

## Case Report

## Opinions of Japanese patients with *Psoriasis* regarding treatment with Biological Agents

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## Abstract

In our recent study, we revealed that the drug survival rate of adalimumab is shorter in Japanese patients than that in European patients, raising the hypothesis that a low self-injection rate, which results in frequent hospital visits, may be related to the shorter drug survival rate. This prompted us to assess opinions among patients with psoriasis regarding biological agents and self-injection. Questionnaires were completed by 79 patients who visited the Department of Dermatology of Kurume University School of Medicine between January and April 2014. Sixty-one males and 18 females were enrolled, including 70 with psoriasis vulgaris, 1 with psoriatic arthritis, 6 with pustular psoriasis, and 2 with psoriatic erythroderma. Analysis of the study group revealed that 21 (26.6%) patients had gained more than 10 kg on average before the onset of psoriasis. Thirty-three (41.8%) patients were unaware of biological agents, whereas 22 (27.8%) had been treated with them. Nineteen of 22 patients were satisfied with the treatment, but 14 patients complained of high costs. Among 14 patients who were either on or had been treated with adalimumab, only 7 practiced self-injection. These 7 patients were satisfied with the decreased number of required hospital visits. When considering patients' satisfaction with fewer hospital visits afforded by self-injection of adalimumab, this practice seems to promote adherence to adalimumab. Eight patients declined the recommendation of biological agents by their doctors because of the high cost. Adequate information about biological agents, including marked efficacy and good reactions to comorbidities, may change patients' actions.

**Keywords:** Biological Agents; Body Mass Index; Psoriasis; Questionnaire; Self-Injection

## Introduction

Psoriasis is a chronic skin disease, which can be treated with various options. Biological agents remarkably improve psoriasis compared with older treatments such as topical ointments, phototherapy, retinoids, and cyclosporine. Biological agents have been widely used for treating moderate to severe psoriasis in Japan since 2010 [1] and have dramatically improved the quality of life (QOL) of many patients. Although

new biological agents are expected to be available soon, only infliximab, adalimumab, and ustekinumab were available at the end of 2014 in Japan.

Although several studies have surveyed psoriasis patients regarding satisfaction or QOL [2-5], such studies directly related to a particular treatment are rare [6]. Recently, we reported that the drug survival rate of adalimumab is shorter in Japanese patients than that in European patients [7]. We

hypothesized that a low self-injection rate among Japanese patients, which results in the need for more frequent hospital visits, may be related to the short drug survival rate of adalimumab. The results of our previous study prompted us to survey patients with psoriasis with regard to biological agents with special attention to self-injection.

## Patients and methods

Seventy-nine patients with psoriasis who visited the Department of Dermatology of Kurume University School of Medicine, between January and April 2014 were enrolled in this study. Questionnaires regarding biological agents also included clinical variables including gender, age, type of psoriasis, treatment option, body weight, and height. Psoriasis Area and Severity Index (PASI) data were collected at the time when the questionnaires were performed. This study was approved by the Ethics Committee of Kurume University.

## Results

The study group included 61 male patients and 18 female patients (Table 1). Biological agents were used in 22 (27.8%) patients. Twenty-one (26.6%) patients had experienced a weight gain of more than 10 kg on average before the onset of psoriasis compared with their respective minimum weight after age 20. Twenty-seven (44.3%) male patients and 7 (38.9%) female patients had a body mass index (BMI) of 25 kg/m<sup>2</sup> or greater, which implied obesity. Thirty-three (41.8%) patients had no knowledge of biological agents used to treat psoriasis.

The response of 22 patients who were treated with biological agents are summarized in Table 2. For most of these patients, treatment with a biological agent was recommended by their doctor (Table 2). Fifteen (68.2%) patients were satisfied with a good treatment response. Thirteen (59.1%) patients were unsatisfied with the high cost of biological agents, whereas 7 (31.8%) patients reported no cause of dissatisfaction with biological therapy. In the overall evaluation, 19 (86.4%) patients were satisfied or extremely satisfied with the biological therapy.

The responses of the 14 patients treated with adalimumab are summarized in Table 3. Five of the 14 patients had been treated with adalimumab but were not taking adalimumab at the time of the study. Self-injection had been recommended to 10 patients; 6 patients accepted and 4 refused.

The responses of the 7 patients treated with adalimumab by self-injection (including the 6 who accepted the recommendation of their doctor and 1 who requested this treatment) were summarized in Table 4. All patients were satisfied with the reduced number of required office visits for injections and had no difficulty administering self-injections. However, 3 patients expressed that they felt anxiety related to self-injection. Overall, 5 (71.4%) patients were satisfied or extremely satisfied with treatment by self-injection.

The responses of the 7 patients who did not adopt self-injection are summarized in Table 5. Two patients preferred in-

jection at the hospital by healthcare providers because they felt more secure about this option. One patient could not afford the expense for more than 2 injections at one time but could afford the expense for 1 injection.

**Table 1.** Summary of characteristics of the study population (n=79).

Males/females, n (% males)	61/18 (77.2)
Age, mean ± SD, range (years)	58.5 ± 13.8, 31-82
Age at the onset, mean ± SD (years)	44.5 ± 16.7
Psoriasis vulgaris, n (%)	70
Psoriatic arthritis, n (%)	1
Pustular psoriasis, n (%)	6
Psoriatic erythroderma, n (%)	2
PASI, mean (range, median)	6.2 (0-49.4, 4.1)
Treatment	
Biological agents, n (%)	22 (27.8)
infliximab	4
adalimumab	9
ustekinumab	9
Cyclosporine, n (%)	14 (17.7)
Etretinate, n (%)	9 (11.4)
Narrow-band UVB, n (%)	9 (11.4)
Body weight (kg)	
male, mean (range, median)	70.9 (45-127, 69)
female, mean (range, median)	55.2 (43-77.8, 52.5)
Height (cm)	
male, mean (range, median)	168.0 (156-182, 168)
female, mean (range, median)	152.9 (143-162, 154.4)
Body mass index (kg/m <sup>2</sup> ), male/female, n (%)	
< 18.5	2 (3.3) / 3 (16.7)
18.5 ≤ < 25	32 (52.5) / 8 (44.4)
25 ≤ < 30	20 (32.8) / 6 (33.3)
30 ≤	7 (11.5) / 1 (5.6)
Body weight gain before onset of psoriasis*	
male, n (%) / mean of weight gain (kg)	16 (26.2) / 13.0
female, n (%) / mean of weight gain (kg)	5 (27.8) / 11.8
Patients who were aware / unaware of biological agents, n (%)**	45 (57.0) / 33 (41.8)

\*: compared with respective minimum weight after age 20

\*\*: 1 answer was not obtained

**Table 2.** Responses to questionnaires by patients treated with biological agents (n = 22).

Questions and answers	n (%)
1. Who recommended biological agent?*	
doctor	17 (77.3)
patient	6 (27.3)
family member	1 (4.5)
2. What is the reason for satisfaction with biological therapy?*	
good response	15 (68.2)
fewer office visits	7 (31.8)
no need for topical ointment	7 (31.8)
no pruritus	4 (18.2)
reduced desquamation	7 (31.8)
no more worries about others' opinions	10 (45.5)
3. What is the reason for dissatisfaction with biological therapy?*	
high cost of biological agent	13 (59.1)
many laboratory tests	1 (4.5)
high cost of laboratory tests	1 (4.5)
none	7 (31.8)
4. Overall evaluation of biological therapy	
extremely satisfied	6 (27.3)
satisfied	13 (59.1)
not determined	1 (4.5)
unsatisfied	1 (4.5)
extremely unsatisfied	0 (0.0)
no answer	1 (4.5)

\*: multiple answers

**Table 3.** Responses to questionnaires by patients treated with adalimumab (n = 14)\*.

Questions and answers	n (%)
1. Who recommended self-injection?	
doctor	10 (71.4)
patient	1 (7.1)
not recommended	3 (21.4)
2. Has self-injection been adopted?	
Yes	7 (50.0)
No	7 (50.0)

\*: including 5 patients who were not treated with adalimumab at the end of the study.

**Table 4.** Responses to questionnaires by patients who adopted self-injection (n = 7).

Questions and answers	n (%)
1. What is the reason for satisfaction with self-injection?*	
fewer office visits	7 (100.0)
lower cost	3 (42.9)
ability to inject medication any time	3 (42.9)
2. What is the reason for dissatisfaction with self-injection?*	
forgetting the date for injection	1 (14.3)
anxiety about injection abilities	3 (42.9)
none	4 (57.1)
3. Was self-injection difficult?	
No	7 (100.0)
4. Were you afraid of self-injection?	
never fearful	3 (42.9)
fearful initially, but not fearful now	3 (42.9)
still fearful	1 (14.3)
5. Overall evaluation of self-injection	
extremely satisfied	1 (14.3)
satisfied	4 (57.1)
not determined	1 (14.3)
unsatisfied	1 (14.3)
extremely unsatisfied	0 (0.0)

\*: multiple answers

**Table 5.** Responses to questionnaires by patients who did not adopt self-injection (n = 7).

Question and answer	n (%)
1. Why did you decline self-injection?	
never recommended	1 (14.3)
feel more secure receiving injections in hospital	2 (28.6)
could not afford more than 2 injections at one time	1 (14.3)
no answer	3 (42.9)

The responses of the 49 patients who had never been treated with adalimumab are summarized in Table 6. Biological agents had been recommended to 8 of these patients, and the most prevalent reason that patients declined biological agents was the high cost of these agents.

**Table 6.** Responses to questionnaires by patients who had never been treated with biological agents.

Questions and answers	n (%)
1. Have biological agents been recommended to you? (n = 49)	
yes	8 (16.3)
2. What is the reason for you to decline biological agents?* (n = 8)	
high cost of biological agent	6 (75.0)
high cost of laboratory tests	2 (25.0)
fear of adverse events	1 (12.5)
satisfied with current therapy	1 (12.5)
difficulty attending regular visits	1 (12.5)
increase in the required number of office visits	1 (12.5)
hope for clinical trials	1 (12.5)
no assurance of complete remission	1 (12.5)
plans for child bearing	1 (12.5)

\*: multiple answers

## Discussion

Because most patients with psoriasis visit our department at least once every 3 months, we designed the study duration to be 4 months in order to involve most psoriasis patients treated in our department. Although this study is limited by the small number of patients treated at a single hospital, the results can be representative of real world practice for psoriasis in Japanese university hospitals.

Obesity is known to be related to the development of psoriasis [8,9]. In this study, approximately 25% of patients had gained more than 10 kg before the onset of psoriasis. According to the 2013 National Health and Nutrition survey in Japan conducted by the Ministry of Health, Labour, and Welfare in Japan (<http://www.mhlw.go.jp/bunya/kenkou/eiyou/h25-houkoku.html>), 783 of 2738 male adults and 649 of 3199 female adults had a BMI of 25 kg/m<sup>2</sup> or greater. Compared with those control data, our patient population included significantly more obese male patients ( $p = 0.00762183$ , chi-square test) and marginally significantly more obese female patients ( $p = 0.0507912$ , chi-square test). Thus, psoriasis was associated with obesity among our patients, as previously reported [10].

The present study revealed that approximately 25% of patients with psoriasis were treated with biological agents, and approximately twice the percentage of patients treated with biological agents was aware of the agents. This suggests that patients with psoriasis are likely interested in new treatment options. However, more than 40% of patients were not aware of biological agents, suggesting that not all psoriasis patients receive adequate information regarding treatment options. The Dermatology Life Quality Index (DLQI) is not always correlated with PASI, and a high PASI plays a more important role than a high DLQI in dermatologists' decision to initiate biological therapy [11]. Because patient suffering and social costs are better expressed by DLQI than by PASI [12]. The importance of considering both DLQI and PASI in the decision process regarding the use of biological therapy has been emphasized [11]. If all patients have the knowledge of biological agents, some patients with a high DLQI and a

low PASI may request treatment with biological agents before recommendation by their doctors and may thus be actually treated with biological agents without recommendation.

The overall satisfaction rate with oral or topical treatment among Japanese psoriasis patients was reported to be 43.0% [13]. In comparison with that result, the overall rate of satisfaction with biological agents among our patients was extremely high (86.4%), even though 59.1% of patients were unsatisfied with the high cost of biological agents. This high degree of satisfaction is considered to be related to the high efficacy of biological agents [14].

In our recent study, which revealed that the drug survival rate of adalimumab is shorter in Japanese patients than that in European patients [7], we compared patients who had adhered to adalimumab until the end of the observational period of more than 3 years (retention group) with those who stopped adalimumab before the end of the observational period (drop-out group). In the retention group, 56.3% of patients adopted self-injection, whereas only 25.0% of patients practiced self-injection in the drop-out group. We speculated that the low self-injection rate, which meant more patients had to visit the hospital frequently, may be related to the short drug survival rate of adalimumab. In the present study, all patients who adopted self-injection were satisfied with the reduced number of required office visits, and the overall rate of satisfaction with self-injection of adalimumab was 71.4%. When considering patient satisfaction with fewer hospital visits afforded by self-injection of adalimumab, this practice seems to promote adherence to adalimumab. Although this study also identified the existence of patients who did not want to practice self-injection, we recommend giving patients the chance to choose self-injection with adequate information about self-injection in real world practice.

Eight of 49 patients who were not treated with biological agents declined the recommendation of biological agents by their doctors, and major reason was the high cost of biological agents. The cost efficacy of systemic treatments for psoriasis is an important topic,[1,15] and another important subject is comorbidity. It is known that patients with psoriasis are at risk of developing additional health problems, and biological agents are valuable therapeutic options for patients with many comorbidities [16]. Thus, providing information about the accumulating results of the efficacy of biological agents with respect to the reduction in comorbidity risk [17,18] may change the actions of patients with psoriasis.

### In Summary

More than 40% of our patients were unaware of biological agents. Despite complaints regarding the high cost for biological therapy, most patients who were treated with biological agents were satisfied with biological therapy. Self-injection was a good option for patients treated with adalimumab because the number of office visits could be reduced. Although biological agents are an expensive treatment option, information about the efficacy of these agents and re-

ductions in the risks of comorbidities with their use should be provided to all patients with psoriasis for consideration in their decisions regarding treatments recommended by their doctor.

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### Conflict of interest

None

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