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Epidemiology of psoriatic disease and current treatment patterns from 2003 to 2013: A nationwide, population-based observational study in Taiwan

Ting-Shun Wang, M.D.[a,c], Chi-Feng Hsieh, Ph.D.[b], Tsen-Fang Tsai, M.D.[c,*]

[a] *Division of Dermatology, National Taiwan University Hospital, Yun-Lin Branch, Taiwan*
[b] *Institute of Health and Welfare Policy, National Yang-Ming University, Taipei, Taiwan*
[c] *Department of Dermatology, National Taiwan University Hospital and National Taiwan University College of Medicine, Taipei, Taiwan*

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ABSTRACT

Background: Recent global data show an increasing prevalence of psoriasis and psoriatic arthritis in western countries.
Objective: The current study analyzed the trend of prevalence rates of psoriasis and psoriatic arthritis in Taiwan and examined biologic prescription patterns by different specialties.
Methods: Data were accessed from the national payer National Health Insurance Research Database in Taiwan. This study protocol was approved by Joint Institutional Review Board established by Medical Research Ethics Foundation (No 13-S-001).
Results: Between 2003 and 2013, the prevalence of psoriasis and psoriatic arthritis increased by 41% (from 15.54 to 21.90 per 10,000 population) and 191% (from 0.45 to 1.31 per 10,000 population), respectively, while the prevalence of psoriatic arthritis among patients with psoriatic disease increased from 6.3% to 12.7%. Dermatologists are the main caregivers for patients with psoriasis and psoriatic arthritis; however, data suggest a decreasing trend in the proportion of dermatologists for psoriasis patients from 24.7% between 2003 and 2008 to 10.74% between 2008 and 2013, with a corresponding decrease in dermatologists for psoriatic arthritis patients from 62.30% to 44.65% during the same periods, respectively. In 2013, of the 51,191 patients with psoriasis, only 596 (1.16%) received biologics (73.3% by dermatologists and 25.8% by rheumatologists), while 1120 of the 7470 (14.99%) psoriatic arthritis patients received biologics (72.8% by rheumatologists and 22.3% by dermatologists). The proportion of biologics use was 1.12% and 7.75% among all patients with only psoriasis and 8.01% and 26.70% among all patients with psoriatic arthritis seen by dermatologists and rheumatologists, respectively.
Conclusion: The prevalence of psoriasis and psoriatic arthritis is increasing in Taiwan. The use of biologics in patients with psoriatic arthritis was comparable to that reported in previous studies in the United States and Europe; however, the use of biologics remained low in patients with psoriasis in Taiwan.

1. Introduction

The reported incidence of psoriasis in East Asian populations has been relatively lower than in Caucasians [1]. Two independent, previous claim-based studies using the Taiwanese national payer National Health Insurance (NHI) database revealed the prevalence of psoriasis to be approximately 0.2% in 2006 [2,3]. Patients with psoriasis experience significant impact on physical, psychosocial, and economic functions [4–6]. However, despite the high impact of the disease, data from well-designed, large-scale, population-based studies on the temporal trends in prevalence or treatment of psoriasis in Asia are lacking. NHI is a single-payer national program launched in 1995, and the NHI Research Database (NHIRD) maintains records of the number of cases, treatment patterns, and medical claims reported to the NHI for reimbursement [7]. Thus, the NHIRD affords the opportunity to investigate the dynamics of disease prevalence and treatment in real-world settings in a large population sample in Taiwan, and can help to create the evidence for formulating appropriate policy initiatives for psoriasis management.

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[*] Corresponding author at: Department of Dermatology, National Taiwan University Hospital, No.7 Chung-Shan South Road, Taipei, Taiwan.
E-mail address: tftsai@yahoo.com (T.-F. Tsai).

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Biologic agents have revolutionized the treatment of many diseases. Across all indications, biologics account for 6.8% of the overall pharmaceutical expenditure by the NHI, a figure only slightly lower than that reported in Europe (8%–10%) but much lower than that reported in North America (12.9%) [8]. The use of biologics has also changed the treatment paradigm of psoriasis, with treatment satisfaction with biologics being highest among patients with moderate to severe psoriasis compared to other modalities [9].

Recently, results from the population-based Multinational Assessment of Psoriasis and Psoriatic Arthritis (MAPP) survey in the United States showed that 7.9% (reported by patients) and 35.8% (answered by dermatologists) of patients were receiving biologics treatment for psoriasis, while 25.9% (reported by patients), 46.9% (reported by dermatologists), and 52.7% (reported by rheumatologists) of patients were receiving biologics treatment for psoriatic arthritis (PsA) [10]. However, the percentage of patients with psoriasis receiving biologics in Taiwan is unknown.

In Taiwan, the NHI approved reimbursement of biologics use without co-payment for up to 180 days for psoriasis and for an unlimited period for PsA since 2009 in responding patients [7]. Starting in April 2015, the reimbursement for psoriasis was extended to 2 years. However, for psoriasis patients who still suffer from psoriasis with a psoriasis area and severity index (PASI) of at least 10 despite a >50% reduction of PASI from baseline, continuous treatment with biologics is granted.

Understanding psoriatic disease treatment patterns with biologics could be the key to designing interventions both at the clinical practice and at the overall healthcare system levels for optimizing the use of biologics in Taiwan. The current study analyzed the NHIRD data to investigate the trend of both psoriasis and PsA prevalence and treatment patterns, focusing on the use of biologics between 2003 and 2013 in Taiwan.

2. Materials and methods

2.1. Data source

This study protocol was approved by Joint Institutional Review Board established by Medical Research Ethics Foundation (No 13-S-001). Data from national payer NHIRD was accessed, which covered over 99.9% of the nearly 23 million people in Taiwan from 2003 to 2013. The clinical setting range for the NHI payment spectrum includes preventive medicine, dental care services, outpatient and inpatient services, and prescription drugs and Chinese herbal remedies, representing a broad range of psoriasis and PsA patients across different health-seeking behavioral categories. The NHIRD database contains registration files and original reimbursement claims data, including demographic characteristics, dates of admission and discharge, diagnostic codes, procedures performed, and details of prescriptions and co-morbidities. In addition, private information in the NHIRD regarding patients or care providers, including medical institutions and physicians, was de-identified.

2.2. Study population

All patient records with information on at least two patient visits to any medical setting for psoriatic disease treatment were included in the analyses. Procedures and diagnoses were coded using the International Classification of Diseases, ninth revision, Clinical Modification (ICD-9 CM) convention. Claims containing an ICD-9-CM diagnosis code of 696.0 for PsA or 696.1 for other psoriasis were included in the analyses. Patients were classified into three groups: psoriasis without co-existing PsA (i.e., PsO only), both psoriasis and PsA (i.e., PsO + PsA), and only PsA without psoriasis (i.e., PsA). For the study, all psoriatic disease was defined as “PsO” plus “PsO + PsA” plus “PsA”; the “PsO only” group was considered for analysis of skin psoriasis, while the “PsO + PsA” and “PsA” groups were considered together for analyzing overall PsA.

Reimbursement data on the following biologics was included in the analyses: adalimumab for PsA (January 08, 2009), by rheumatologists only; adalimumab and etanercept for PsA (November 01, 2009), by rheumatologists only; etanercept for skin psoriasis (November 01, 2009), by dermatologists only; adalimumab and etanercept for PsA and etanercept for skin psoriasis (January 01, 2010), both by dermatologists and rheumatologists; adalimumab for skin psoriasis (July 01, 2011), both by dermatologists and rheumatologists; ustekinumab for skin psoriasis (May 01, 2012), both by dermatologists and rheumatologists; golimumab for PsA (February 01, 2013), both by dermatologists and rheumatologists.

2.3. Outcomes

Data were analyzed for obtaining outcomes associated with (a) annual prevalence of psoriasis (PsO only) and PsA (“PsO + PsA” and “PsA”) in Taiwan between 2003 and 2013, based on prevalence analysis, and (b) biologics treatment patterns for psoriasis (PsO only) and PsA (“PsO + PsA” and “PsA”) based on the annual number of patients prescribed with biologics from 2009 to 2013. Data on biologics prescription patterns were analyzed from 2009 to 2013, since the NHI approval for biologics reimbursement for psoriasis and PsA was initiated in 2009. Records were stratified by disease type. Data on the number of patients receiving biologics prescriptions were stratified by the specialty of the prescribing physicians. The categorical strata for the specialty of the prescribing physician included rheumatologists, internal medicine specialists, dermatologists, and others. Statistical Analysis Software (SAS) version 9.3 (SAS institute, Cary, NC, USA) was used for all the statistical analyses.

3. Results

3.1. Prevalence of skin psoriasis and PsA

In Taiwan, from 2003 to 2013, the number of patients with psoriasis (PsO only) increased from 35,132 to 51,191 and from 1014 to 3072 for PsA patients (“PsA”). Similarly, the number of patients with a co-diagnosis of psoriasis and PsA (“PsO + PsA”) increased from 1337 to 4398. Further, the prevalence rate of psoriasis (PsO only) increased from 15.54 to 21.90 per 10,000 people, and that of PsA (“PsA”) more than doubled from 0.45 to 1.31 per 10,000 people. Similarly, the prevalence rate of patients with a co-diagnosis of psoriasis and PsA (“PsO + PsA”) more than doubled from 0.59 to 1.88 per 10,000 people (Table 1).

Fig. 1 presents the prevalence rate of all psoriatic disease (“PsO” plus “PsO + PsA” plus “PsA”), psoriasis (PsO only), and co-diagnosis of psoriasis and PsA (“PsO + PsA”) in Taiwan from 2003 to 2013.

3.2. Care of psoriasis and PsA by different specialties

Dermatologists are the main caregivers for patients with psoriasis (PsO only), but the trend of increase is mild in recent years: 24.70% between 2003 and 2008, and 10.74% between 2008 and 2013; in contrast, there is a more rapid increase, 218.50% and 145.49%, for rheumatologists, respectively. For overall PsA (“PsO + PsA” and “PsA”), dermatologists are also the main caregivers, and the corresponding proportion of increase is 62.30% and 44.65% for dermatologists and 107.61% and 154.42% and for rheumatologists, respectively.