



Original Article

Ambulatory practice of dermatologists in Taiwan: A nationwide survey

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Abstract

Background: Skin diseases are among the most common public health problems and cause a significant burden. For policymakers and clinicians, comprehensive and detailed information is necessary to better allocate resources needed to care for skin diseases. This study was conducted to characterize the ambulatory practice of dermatologists in Taiwan.

Methods: The study data were drawn from the datasets of Taiwan's National Health Insurance Research Database for 2013, with 623,614 records of ambulatory care visits representing 1/500 of all the claims in Taiwan for 2013. The analysis of these visits included the patient demographics, diagnoses, prescriptions, and procedures.

Results: We identified 31,547 visits to dermatologic clinics, which accounted for 5.1% of all the ambulatory care visits in 2013. The three most commonly encountered diseases were contact dermatitis and other eczema, unspecified cause (34.3%, n = 10,811), acne (17.3%, n = 5452), and dermatophytosis (12.9%, n = 4065). Topical glucocorticoids (38.8%, n = 12,248), systemic antihistamines (35.4%, n = 11,172), and systemic antibiotics (15.2%, n = 4809) were the three most commonly prescribed drug categories. Clobetasol, a very potent glucocorticoid, was the most commonly prescribed medication (20.9%, n = 6579). In 22.9% of visits (n = 7248), combined glucocorticoid/antifungal preparations were prescribed.

Conclusions: This study characterizes the current state of ambulatory dermatologic care in Taiwan. The results raise concerns about the misuse of very potent glucocorticoids and combined glucocorticoid/antifungal preparations in dermatologic practices.

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Keywords: Dermatology; Health care systems; Outpatient care; Skin diseases; Taiwan

1. Introduction

Skin diseases are among the most common public health problems and cause a significant burden.^{1–4} Morbidity and mortality from skin diseases are expected to increase, and the prevalence of these diseases and related health care spending are considered to be among the fastest growing for any medical

condition.⁵ Dermatologists are recognized as the specialists most qualified for managing skin diseases and performing cutaneous cosmetic and surgical procedures.^{6–8} With ongoing innovations in the treatment of skin diseases, continuing growth in the utilization of surgical and cosmetic procedures, and reforms to health care insurance systems, dermatologic practice has changed substantially in recent years.^{9–12} In the context of these dramatic changes, comprehensive and detailed information regarding the current state of dermatologic services is important for better allocating the resources needed in caring for skin diseases.¹³ In Taiwan, most of the dermatologic care is provided in ambulatory settings. In 2013, 52.6% of the patients with skin diseases visited dermatologists for help, compared with 32.6% who visited nondermatologists and 14.8% who

Conflicts of interest: The authors declare that they have no conflicts of interest related to the subject matter or materials discussed in this article.

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visited both.¹⁴ The purpose of this study was to investigate the patterns of ambulatory visits to dermatologists in Taiwan. To that end, data from Taiwan's National Health Insurance Research Database (NHIRD) for 2013 were analyzed to determine the practice patterns of dermatologic clinics in Taiwan.

2. Methods

2.1. Data collection

We analyzed NHIRD dataset files sampled from those for the year 2013. These files—containing a total of 623,614 medical records—were acquired by a 0.2% sampling ratio from the datasets for 2013, excluding the datasets for dentistry and traditional Chinese medicine. In this study, the data encompassed visits to the emergency and outpatient departments of hospitals and office-based clinics. All the diagnosis codes, prescriptions, and procedures in every medical record were analyzed. Disease categories based on the International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM) classification were used to analyze the diagnosis distributions. The Anatomical Therapeutic Chemical (ATC) classification system was used to assess prescription patterns. Visits were stratified according to patient gender, age, diagnoses, medications, and procedures.

2.2. Statistical analysis

The data were analyzed using the programming software Perl version 5.20.2 (Perl, Walnut, CA, USA) for data processing and using the statistical software SPSS version 22.0 (IBM, Armonk, NY, USA) for statistical analysis. Descriptive statistics was applied to assess the distributions of visits according to patient demographics, diagnoses, prescriptions, and procedures. The study was approved by the institutional review board of Taipei Veterans General Hospital according to the laws of the Republic of China (VGHIRB No.: 2013-10-001CE).

3. Results

3.1. The distribution of visits according to demographics of patients

We identified 31,547 visits to dermatologic clinics, which accounted for 5.1% of all the ambulatory care visits ($n = 623,614$) in 2013. Of those dermatologic visits, 52.9% ($n = 16,684$) were made by female patients, and 47.1% ($n = 14,863$) were made by male patients. In terms of age, patients aged 20–29 years (17.5%), 30–39 years (17.5%), 40–49 years (14.2%), and 50–59 years (14.2%) comprised the majority of the outpatients in 2013 (Table 1). Collectively, patients under the age of 60 (79.6%) were the major sources of outpatients. A predominance of male patients in the visits was found among patients aged older than 60, with a male-to-female ratio of 1.23, while male-to-female ratios ranging between 0.74 and 0.93 were observed in patients in various age groups younger than 60.

Table 1
The distribution of cases according to age and gender.

Age group (years)	Male		Female		Total	
	n	%	n	%	n	%
0–9	765	2.4	710	2.3	1475	4.7
10–29	1845	5.9	1815	5.8	3660	11.6
20–29	2340	7.4	3166	10.0	5506	17.5
30–39	2274	7.2	3240	10.3	5514	17.5
40–49	1919	6.1	2549	8.1	4468	14.2
50–59	2160	6.9	2312	7.3	4472	14.2
60–69	1599	5.0	1443	4.5	3042	9.6
≥70	1961	6.2	1449	4.5	3410	10.8
Total	14,863	47.1	16,684	52.8	31,547	100.0

3.2. The distribution of visits according to patient diagnosis

Table 2 shows the distribution of skin disease groups encountered in dermatologic clinics. The most common diagnosis groups were dermatitis and eczema, diseases of the sebaceous and apocrine glands, and diseases due to microbial agents. As shown in Table 3, the three most commonly encountered diseases were contact dermatitis and other eczema, unspecified cause (34.3%), acne (17.3%), and dermatophytosis (12.9%). Contact dermatitis and other eczema, unspecified cause, and acne were the two most common disorders in both genders. However, dermatophytosis was the third most common disorder among male patients, whereas urticaria was the third most common disorder among female patients. In the pediatric population (≤ 20 years old), acne ($n = 1,196$, 23.3%); contact dermatitis and other eczema, unspecified cause ($n = 1,051$, 20.5%); and viral warts ($n = 514$, 10.0%) were the three most common diagnoses, whereas the three most common diagnoses in the geriatric population (≥ 60 years old) were contact dermatitis and other eczema, unspecified cause ($n = 2,008$, 31.1%), dermatophytosis ($n = 876$, 13.6%), and urticaria ($n = 339$, 5.3%).

3.3. The distribution of visits according to prescriptions and procedures

In terms of pharmacological treatments, 95.5% ($n = 30,112$) of the outpatients were managed with medications, and 37.4% ($n = 11,824$) of the outpatients received three or more medications. As shown in Table 4, the most commonly prescribed category of drugs was topical glucocorticoids (38.8%), followed by systemic antihistamines (35.4%), systemic antibiotics (15.2%), topical antifungals (11.2%), topical antibiotics (14.0%), and systemic glucocorticoids (13.0%). On the ATC 5th level, clobetasol was the most commonly prescribed medication (20.9%, $n = 6579$), followed by betamethasone (12.0%, $n = 3783$) and clindamycin (10.9%, $n = 3426$). Further analysis showed that clobetasol was most commonly prescribed to treat contact dermatitis and other eczema, unspecified cause ($n = 2721$, 41.4%). It is noteworthy that combined glucocorticoid/antifungal agents and combined glucocorticoid/antifungal/antibacterial agents comprised 6.5% ($n = 2047$) and

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