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Questionnaire Survey of Information Printed on the Blister Pack of Medicine in Japan

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ABSTRACT

Introduction: In Japan, dispensing medicines in blister packs is more common than dispensing them in boxes containing the blister packs. Handling errors by health care professionals and medication errors by patients can occur depending on the level of understanding of the package information.

Methods: A survey was conducted to determine whether the expiration dates and medicinal effects of 220 randomly selected blister packs were recorded. In the survey, respondents were asked to indicate the percentage of blister-packed medicines that they expected would have expiration dates and medicinal effects written on them. Respondents were then asked to rate the expiration dates and medicinal effects written on the blister pack medicines on a scale of 10, from unnecessary to very necessary.

Results: Of the 220 randomly selected blister packs, expiration dates were listed on 10.5%, and medicinal effects were listed on 31.4%. In the questionnaire survey, pharmacists accurately described the percentages of expiration dates and medicinal effects, whereas the prescribing doctors and nurses did not. Medical professionals wanted the expiration dates written on blister packs. Regarding the description of medicinal effects, there were differences in requests among the prescribing doctors, nurses, and pharmacists.

Conclusion: We focused on the level of understanding of information printed on oral drug blister packs. There are differences among medical professionals, such as prescribing doctors, nurses, and pharmacists, in their views on the expiration dates and descriptions of the medicinal effects of blister packs. Medical professionals had differing opinions on the items listed on the blister packs, such as the expiration date and medicinal effects.

This can potentially cause medical malpractice and reduce medication adherence.

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Introduction

Many reported medical errors and incidents have been related to pharmaceutical products. Pharmaceutical products come in various dosage forms, including infusions, injections, powders, tablets, and patches. Factors associated with errors and incidents differed according to the dosage form. Thus, it is impractical to discuss all dosage forms uniformly [1-6].

Particularly in Japan, dispensing medicines to patients in blister packs is more common than in boxes containing blister packs. This study focuses on oral drugs that are commonly self-managed. Many tablets are marketed as blister packs. Handling errors by health care professionals and medication errors by patients can occur depending on the level of understanding of the package information. In Japan, the law specifies that information must be written in a box containing blister packs. However, the labeling of blister packs is left to pharmaceutical companies [7,8].

Therefore, we conducted a survey on the actual state of drug names, barcodes, expiration dates, and descriptions of medicinal effect information in blister packs. Furthermore, we conducted a questionnaire survey on the expectations and importance of expiration dates and medicinal effect statements on blister packs among prescribing doctors, nurses, and pharmacists.

Methods

Specifications Printing

The Kagawa University Hospital is a general hospital with 34 departments and 613inpatient beds. As it is a general hospital, pharmaceuticals that are suitable for all medical departments are used. Our hospital typically uses 2166 pharmaceutical products, including 773 blister-pack products. A survey was conducted to determine whether the drug name, barcodes, expiration dates,

and medicinal effects were written on the blister packs of 220 randomly selected items. There was no bias in the efficacy of the 220 types of medicines.

Questionnaire Survey

A questionnaire survey was conducted from April 2024 to June 2024. Question 1 asked the respondents to indicate the percentage of blister pack medicines that they expected to have expiration dates written on them. Respondents were then asked to rate the expiration dates of blister pack medicines on a scale of 10, from unnecessary to very necessary. Point 5 was neutral. Question 2 asked respondents to indicate the percentage of blister pack medicines that they expected to have medicinal effects written on them. The respondents were then asked to rate the medicinal effect of blister pack medicines on a scale of 10, from unnecessary to very necessary. Point 5 was considered neutral. The target population of this survey were prescribing doctors, nurses, and pharmacists at the Kagawa University Hospital and its affiliated medical institutions. The target population for the survey consisted of prescribing doctors (n = 113; 77 male and 36 female, average age = 39.5), nurses (n = 275; 29 male and 246 female, average age = 40.1), and pharmacists (n = 214; 83 male and 131 female, average age = 42.3).

Ethics Statement and Statistical Analysis

This study was approved by the Ethics Committee of Kagawa Pharmaceutical Association (2020KAYAKU001). We used SPSS Statistics version 24.0 (SPSS Inc., Chicago, IL, USA) for the statistical analyses. Differences between the groups were compared using Tukey's test. Statistical significance was set at $P < 0.05$.

Results

Table 1 summarizes the percentages of 220 blister pack medicines with drug names, barcodes, expiration dates, and medicinal effects written on them. The drug names or barcodes was 100% written on at least one blister pack medicine. However, the expiration dates were 10.5% (23/220), and the medicinal effect was 31.4% (69/220). Therefore, we conducted a questionnaire survey of prescribing doctors, nurses, and pharmacists regarding the expectations and necessity of listing the expiration dates and medicinal effects of blister packs.

Table 1: Description Rate of the Information Printed on the Blister Pack

	Real number in 220 items	Description rate (%)
Drug name	220	100
Barcode	220	100
Expiration date	23	10.5
Medicinal effect	69	31.4

Figure 1A shows the percentage of expiration dates written as expected by the prescribing doctors, nurses, and pharmacists. Prescribing doctors, nurses, and pharmacists believed that 54.1%, 61.7%, and 24.9% of the blister packs had expiration dates written on them, respectively. Figure 1B shows the scores for which an expiration date needed to be written. Prescribing doctors, nurses, and pharmacists scored 8.0 ± 0.3, 8.6 ± 0.2, and 7.4 ± 0.2 poits, respectively. Although there were significant differences between the respondents, the iroverall scores were high.

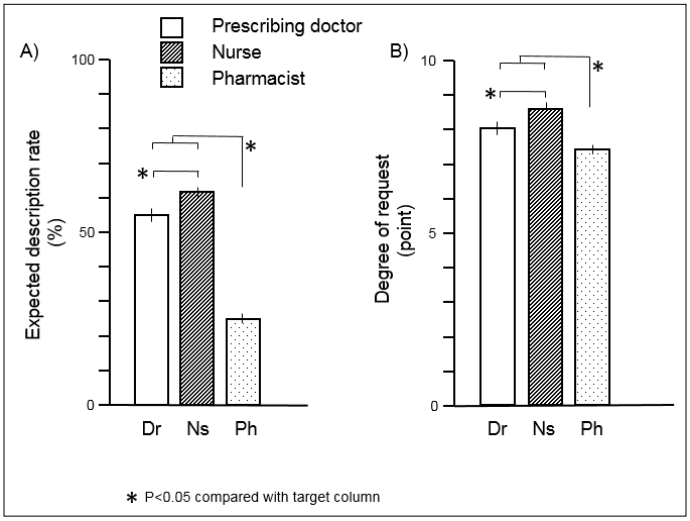

Figure 1: Questionnaire Survey Regarding the Expiration Date Listed on the Blister Packs

Figure 2A shows the percentage of medicinal effects written as expected by the prescribing doctors, nurses, and pharmacists, who believed that 44.7%, 51.3%, and 28.5% of blister packs have medicinal effects written on them. Figure 2B shows the scores for which the medicinal effect needed to be written. Prescribing doctors, nurses, and pharmacists, scored 7.5 ± 0.3, 8.2 ± 0.2, and 6.0 ± 0.2 points, respectively. There was a significant difference in the need to describe medicinal effects among prescribing doctors, nurses, and pharmacists.

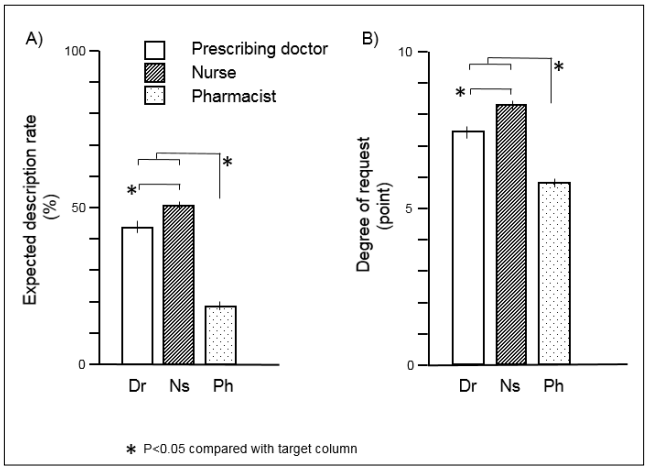

Figure 2: Questionnaire Survey Regarding the Medicinal Effect Listed on the Blister Packs

Discussion

This study investigated the perception of drug information among healthcare professionals to help prevent medical errors. We focused on the level of understanding of the information printed on the blister packs of oral drugs.

In Japan, patients are more commonly dispensed medicines in blister packs than in boxes containing blister packs. Information on all products is printed in accordance with the law for securing the quality, efficacy, and safety of pharmaceuticals, medical devices, regenerative and cellular therapy products, gene therapy products, and cosmetics. Information to be included in pharmaceutical boxes containing blister packs is determined by the Ministry of Health, Labor and Welfare. However, the information listed on

blister packs is left to the pharmaceutical companies. Therefore, the information written on the blister pack is considered extremely important to safely administer drugs [7,8].

Table 1 shows the percentage of drug names, barcodes, expiration dates, and medicinal effects listed for the 220 randomly selected blister pack drugs adopted by Kagawa University Hospital. All products comply with Japanese law; however, the items listed on each product's blister pack vary depending on the manufacturer. Particularly, a low percentage of expiration date and medicinal effects were recorded. Therefore, we conducted a questionnaire survey of healthcare professionals such as prescribing doctors, nurses, and pharmacists to determine whether they believed that expiration dates and medical efficacy information were written on blister packs. Prescribing doctors, nurses, and pharmacists thought that expiration dates were written for 54.1%, 61.7%, and 24.6% of medicines (Figure 1A), although in reality, they were written for 10.5% of medicines (Table 1). Pharmacists, who are drug experts, thought that the percentage was relatively close to the actual percentage, but prescribing doctors and nurses believed that a high percentage had an expiration date written on it. Therefore, the medical professionals surveyed in this study, namely prescribing doctors, nurses, and pharmacists, strongly desired that expiration dates be written on pharmaceutical blister packs (Figure 1B). This is because it is important for patients to know the expiration dates of medicines they bring with them when they are hospitalized or of leftover medicines left at home. Pharmacists may consider this important for drug inventory management. Pharmacists must also consider drug stability [9-17].

Regarding medicinal effects, 69 of the 220 blister packs surveyed listed them (31.4%). Pharmacists believed that medicinal effects were present for 28.5% of the medicines (Figure 2A). The pharmacists' estimates were close to the actual percentages. Prescribing doctors and nurses believed that this percentage was higher than it actually was (Figure A). However, regarding the labeling of medicinal effects on blister packs, opinions varied among prescribing doctors, nurses, and pharmacists. This is because the medicinal effects displayed in blister pack spaces are limited. In other words, only a few medicinal words were listed on the blister pack. When a patient asks about the medicinal effect, nurses prioritize the ability to respond easily when listed on the blister pack. Doctors may prescribe medicines for purposes other than those listed on the blister pack. Pharmacists may not consider it particularly important to list the medicinal effect of blister packs because it can cause trouble when explaining the medicine to patients (Figure 2B). This shows the differences in thinking among prescribing doctors, nurses, and pharmacists regarding the description of the medicinal effects of blister packs. Medical information regarding blisters is important for healthcare professionals and patients [18-21].

Conclusions

The purpose of our research was to help reduce medical errors. We focused on the level of understanding of the information printed on oral drug blister packs. There are differences among prescribing doctors, nurses, and pharmacists-, in their views on the expiration dates and descriptions of the medicinal effects of blister packs. This difference could potentially cause medical malpractice and reduce medication adherence. The results of this study are expected to be useful in developing packaging for oral drugs that will be marketed in the future-, and in ensuring safe administration of drugs.

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Availability of Data Materials

All data supporting the conclusions are included in the article.

Declarations

Ethics approval and consent to participate

This study was reviewed and approved by the Ethics Committee of Kagawa Pharmaceutical Association (2020KAYAKU001).

Competing Interests

The authors declare that have no competing interests.

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