug because of allergy said, "I hope to continue the agent despite my allergy because my doctor said that it was probably the most effective drug at the beginning of chemotherapy. I'm afraid of what will happen if the agent is discontinued."

Medication guidance : 1) The allergy-reaction is sometimes so serious that we must decide to stop the administered chemotherapeutic agents even if they are the most effective ones. 2) It is important for us to respond to allergic signs and apply alternative chemotherapy. 3) The reason why pharmacists and other medical staff visit your bedside so frequently is to interpret the signs. In response, the patient said, "I understand that choosing proper chemotherapy without allergic reaction is more important than the most effective one."

In Example 4, when chemotherapy was suddenly discontinued because of allergic reaction, the patients felt anxiety because they had anticipated positive effects from the chemotherapeutic agent. The pharmacist advised them that the drug allergy was an important sign for reconsideration of chemotherapy, and told the patient that all of the medical staff would support them. As a result, they were able to accept the sudden discontinuation of drug therapy.

Example 5 : 1) Adverse reactions [Infertility caused by gonadal failure]

Young patients and mothers of young female patients felt anxiety as to whether the administered chemotherapeutic agents would influence fertility. Representative questions are as follows, "Will the frequent use of chemotherapeutic agents influence fertility in the future?" "Have young women who completed cancer chemotherapy given birth?" "If I become pregnant, who should I consult?"

Medication guidance : 1) At present, the data are not sufficient to predict the possibility of pregnancy in the future. 2) There are a few instances where chemotherapy has influenced pregnancy, but there are many women who have had healthy babies after treatment. 3) It is important to consult a physician when judging the best time to become pregnant. 4) The most important thing is to complete the current chemotherapy. The pharmacist advised the patient that the risk of infertility is close to that of women who had not been given chemotherapeutic agents. In response, these patients said, "When we want to become pregnant after completion of the treatment, we shall consult the staff."

As shown in the questions above, anxiety about infertility is a serious issue for young patients. Intensive chemotherapy cannot start until resolution of the anxiety is achieved. Sufficient explanation by the pharmacist and other medical staff members helps young patients overcome anxiety about infertility while undergoing several courses of chemotherapy.

Example 6 : 4) Effects of chemotherapy

Patients undergoing long-term chemotherapy tended to ask the following questions. They asked, "Will chemotherapy cure me completely?" "Will my physician make a solemn promise of a complete cure from the present chemo-

therapy?" "I do not understand why I am not cured because I have already endured a long stay in the hospital."

Medication guidance: 1) The long-term objective of chemotherapy is to restore your body as it was before. 2) However, the first objective of this therapy is to achieve complete remission. Under the remission state, the disease is not completely cured but suppressed, making it possible for patients to undergo chemotherapy at an outpatient ward. In response, the patient said, "I understand the meaning of remission."

In Example 6, it is natural that the patients wish to return to their former status in compensation for enduring the chemotherapy. At the time of medication guidance, the pharmacist should listen to the natural feelings of the patients, and follow with an empathic response. Afterward, the pharmacist must explain the concept of remission achieved by chemotherapy, which moves patients from hospital chemotherapy to that in an outpatient ward.

Example 7: 9) Chemotherapy at the outpatient ward

When leaving the hospital, the patients and families said, "What precautions are necessary for continuing chemotherapy at the outpatient ward?" They added, "What about catching possible infections in the waiting room for outpatients?" "What should be done if a family member catches a cold?" "What cautions are necessary regarding food?" They also asked whether they could participate in school outings such as sports events or going to a zoo.

Medication guidance: Detailed instructions were given for each question. When it was difficult for the pharmacist to answer immediately, the pharmacist asked the other medical staff to answer for them.

In general, the patients and families felt anxiety towards the change in environment from the hospital to the home. Patients undergoing cancer chemotherapy may develop various types of infections. They are especially nervous of every kind of infection in a new environment other than the hospital. As shown in Table 1, integrated treatment including other medical staff members becomes essential for medication guidance.

Example 8: 11) Discharge and short stay at home

In general, patients undergoing chemotherapy tend to feel anxious about discharge from the hospital after the achievement of remission. Change to chemotherapy at the outpatient ward often results in several patient complaints about the decision. They said, "I do not want to be discharged from the hospital until I am completely cured by chemotherapy." "I do not want a short stay at home until the scheduled chemotherapy is completed."

Medication guidance: 1) It is better to think that chemotherapy for blood cancer is conducted not only at the hospital but also at the outpatient ward. 2) After achieving remission, the chemotherapy at outpatient ward is a very important process in achieving a complete cure. 3) The psychological stress caused by long-term hospitalization sometimes obstructs the continuation of chemotherapy and causes a delay in rehabilitation. 4) Chemotherapy at an outpatient ward

changes the mental state, increasing the will to overcome the disease, which is an important factor in enduring adverse reactions and in continuing chemotherapy.

During guidance, it was clarified that the patients were afraid of changing from the hospital to the outpatient ward because they thought that discontinuance of chemotherapy at the hospital meant giving up the present chemotherapy.

Regarding the misunderstanding above, an accurate explanation of chemotherapy at the outpatient ward results in patient agreement to a short stay at home, resulting in discharge from hospital.

Example 9: 16) Others [Loneliness caused by the interruption of social activities]

Patients who were isolated from other cancer patients often felt lonely because of a lack of communication with other patients. A representative question from such a patient follows. "Are there many patients who are receiving similar chemotherapy?" This is a question asked by one patient who was isolated in a private room and had therefore no means of communication with other patients.

Medication guidance: 1) There are many patients undergoing similar chemotherapy. 2) Many medical staff members in the integrated treatment carry out the present chemotherapy. 3) A pharmacist is also monitoring the patient's chemotherapy from perspective that is different from those of other medical staff members so that the optimal chemotherapy is conducted. In response, the patient said, "Thank the staff for me." "Please take care of me hereafter."

From Example 9, we can recognize how the cancer patient needs communication with other patients with the same disease as well as encouragement from the medical staff. To patients under medical treatment in a private room, the most effective encouragement is to tell them there are many patients undergoing similar painful chemotherapy regimens. Sympathizing with each other is thought to play an important role in overcoming blood cancer.

When a patient is diagnosed as having blood cancer and sent to the hospital, the anxiety may be beyond imagination. The patient who undergoes a series of painful cancer chemotherapies and clinical tests tends to develop some form of maladjustment, i.e., depression, emotional disturbances, and acute stress disorder. Their families must also accept the shock of the cancer diagnosis, the sensation of strong fear, and the feeling of helplessness. Post traumatic stress reaction (PTSR) is thought to occur not only in patients but also in their families⁷⁾. The communication skills of the medical staff have an intense effect on the practice of patient-centered care⁸⁻¹⁰⁾. When a patient with blood cancer is under medical care in the hospital, integrated treatment by a team of physicians, psychiatrists, nurses and pharmacists is necessary. As shown in Table 1, Nishi-Kobe Medical Center has established an integrated treatment system for patients with blood cancer. Care for patients and families was improved so that pharmacists and other medical staff shared information about the patients with each other. Along with each staff member of the integrated treatment system, the pharma-

cists at Nishi-Kobe Medical Center provide support for the patients and their families through appropriate medication guidance to reduce their anxiety about blood cancer chemotherapy.

The medication guidance by pharmacists was evaluated by doctors resulting in the increase in the monthly number of requests by doctors from 90 cases in 1998 to 147 cases in 2001.

As described in the Examples, listening and empathic responses from pharmacists enabled them to draw out the subconscious anxiety of the patients, promoting confidence in the relationship between the patients and the pharmacists. This relationship between the patients and the pharmacists helped the patients understand the side effects of chemotherapeutic agents and good compliance was achieved. The role of pharmacists in the integrated treatment system ensures high quality care. The role of pharmacists in the pharmacoeconomics of cancer chemotherapy and therapeutic effects is now under examination.

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