

A survey on awareness of the "finger-tip unit" and medication guidance for the use of topical steroids among community pharmacists

Nobuo Oishi, Hiroki Iwata, Noriko Kobayashi, Kazuko Fujimoto, Katsunori Yamaura*

Division of Social Pharmacy, Center for Social Pharmacy and Pharmaceutical Care Sciences, Faculty of Pharmacy, Keio University, Tokyo, Japan.

Summary

Atopic dermatitis (AD) is a common chronic, pruritic inflammatory skin condition. AD is most commonly treated with topical corticosteroids, and the finger-tip unit (FTU) should be used as a guideline for the amount to be used per application. In this study, we investigated the adequacy of pharmacists' instructions on the amount of topical steroids to be applied and the way in which they enhance the effect of pharmaceutical interventions. A self-administered anonymous questionnaire was distributed using QLifePro to 300 pharmacists working in insurance pharmacies that filled at least one dermatologist's prescription per month on average in Japan. Out of 300 pharmacists, 196 (65.3%) recognized the Japanese Dermatological Association's 2016 guidelines for the treatment AD, 107 (35.6%) gave instructions using the FTU as an index of external dose of topical steroids, 157 (52.3%) explained the amount of steroid application using an index other than FTU, and 61 (38.9% of 157) had inadequately instructed AD patients to apply steroids as a thin layer. Pharmacists who had read the guidelines for AD tended to give an appropriate instruction using FTU as an index of external dose of topical steroids ($p < 0.001$). We found that many pharmacists in pharmacies gave inadequate instructions on the amount of topical steroid application and deviated from the guidelines for AD, mainly because of inadequate knowledge of the guidelines.

Keywords: Pharmacist, topical steroid, instruction, topical application, finger-tip unit

1. Introduction

Atopic dermatitis (AD), included in the eczema/dermatitis group, is a skin disorder characterized by chronic inflammation and pruritus (1). The number of AD patients is increasing, especially in developed countries. AD affects people of all ages, and its prevalence in children worldwide is reported to be as high as 20% (2).

Therapeutic options for chronic AD abound, with

the mainstay of therapy being topical corticosteroids and topical calcineurin inhibitors. Topical steroids in Japan are classified into 5 ranks from "weak" to "strongest," and a steroid of an appropriate rank is used in accordance with the severity of cutaneous inflammation (1). In addition, a topical steroid should be administered at a necessary and sufficient dose; even when a higher rank steroid is prescribed because of exacerbation, if the patient spreads it too thinly, it will not produce the anticipated effect.

According to the 2016 guidelines for the treatment of AD issued by the Japanese Dermatological Association, the finger-tip unit (FTU) should be used as an index of the external dose of topical steroid. One FTU is the quantity of ointment that will be pushed out of a tube with a mouth 5 mm in diameter onto the region from the distal interphalangeal joint to the distal end on the pulp side of an adult's forefinger and is equivalent to approximately 0.5 g; it can cover 2 palms

Released online in J-STAGE as advance publication June 14, 2019.

*Address correspondence to:

Prof. Katsunori Yamaura, Division of Social Pharmacy, Center for Social Pharmacy and Pharmaceutical Care Sciences, Faculty of Pharmacy, Keio University, 1-5-30 Shibakoen, Minato-ku, Tokyo 105-8512, Japan.
E-mail: yamaura-kt@keio.jp

of an adult (approximately 2% of body surface area). One study found that low adherence was associated with prescriptions with unclear instructions about "how much product should be used" and "the area of spread" (3). Another study reported that dermatologic patients applied only 35% of the expected individualized dosages on average (4), so the dose of topical steroid is critical information for patients. In fact, provision of clear FTU-based instructions in the use of topical steroid optimized the topical dose and spreading area, and hydrocortisone uptake by the stratum corneum was significantly improved (5). Therefore, we believe that instructions based on the FTU concept are necessary for patients to get the full effect of steroids.

The Pharmacists Act in Japan states that pharmacists are responsible for not only the safety and efficacy after drug use, but also providing patients with necessary dosing information (6). However, it is still unclear how community pharmacists across Japan provide clear instructions to patients on the use of topical steroids. In this study, we investigated whether community pharmacists give patients adequate instructions on the amount of topical steroid to be applied.

2. Materials and Methods

2.1. Questionnaire survey

The survey was undertaken from July 8 to 12, 2016. The survey targeted 300 community pharmacists in Japan whose pharmacies had filled at least one dermatologist's prescription in a month. A web-based, self-administered, anonymous questionnaire was used via QLifePro, a web service for healthcare professionals. This study was approved by the research ethics committee of Keio University Faculty of Pharmacy (approval number: 160613-2). The questionnaire consisted of 17 questions in various formats: yes/no questions, multiple response questions, and open-ended questions. The questions covered the following: 1) screening questions and basic characteristics, 2) pharmacist's knowledge of topical

steroid therapy and steroid phobia, 3) pharmacist's experience of providing medication instruction and information on topical steroid therapy to patients, and 4) pharmacist's experience of being provided limited information on topical steroid therapy by the doctor.

2.2. Statistical analysis

All analyses were performed using IBM® SPSS® Statistics 23 software, and χ^2 -tests were used to assess relationships between questions.

3. Results

3.1. Basic characteristics

The basic characteristics of the targeted community pharmacists are shown in Figure 1. Most pharmacists (86% of the total) were in their 30s, 40s, or 50s. In addition, the most common pharmacy scale (27.7%) was 2-5 chain stores.

3.2. Level of understanding of the guidelines

To clarify whether Japanese community pharmacists have enough knowledge of dermatological treatments, question 1 asked about their level of understanding of the guidelines for the treatment of AD issued by the Japanese Dermatological Association. We learned that 23.0% of pharmacists had read the guidelines completely, 42.0% had read them partially, and 35.0% had never read them (Figure 2).

3.3. Medication instruction and information provision on topical steroid therapy

Question 2 asked pharmacists about the importance they place on various aspects of the steroid administration guidance when counseling patients. Eighty-four percent of pharmacists said the amount of topical steroid was either "very important" or "somewhat important," and it was the fourth most emphasized item after rank

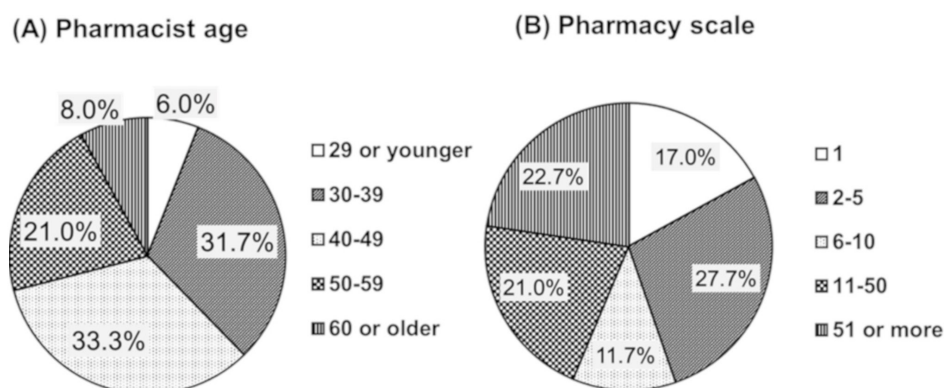


Figure 1. Basic characteristics of targeted community pharmacists (% , n = 300).

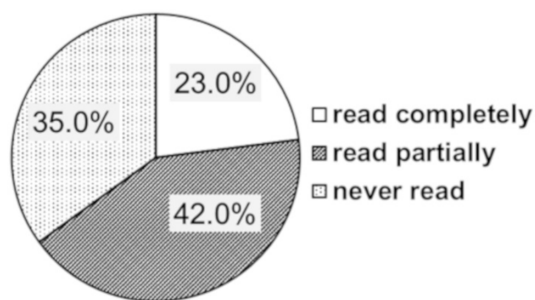


Figure 2. Degree of understanding of the guidelines. The answer for Q1 in the questionnaire is shown. [Q1: Have you ever read the Japanese guidelines for AD (16th edition or older)?] (% , n = 300).

of steroid (93.0%), application sites (92.4%), and indication (89.7%) (Figure 3).

3.4. Knowledge of FTU and the actual instruction in the use of topical steroid

In response to question 3, regarding knowledge of the FTU, 196 (65.3%) pharmacists said they were very familiar with the FTU and were able to explain it to patients (Figure 4A). Of these 196 pharmacists, however, only 107 (54.6%) said that they always or usually explained dosage based on FTU to patients who were prescribed a steroid for the first time (question

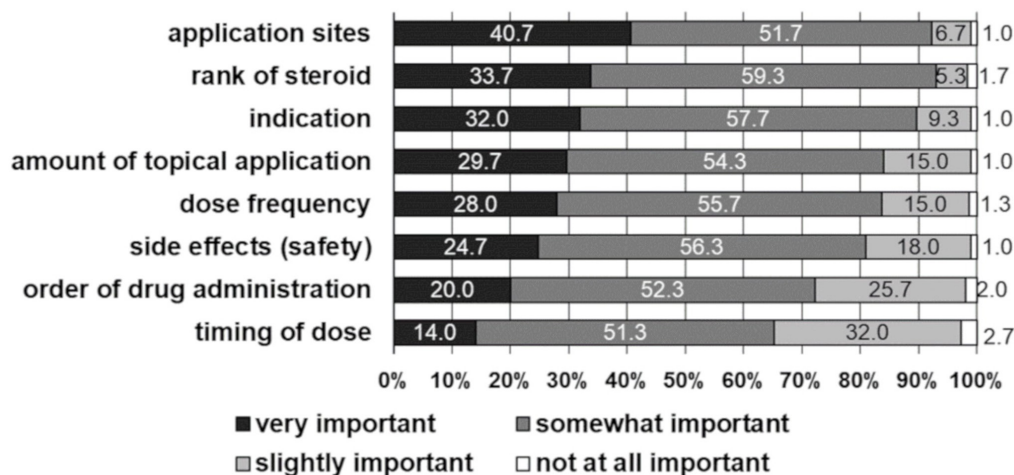


Figure 3. Medication instruction and information provision on topical steroid therapy. The answer for Q2 in the questionnaire is shown. [Q2. How much importance do you give to the following items in the drug administration guidance: rank of steroid, application sites, indication, amount of topical application, dose frequency, side effects (safety), order of drug administration, and timing of dose?] (% , n = 300).

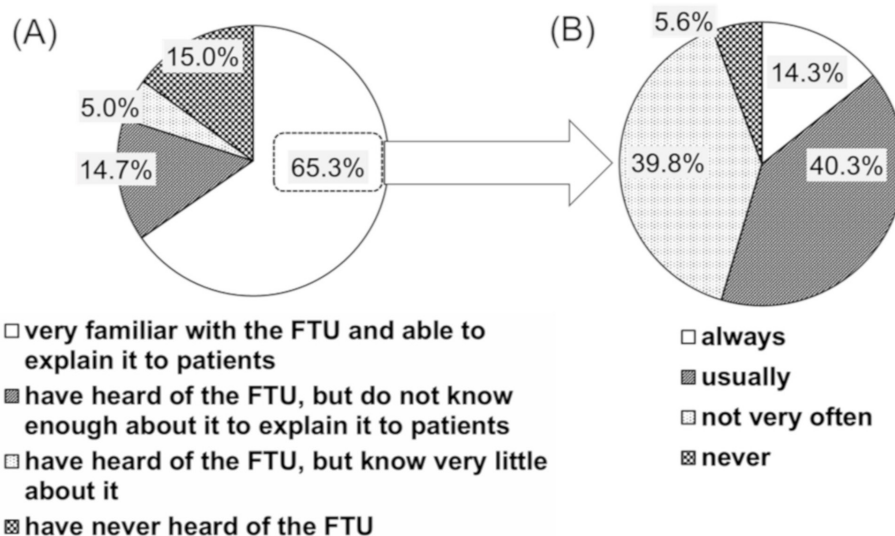


Figure 4. Knowledge of FTU. (A) The answer for Q3 in the questionnaire is shown. [Q3. Do you know the FTU (finger-tip unit)?] (% , n = 196). (B) The answer for Q4 in the questionnaire is shown. [Q4. (If you answered "Very familiar with the FTU and able to explain it to patients" in Q3) Do you explain the FTU to patients who have been prescribed a steroid for the first time when giving drug administration guidance?] (% , n = 196).

4, Figure 4B). When instructing the patient about the amount of topical steroid to apply, 157 (52.3%) pharmacists had explained the amount of topical steroid with a method other than the FTU (question 5, Figure 5A). Of the 143 pharmacists who responded that they had not used another method to explain the amount of topical steroid, only 45 (31.5%) pharmacists explained it based on the FTU (Figure 5B). Among pharmacists who had explained the amount of topical steroid with a method other than FTU, 61 (38.9%) pharmacists gave AD patients inadequate instructions to apply steroids thinly (Figure 5C).

3.5. Relationship between comprehension of the guidelines and the appropriate instruction in the use of topical steroid

Comprehension of the guidelines significantly increased with the rate of giving instruction based on

the FTU in the cross-tabulation of these two variables ($p < 0.001$): 80.0% of pharmacists who had read the guidelines completely said they "always" or "usually" used the FTU in their instruction, compared with 51.1% of pharmacists who had read them partially (Figure 6). Comprehension of the guidelines also significantly correlated with the frequency of confirming the dose administered by the patient ($p < 0.001$): 69.5% of pharmacists who had read the guidelines completely said they "always" or "usually" checked the amount of topical steroids, compared with only 24.8% of pharmacists who had never read them (Figure 7).

4. Discussion

Currently, therapies for AD that follow the guidelines issued by the Japanese Dermatological Association enable the control of symptoms in most patients, to the extent that these symptoms do not interfere with daily

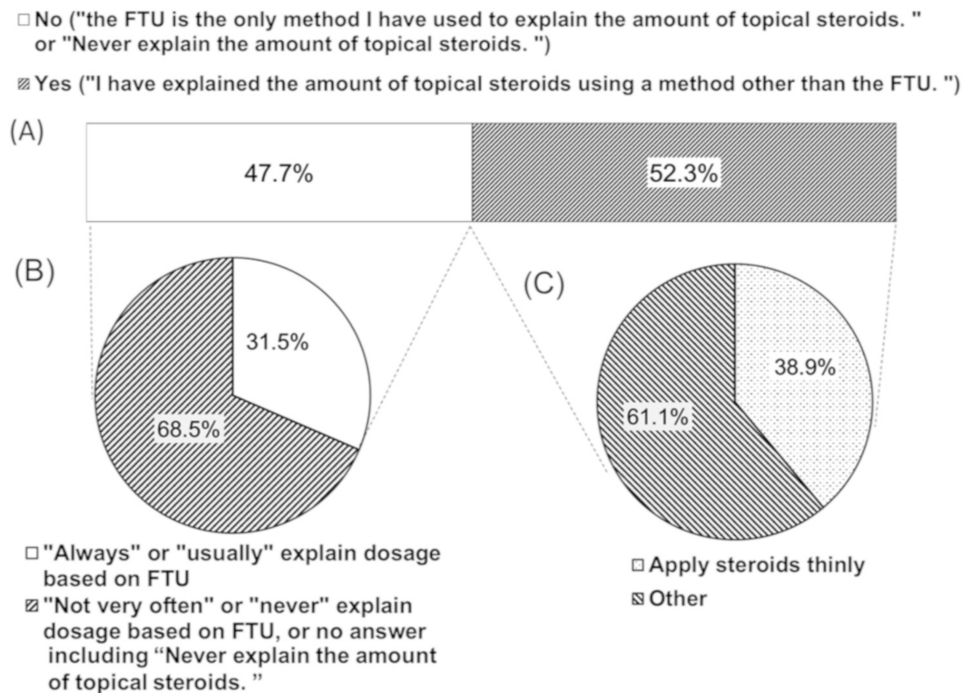


Figure 5. Explanation of the amount of topical steroid with a method other than FTU. (A) The answer for Q5 in the questionnaire is shown. [Q5. Have you ever explained the amount of topical steroid with a method other than the FTU?] (% , $n = 300$). (B) Among pharmacists who answered "Yes" to Q5 (A), the breakdown of answers to Q4 (% , $n = 143$). (C) Among pharmacists who answered "No" to Q5 (A), the detail drug administration guidance given (% , $n = 157$).

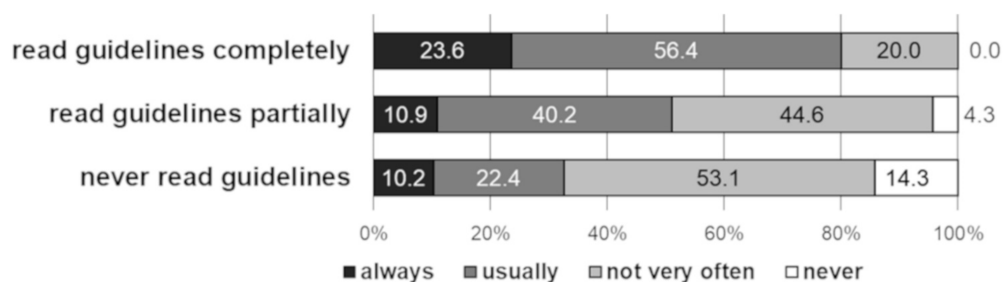


Figure 6. Relationship between the comprehension of the guidelines for the treatment of AD issued by the Japanese Dermatological Association and the rate of giving instruction based on the FTU (Q1 and Q4) (% , $n = 300$).

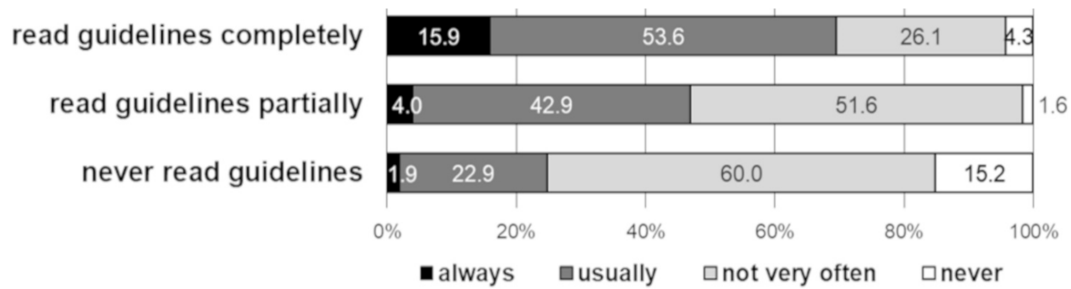


Figure 7. Relationship between the comprehension of the guidelines for the treatment of AD issued by the Japanese Dermatological Association and the frequency of confirming the dose of topical steroids administered by the patient (Q1 and Q12) [Q12. Do you confirm whether the dose (not frequency) of topical steroids administered by the patient was correct or not in a medication guidance for a patient who has used topical steroids continuously?] (% , n = 300).

activities. However, only some of the doctors who claim to be allergists have a professional qualification in this specialization. It is known that less than half of these 'allergists' have the latest edition of the clinical practice guidelines, and some doctors do not follow the treatment guidelines (1). Thus, the role of community pharmacists has become increasingly important, especially when providing instructions on topical steroid application.

In this study, we surveyed the pharmacists' awareness of providing instruction on the amount of topical steroid to be applied. We found that only about 15% of pharmacists explained the amount of topical steroid on the basis of FTU and some inadequate instructions would be provided, even though over 80% of pharmacists said that it was important to emphasize the amount of topical steroids (Figures 3-5). Though the detail of the dose of steroids was unclear, applying steroids too thinly seems to lead insufficient topical amount and insufficient effects.

We also found that pharmacists' level of understanding of the guidelines significantly correlated with their rate of giving instruction based on the FTU and their frequency of confirming the dose administered by the patient (Figures 6 and 7). This suggests that pharmacists' level of understanding of the guidelines should be well correlated with their ability to carry out some of the functions of a pharmacist.

In conclusion, we found that Japanese community pharmacists thought that counseling patients about the amount of topical steroids is important, but some provided inadequate instructions, failing to use the concept of the FTU. Also, the comprehension of the guidelines among Japanese community pharmacists was significantly correlated with their rate of giving instructions based on the FTU and their frequency of

checking the amount of topical steroids. We suggest that more Japanese community pharmacists become familiar with the guidelines and use the knowledge when counseling patients about their medication for AD. In the next issue, we will reveal the factors related to inadequate medication guidance for the use of topical steroids.

References

1. Saeki H, Nakahara T, Tanaka A, Kabashima K, Sugaya M, Murota H, Ebihara T, Kataoka Y, Aihara M, Etoh T, Katoh N. Committee for Clinical Practice Guidelines for the Management of Atopic Dermatitis of Japanese Dermatological Association. Clinical practice guidelines for the management of atopic dermatitis 2016. *J Dermatol.* 2016; 43:1117-1145.
2. DaVeiga SP. Epidemiology of atopic dermatitis: a review. *Allergy Asthma Proc.* 2012; 33:227-234.
3. Savary J, Ortonne JP, Aractingi S. The right dose in the right place: an overview of current prescription, instruction and application modalities for topical psoriasis treatments. *J Eur Acad Dermatol Venereol.* 2005; 19 (Suppl 3):14-17.
4. Storm A, Benfeldt E, Andersen SE, Serup J. A prospective study of patient adherence to topical treatments: 95% of patients underdose. *J Am Acad Dermatol.* 2008; 59:975-980.
5. Paterson DA, Hallier J, Jenkins E, Cordery SF, Delgado-Charro MB. Is the skin absorption of hydrocortisone modified by the variability in dosing topical products? *Pharmaceutics.* 2018; 10:pii: E9.
6. The Japanese Pharmacists Act: Amendment of Act No. 103 of 2013. <http://www.japaneselawtranslation.go.jp/law/detail?id=2596&vm=04&re=01> (accessed May 26, 2019). (in Japanese)

(Received January 27, 2019; Revised May 28, 2019; Accepted June 2, 2019)