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Questionnaire survey on pharmacists' provision of clinical pharmacy services to patients receiving outpatient cancer chemotherapy

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In 2014, The Ministry of Health, Labour and Welfare established "cancer patient guidance fee 3" ("guidance fee 3") for the management of patients treated for cancer with chemotherapy. Since the introduction of "guidance fee 3," there have been few reports on the real situation regarding the fee, such as clinical pharmacy services provided by pharmacists and information sharing with doctors. We conducted a questionnaire survey in 14 core hospitals for collaborative cancer treatment in Chiba to clarify the real situation regarding "guidance fee 3." We focused on oral chemotherapy and asked questions regarding the clinical pharmacy services provided by pharmacists to patients undergoing oral chemotherapy. The response rate was 85.7% (12/14). Seven hospitals (58.3%) were found to calculate "guidance fee 3," and only four calculated this fee for patients treated with oral chemotherapy. Regarding the timing of sharing patients' information with doctors, for patients treated with oral chemotherapy, only one hospital reported carrying out this information sharing before a patient had seen the doctor. No hospitals used a standardized form for communication between medical and pharmaceutical departments. This study on the real situation regarding "guidance fee 3" found that the fee was rarely calculated in cases of cancer chemotherapy, especially for patients treated with oral chemotherapy. It seems necessary to create a space for consultation between pharmacists and patients in outpatient clinics and to construct work schedules that consider the method and timing of sharing patient information.

Key Words: outpatient, oral chemotherapy, chemotherapy, pharmacy intervention, questionnaire

Introduction

In contrast to treatments requiring hospitalization, outpatient care allows patients to receive anticancer treatment without significantly altering their living environments or quality of life [1]. In Japan, the number of patients treated with outpatient cancer chemotherapy has increased because of the approval of oral anticancer drugs and advances in medical instruments, such as drug injection devices [2) 3)]. Anticancer drugs used in outpatient treatment include molecular-targeted therapeutic agents and cellular anticancer drugs. These drugs have the serious side effects of interstitial pneumonia, gastrointestinal perforation, and thromboembolism. Febrile neutropenia and gastrointestinal toxicity can also result in emergency hospitalization [4) 5)]. Other side effects of cancer chemotherapy, such as skin disorders, hand-foot syndrome, nausea, vomiting, and diarrhea, may worsen patients' quality of life, cause them concern, and disturb their treatment schedule. Outpatient cancer chemotherapy has the advantage of maintaining patients' quality of life, but it also has disadvantages, such as the risks of occurrence of various side effects. Therefore, it is necessary to take measures to prevent side effects from this chemotherapy. Patients also have many concerns about side effects at home, and communication with health professionals is insufficient [6) 7)]. Thus, it is necessary to educate

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patients receiving outpatient cancer chemotherapy regarding how to handle side effects at home. Reports from hospitals offering clinical pharmacy services for patients treated with outpatient cancer chemotherapy indicate that these services provided by pharmacists may result in the early detection of side effects, prevention of serious side effects, improvement of quality of life, and management of the risk of medical error [8) 9)]. It has also been reported that clinical pharmacy services for patients treated with oral chemotherapy have contributed to reducing side effects and prolonging the treatment period [10) 11)].

A questionnaire survey completed on the core hospitals for collaborative cancer treatment in 2014 found that only 40% of these hospitals provided clinical pharmacy services for all patients receiving injection chemotherapy on an outpatient basis, and 14.7% of these provided these clinical pharmacy services through the treatment period [12)]. The same survey found that 1.6% of these hospitals provided clinical pharmacy services for all patients receiving outpatient oral chemotherapy, and less than 50% of the hospitals provided clinical pharmacy services to any of these patients. The survey concluded that the system of providing clinical pharmacy services and side effect management during outpatient treatment is insufficient [12)]. In 2014, based on such previous findings, to promote support for patients with cancer, the Ministry of Health, Labour and Welfare established "cancer patient guidance fees 1, 2, and 3" to manage the psychological care of patients with cancer, monitor the side effects of cancer chemotherapy, and provide continuous guidance for patients with cancer. "Cancer patient guidance fee 3" (hereafter referred to as "guidance fee 3") can be calculated when a doctor or a pharmacist provides such guidance. When a pharmacist is to provide this guidance, the hospital is obliged to employ a full-time oncology-certified pharmacist. The calculation requirements for this fee include the costs of continuous monitoring of a patient's side effects, providing information to the patient's doctor regarding side effects and drug adherence, and sending a proposal for prescription drugs to the patient's doctor according to the patient's situation.

A survey conducted by the Osaka Hospital Pharmacist Association on member hospitals found that fewer than 35.5% of hospitals providing clinical pharmacy services (38 of 107) calculated "guidance fee 3" [13)]. However, the clinical pharmacy services provided by pharmacists for patients receiving oral chemotherapy, the timing of sharing a patient's information between a doctor and a pharmacist, and information sharing with doctors were not investigated in the Osaka Hospital Pharmacist Association survey. Therefore, the present study conducted a questionnaire survey of the core hospitals for collaborative cancer treatment in Chiba to clarify the clinical pharmacy services provided by pharmacists to patients undergoing oral chemotherapy and the real situation regarding "guidance fee 3."

Methods

1. Questionnaire survey

The units of analysis in this study were the 14 core hospitals for collaborative cancer treatment in Chiba. The questionnaire was sent to the director of the pharmacy division at each hospital, and their responses were returned by mail. These respondents were informed that the survey was anonymous and that returning a response would be recognized as consent to participate. The survey period was from October 6 to October 21, 2017. This study was approved by the research ethics committee of the Graduate School of Pharmaceutical Sciences, Chiba University.

2. Questionnaire development

The content of the questionnaire was as follows: (1)hospital information, (2)the real situation regarding "guidance fee 3", (3)pharmacists' involvement with patients treated with outpatient oral chemotherapy. We developed a questionnaire that included both multiple-choice and short-answer questions on the following themes:

(1)Hospital information

Items comprised the number of beds, the number of pharmacists, the prescription rate for pharmacies outside of the hospital, the number of Japanese Society of Pharmaceutical Health Care and Sciences-certified Senior Oncology

Pharmacists, the number of Board Certified Pharmacists in Oncology Pharmacy, and the number of Accredited Pharmacists for Ambulant Cancer Chemotherapy oncology-certified pharmacists.

(2)The real situation regarding "guidance fee 3"

Items were the calculation status for patients and the job titles of medical staff members performing the calculation.

(3)Pharmacists' involvement with patients treated with outpatient oral chemotherapy

Items were the drug administration guidance and the assessment of side effects for patients receiving oral chemotherapy and the timing and method of sharing information on patients receiving oral chemotherapy with their doctors.

Results

The response rate was 85.7% (12/14) among the core hospitals for collaborative cancer treatment in Chiba.

1. Hospital information

Seven hospitals had 500 beds or more, four had at least 400 but fewer than 500 beds, and one had fewer than 400 beds. In terms of pharmacists employed, one hospital employed 0.1 or more per bed, seven employed at least 0.05 but less than 0.1 per bed, and four employed less than 0.05 per bed. The prescription rate for pharmacies outside of the hospital was more than 95.0% in six hospitals, at least 90% but less than 95.0% in four hospitals, and less than 90.0% in one hospital. Ten hospitals (83.3%) employed an oncology-certified pharmacist (Table 1).

Table 1. Hospital characteristics (N = 12)

	N	%
Number of beds		
≥ 500	7	58.3
≥ 400 and < 500	4	33.3
< 400	1	8.3
Number of pharmacists (per bed)		
≥ 0.1	1	8.3
≥ 0.05 and < 0.1	7	58.3
< 0.05	4	33.3
Prescription* rate (%)		
≥ 95	6	50.0
≥ 90 and < 95	4	33.3
< 90	1	8.3
Missing	1	8.3
Number of hospitals employing an oncology-certified pharmacist		
Did employ	10	83.3
Did not employ	2	16.7

* prescription for pharmacies outside of the hospital

2. The real situation regarding "guidance fee 3"

Although 10 hospitals (83.3%) employed an oncology-certified pharmacist, only seven (58.3%) actually calculated "guidance fee 3." Of these, four hospitals calculated "guidance fee 3" for patients treated receiving either oral or injection chemotherapy, and three calculated "guidance fee 3" only for patients treated with injection chemotherapy. Of the seven hospitals that calculated the fee, the services included in "guidance fee 3" were provided by pharmacists at five hospitals and by both pharmacists and doctors at two hospitals. In no hospitals were these services provided only by doctors (Fig. 1).

3. Pharmacists' involvement with patients receiving outpatient oral chemotherapy

Among the seven hospitals calculating "guidance fee 3" for patients treated with oral cancer chemotherapy, two provided administration guidance and checked for side effects for all patients, but one provided guidance only for the

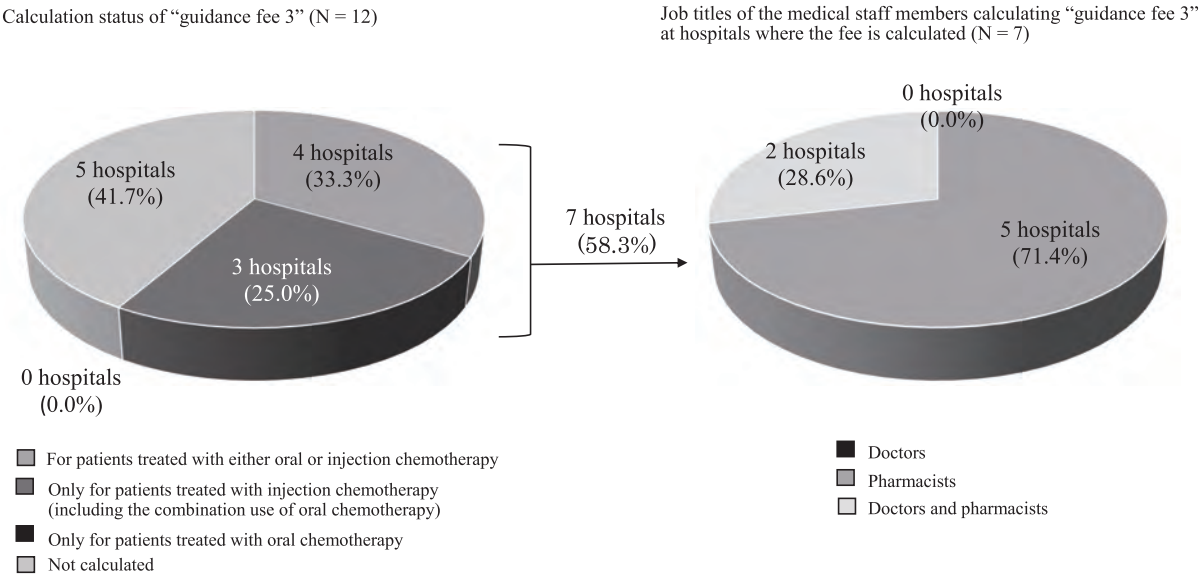

Fig.1.　The real situation regarding "guidance fee 3"

first dose. And two calculated "guidance fee 3" for only some patients, and three had no pharmacists involved with the patients (Table 2).

Regarding the timing of sharing patients' information with doctors, only one hospital did this before the patient saw the doctor; the remaining three hospitals shared patient information after the patient had seen the doctor. Regarding the method of sharing a patient's information with a doctor, one hospital had no standardized form, two used a form that was standardized within the pharmacy division, none used a standardized form for communication between medical and pharmaceutical departments, and one hospital used electronic medical records and shared orally in case of emergency (Table 3).

Table 2.　Drug administration guidance and the assessment of side effects for patients receiving oral chemotherapy (at hospitals where "guidance fee 3" was calculated, N = 7)

		N	%
Drug administration guidance and the assessment of side effects for patients	All patients	2	28.6
	Some patients	2	28.6
	No pharmacists involved	3	42.9

Table 3.　The method and timing of sharing patient information (at hospital where pharmacists provided drug administration guidance and assessed side effects for patients receiving oral chemotherapy (N = 4)

		N
Timing of sharing patient information with doctors	Before the doctor's consultation	1
	During the doctor's consultation	0
	After the doctor's consultation	3
Method of sharing patient information with doctors	No standardized form, personal	1
	Standardized form within the pharmacy	2
	Standardized form between medical and pharmaceutical departments	0
	Other	1

Discussion

Of the 14 core hospitals for collaborative cancer treatment in Chiba Prefecture, 12 participated in this study. Ten of these 12 hospitals employed an oncology-certified pharmacist, and seven (58.3%) calculated "guidance fee 3." The findings showed that there were hospital that did not calculate the fee even when oncology-certified pharmacists were present, in addition to the hospitals that did not calculate the fee because there were no certified pharmacists employed. One of the calculation requirements is that oncology-certified pharmacists are involved in the calculation of "guidance fee 3." To ensure that the hospitals employ an oncology-certified pharmacist, we believe that it is necessary to construct an educational system that supports certification acquisition. For hospitals that did not calculate the fee even when there were oncology-certified pharmacists employed, it seems that there may be obstacles to calculating "guidance fee 3" in addition to employing such pharmacists. As a reason why pharmacists may not be fully involved in the care of a patient treated with outpatient cancer chemotherapy, Sakurai et al. have reported that insufficient time and human resources were indicated most frequently (80.4%), followed by the pharmacist lacking knowledge of oncology and other reasons[14]. This suggests that reviewing work schedules to ensure time for oncology-certified pharmacists to engage with patients receiving outpatient chemotherapy may be necessary.

Four of the seven hospitals that calculated "guidance fee 3" calculated the fee not only for patients treated with injection chemotherapy but also for patients treated with oral chemotherapy. This finding made it clear that there were fewer hospitals that calculated "guidance fee 3" for patients receiving oral chemotherapy than for patients receiving injection chemotherapy. The present survey also found that the rate of prescription for pharmacies outside of the hospital exceeded 90% for all of the studied hospitals, indicating that patients treated with oral chemotherapy tend to receive their medicine at pharmacies outside of the hospital without a chance to see a hospital pharmacist after being examined by their doctor. Without a space in the outpatient clinic area where a pharmacist can provide these patients with medication instructions or confirm the presence of adverse reactions, hospital pharmacists are less likely to be involved with these patients. This suggests the necessity of creating a space for consultation between pharmacists and patients in outpatient clinics.

Regarding clinical pharmacy services provided to patients treated with outpatient oral chemotherapy, the timing and the method of sharing patients' information with doctors differed among the responding hospitals. In terms of the method of sharing patients' information with doctors, no hospitals used a standardized form for communication between medical and pharmaceutical departments, meaning that it is possible that the information obtained from a patient and the information shared between a pharmacist and a doctor may differ depending on the specific doctor or pharmacist. There is also a possibility that information essential for patient care is not shared between a doctor and a pharmacist. Requirements for calculating "guidance fee 3" include education on the content of the medication, taking an inventory of the patient's treatment history, and evaluating the patient's side effects, medication adherence, and concerns. In addition, a proposal for drugs to be prescribed to treat these side effects, such as narcotic analgesics, must be provided if necessary. In addition to the information required for calculating "guidance fee 3," information on a change in a patient's quality of life and on the concerns of their family members is also necessary to provide medical treatment suitable for patients, and this information should be shared with the patient's doctor and other medical staff members. To cover such a wide range of information, it is necessary to create a standardized form for communication between medical and pharmaceutical departments and to share patient information among medical staff members. Regarding the timing of sharing a patient's information between a doctor and a pharmacist, only one hospital shared patients' information before a patient saw a doctor, and the other hospitals shared it after a patient had seen a doctor. If a patient's information is shared with a

doctor before the patient sees the doctor, the doctor can easily understand the patient's condition and focus on a diagnosis and a treatment plan decision.

Furthermore, in general, critical paths have been introduced as a means of sharing information regarding patient treatment in inpatient. It has been reported that the introduction of critical paths has begun in outpatient cancer chemotherapy in some hospitals [15) 16)]. In oral chemotherapy, the utilization of critical paths as a means of sharing information on patient treatment deserves further consideration.

Because the present survey was limited to data on 14 core hospitals for collaborative cancer treatment in Chiba prefecture, a nationwide survey is necessary in the future.

Conclusion

This study on the real situation regarding "guidance fee 3" found that less than 60% of the core hospitals for collaborative cancer treatment in Chiba calculated "guidance fee 3" and that only about 30% of these hospitals calculated this fee for patients receiving oral chemotherapy. Because the rate of prescription for pharmacies outside of the hospital exceeded 90% at all hospitals, it seems necessary to create a space for consultation between pharmacists and patients in outpatient clinics. It was also found that no hospitals used a standardized form for communication between medical and pharmaceutical departments, and most hospitals shared patients' information after a patient saw a doctor. This suggests the necessity of constructing work schedules that account for the method and timing of sharing patient information.

Conflict of Interest：

The authors declare no conflicts of interest.

References

1) Uramoto H, Kagami S, Iwashige A, Tsukada J: Evaluation of the quality of life between inpatients and outpatients receiving cancer chemotherapy in Japan. Anticancer Res., 27, 1127-1132, 2007.
2) Ministry of Health, Labor and Welfare: Patient Survey. http://www.mhlw.go.jp/toukei/list/10-20-kekka_gaiyou.html August21 2017 access.
3) Ministry of Health, Labor and Welfare: Statistics of Medical Care Activities in Public Health Insurance. http://www.mhlw.go.jp/toukei/list/26-19c.html August21 2017 access.
4) Funahashi M, Suzuki K, Okamitsu K: Problems encountered by advanced lung cancer patients continuing outpatient chemotherapy. Humanity and science J. the Faculty of Health and Welfare., 11(1), 113-124, 2011.
5) Horasawa S, Matsui R, Kawasumi K, Shinichiro S: The Usefulness of Outpatient Pharmacy Services in Adjuvant Chemotherapy for Gastric Cancer. Jpn J Cancer Chemother., 43(9), 1091-1095, 2016.
6) Yahiro Y, Nakai Y, Higashi A: Literature Review of Studies Examining the Psychological Aspects of Cancer Patients Receiving Outpatients Chemotherapy. Journal of Japanese Society of Nursing Research., 35, 129-136, 2012.
7) Tashiro A, Terada M, Koga M, Kitagawa T, Kondo S: Syokai gairai gan kagakuryôhô ni ikôsuru kanzya no huwan ni taisuru taiinmae hômon no yûkôsei no kentô. Collection of papers of the Japanese Society of Nursing., 106-109, 2014.
8) Nozoe T,Yasunaga W,Sonoda S,Ohse K,lmakiire A,Shimada M,Makisumi K: The Usefulness of Pharmacists'Service for Outpatient Cancer Chemotherapy. J Jpn Soc Hosp Pharm., 47, 1305-1308, 2011.
9) lmamura M, Nakura H, Takemoto C: Evaluation of Usefulness of Pharmaceutical Outpatient Clinic for Cancer Patients. Jpn J. Pharm. Health Care Sci., 36, 85-98, 2010.
10) Aimono Y, Nemoto M, Satou W, Saito Y, Aoyama Y, Joko F, Maruyama T, Kamoshida T: Examination of the Usefulness of the Pharmacists'Outpatient Clinic for Treatment with Oral Molecule－Targeting Drugs. Jpn J Cancer Chemother., 40, 901-905, 2013.
11) Aimono Y, Kamoshida T, Sakamoto R, Nemoto M, Saito Y, Aoyama Y, Maruyama T:

Initial Evaluation of the Efficacy and　Safety of Tablets Containing Trifluridine and Tipiracil Hydrochloride-Safety Measures Devised by a Multidisciplinary Team lncluding a Pharma ceutical Outpatient Clinic. Jpn J Cancer Chemother., 42, 817-820, 2015.

12）Kawakami K, Yoshimurai T, Hioki M, Kumihashi Y, Hayashi T, lihara H, Kuroda J, Ogata K, Yonemura M, lwamoto T, Matsuo K: Investigation of Pharmaceutical Care SerVices in Outpatient Cancer Chemotherapy for Cancer Cooperation　Designated Hospitals. J Jpn Soc Hosp Pharm., 50, 305-311, 2014.

13）the Osaka Hospital Pharmacist Association: 「gan kanzya sidô kanri ryô 3」no santei ni kansuru ankêto kekka hôkoku. http://ohp.or.jp/publication/OncQ170925.pdf September 2017 access.

14）Sakurai H, Suzuki S, Kawasumi K, Endo K: Survey of Pharmacists Involved in Cancer Treatment in Cancer Medicine Cooperation Base Hospitals, Jpn. J. Pharm. Health Care Sci., 39, 717-725, 2013.

15）Hayakawa Y, Kaizuka H, Okada S: Critical path for outpatient chemotherapy of the breast cancer, JJHM., 5(4), 520-524, 2005.

16）Komuta K, Nobuyama S, Iwahori K, Mukouchi C, Koga K, Kondo J, Asai M, Minami S: Outpatient Chemotherapy and Clinical Pathway for Non-Small Cell Lung Cancer, AJRS., 42(3), 223-231, 2004.