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Secukinumab Response in Korean Patients with Moderate to Severe Plaque-Type Psoriasis Irrespective of Previous Biologic Use: 1-Year Experience at a Single Center

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Dear Editor:

Tumor necrosis factor (TNF)-α inhibitors had been the main biological agents for treating moderate to severe plaque psoriasis. However, newer generation biological agents that offer greater efficacy than TNF-α inhibitors have been recently introduced, including secukinumab1. Secukinumab is a fully human G1κ monoclonal antibody that binds to the human protein interleukin (IL)-17A, an important cytokine in the pathogenesis of psoriasis. In clinical trials, subcutaneous secukinumab was more effective in improving both psoriasis symptoms and health-related quality of life than TNF-α inhibitors and IL-12/23 inhibitors[1,2]. Secukinumab showed sustained long-term efficacy and remained well tolerated. Subcutaneous secukinumab is an effective and generally well-tolerated first-line treatment of moderate to severe plaque psoriasis and is a useful addition to the treatment options for this disease[3].

Since the introduction of secukinumab, TNF-α inhibitors and IL-12/23 inhibitors have become less used for patients with moderate to severe plaque psoriasis[4]. There are many reports for studying the efficacy of secukinumab, but few studies for Koreans. Therefore, this study aimed to investigate the efficacy of secukinumab in Korean patients. Moreover, we compared the clinical characteristics and therapeutic response between naive and exposed biologic patients who have used other biologics before using secukinumab.

The study was approved by the institutional review board (IRB) of Ajou University Hospital (IRB no. AJIRB-BMR-OBS-15-398).

Korean patients with moderate to severe plaque psoriasis who were treated with secukinumab at the Department of Dermatology, Ajou University Hospital between September 2017 and August 2018 were enrolled. Exposed biologic patients were defined as patients who have used other biologics including etanercept, infliximab, adalimumab, and ustekinumab before using secukinumab. The treatment was changed to secukinumab because the previous drug did not work or was associated with adverse effects.

The patients were treated with a 300 mg dose of secukinumab at baseline; weeks 1, 2, 3, and 4; and once every 4 weeks from week 5 onward. The outcome was assessed using the Psoriasis Area and Severity Index (PASI) and body surface area. Patients achieving a 75% or greater improvement (reduction) in the PASI score were defined as PASI 75 responders. PASI 75, PASI 90, and PASI 100 responders were evaluated once every 12 and 24 weeks after starting secukinumab. In addition, their electronic medical records were retrospectively reviewed, including age; sex; body mass index at the time of starting the new biologic therapy; alcohol and smoking status; involvement of the scalp, face, and nail; disease duration; previous therapy including topical agents and phototherapy, and the number of different oral agents taken; and comorbidities such as heart disease and stroke, diabetes, hyperlipidemia, hypertension, chronic hepatopathy, latent tuberculosis, renal insufficiency, and arthritis.

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Table 1. Characteristics of the patients*

Baseline characteristic	Naive (n=6)	Exposed (n=5)
Mean age (yr)	44.0	42.2
Sex (male:female)	3:3	4:1
Mean body mass index (kg/m^2)	22.8	24.9
Alcohol intake	3 (50.0)	3 (60.0)
Smoking status		
Current smoker	0 (0)	4 (80.0)
Former smoker	2 (33.3)	0 (0)
Non-smoker	4 (66.7)	1 (20.0)
Comorbidity		
Heart diseases and stroke	0 (0)	0 (0)
Diabetes	1 (16.7)	0 (0)
Hyperlipidemia	1 (16.7)	2 (40.0)
Hypertension	3 (50.0)	5 (100)
Chronic hepatopathy	0 (0)	0 (0)
Latent tuberculosis	3 (50.0)	2 (40.0)
Renal insufficiency	0 (0)	0 (0)
Arthritis	1 (16.7)	0 (0)
Mean duration of psoriasis (yr)	16.8	12.4
Previous therapy		
Topical agents	6 (100)	5 (100)
Phototherapy	5 (83.3)	2 (40.0)
Only 1 type of oral agent	0 (0)	2 (40.0)
More than 1 type of oral agent	6 (100)	2 (40.0)
Scalp, face, and nail involvement	4 (66.7)	5 (100)

Values are presented as number only or number (%). *Follow-up period: 1 year.

For this study, 11 patients including 6 naive and 5 exposed patients were enrolled. The average age of these patients was 44.0 and 42.2 years, and the total sex ratio (male-to-female) was 3:3 and 4:1, respectively. Exposed patients showed a much higher percentage of current smokers; patients with hypertension; and patients with scalp, face, and nail involvement than naive patients. On the other hand, naive patients revealed a much higher percentage of former and non-smokers, patients who had undergone phototherapy, patients with a longer disease duration, and patients who had taken more than 1 type of oral agent before secukinumab. However, a similar percentage was found in body mass index, alcohol intake, comorbidities except hypertension, and topical agent use between the 2 groups (Table 1). It reveals statistically no significant difference between 2 groups.

All naive patients showed a PASI score of >10 at baseline, whereas 3 experienced users showed PASI <10 at baseline because of previous improvement with other biologics. Among 5 exposed patients, 4 directly switched from other biologics to secukinumab. During a 12-week period, all naive patients achieved PASI 90 or even higher, whereas only 33.3% of patients achieved PASI 100. Of exposed patients, 40.0% achieved PASI 90 or higher and the rest achieved less than PASI 75. In addition, all naive and exposed patients were fully evaluated during 24 weeks, and all naive patients but only 3 exposed patients achieved PASI 90 or higher. The remaining patients achieved less than PASI 75 (Table 2).

Table 2. Assessment of the PASI response after 12 and 24 weeks

Assessment	Naive (n=6)	Exposed (n=5)
After 12 wk		
PASI 75% improvement	0 (0)	0 (0)
PASI 90% improvement	4 (66.7)	1 (20.0)
PASI 100% improvement	2 (33.3)	1 (20.0)
After 24 wk		
PASI 75% improvement	0 (0)	0 (0)
PASI 90% improvement	3 (50.0)	0 (0)
PASI 100% improvement	3 (50.0)	3 (60.0)

Values are presented as number (%). PASI: Psoriasis Area and Severity Index.

In addition, when the baseline PASI before the very first biologic in exposed patients was used, the number of patients who achieved PASI 75 or higher increased from 2 (40.0%) to 4 (80.0%) after 12 weeks. After 24 weeks, 4

(80.0%) exposed patients achieved PASI 90 or higher.
In this study, we found that all naive patients and 60.0% of exposed patients achieved PASI 90 or even higher during 24 weeks. However, using very first PASI, 80.0% of exposed patients achieved PASI 90 or even higher and only 1 exposed patients failed to achieve PASI 75.
Currently, little data are available regarding the difference in therapeutic response to biologic therapy between biologic naive patients and patients who have been exposed to other biologics. When comparing the effect of prior TNF inhibitor (TNFi) therapy on the efficacy of secukinumab for psoriatic arthritis, secukinumab was efficacious in TNFi-naive and TNFi-exposed patients with psoriatic arthritis, with greatest improvements in TNFi-naive patients[5]. In an integrated analysis of 2 phase III randomized studies, the efficacy of ixekizumab, which is a high-affinity monoclonal antibody that selectively targets IL-17A, was similarly high between patients with and those without previous exposure to biologics[6]. In recent study in Korea, 60.7% of patients had obtained PASI 90 and no adverse events were observed. It found that secukinumab can be benefit for the treatment of patients with psoriasis in Koreans as well.
One of the limitations of our study is the small number of included patients because secukinumab was only recently introduced for clinical use. Another limitation is the single-center design of our study. However, in this study, we were able to compare the level of response between naive and exposed patients. Multicenter large-scale studies will be needed in the future.

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CONFLICTS OF INTEREST

The authors have nothing to disclose.

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