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Changes in biologic treatment patterns for psoriasis before and after the COVID-19 pandemic in Japan; a single center retrospective study

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Dear Editors,

Biologic treatments for psoriasis have been available since 2010 in Japan, largely expanding treatment options [1]. Over the past decade, biologics have shown superior efficacy compared to conventional therapies. During the COVID-19 pandemic, clinical trial and real-world data indicated that biologics, particularly interleukin (IL)-17 and IL-23 inhibitors, did not increase the risk of COVID-19 or severe disease, supporting their favorable safety profile [2]. In this study, we retrospectively investigated changes in the initiation of biologic treatments for psoriasis by comparing the 5 years before and after the COVID-19 pandemic.

Our study included 82 patients who underwent biologics treatment for psoriasis for the first time using IL-17 or IL-23 inhibitors at the Department of Dermatology, Nihon University Itabashi Hospital, between June 2015 and July 2024. The types of psoriasis among the patients were as follows: 51 cases of plaque psoriasis (PsV) without psoriatic arthritis (PsA), 26 cases of PsA, and 5 cases of generalized pustular psoriasis. We did not include patients who initiated treatment with a tumor necrosis factor inhibitor because of very small numbers of such patients, with one in the pre-pandemic and zero in the post-pandemic groups among patients with PsV without PsA. This study was approved by ethical committee of Nihon University Itabashi Hospital (RK-250909-25). The *t*-test and Fisher's exact test were conducted using JMP 17pro software (SAS institute, USA) for comparison. *P* values of <0.05 were considered significant.

We classified patients into two groups based on whether their biologic treatments were initiated before or after March 2020 when the COVID-19 pandemic began. In the analysis comparing the pre-pandemic 5-year and post-pandemic 5-year initiation groups, the total number of patients who started biologics was larger in post-pandemic period than in pre-pandemic 5-year period. We also found that the percentage of female patients starting biologic treatments increased from 23.3% to 46.3% (Table 1). Interestingly, the mean Psoriasis Area and Severity Index (PASI) at the initiation of biologic treatments was significantly lower in the post-pandemic group than in pre-pandemic group (13.6 ± 8.2 in pre-pandemic group vs. 8.6 ± 5.5 in post-pandemic group, $p = 0.005$). In particular, the mean PASI of the female patients was much lower in the post-pandemic initiation group

TABLE 1 Demographics of the patients initiating biologics treatment for the first time.

All patients	Pre-pandemic initiation	Post-pandemic initiation	*p* value
Number of patients	30	52	
Number of patients with PsV without PsA/PsA/GPP	22/6/2	29/20/3	0.222
Female, n (%)	7 (23.3)	24 (46.2)	*0.040*
Onset age, years (mean ± SD)	37.6 ± 16.7	41.7 ± 17.9	0.323
Duration from onset to biologic treatment, years (mean ± SD)	17.0 ± 12.4	11.9 ± 9.1	*0.040*
Age at the initiation, years (mean ± SD)	56.0 ± 15.0	53.6 ± 15.0	0.474
Number of patients within 2 years of disease, n (%)	1 (3.6)	7 (14.0)	0.247
PASI score at the initiation (mean ± SD)	13.6 ± 8.2	8.6 ± 5.5	*0.005*
IL-17 inhibitors, n (%)	16 (53.3)	18 (33.3)	0.074
PsV without PsA			
Number of patients	22	29	
Female, n (%)	6 (27.3)	13 (41.9)	0.273
Onset age, years (mean ± SD)	35.9 ± 17.6	41.3 ± 18.0	0.299
Duration from onset to biologic treatment, years (mean ± SD)	17.5 ± 13.7	10.2 ± 7.9	*0.022*
Age at the initiation, years (mean ± SD)	55.4 ± 16.3	50.8 ± 16.0	0.313
Number of patients within 2 years of disease, n (%)	1 (5.0)	3 (10.4)	0.617
PASI score at the initiation (mean ± SD)	13.6 ± 9.1	8.8 ± 4.2	*0.022*
IL-17 inhibitors, n (%)	10 (45.5)	2 (6.5)	*0.002*
PsA			
Number of patients	6	20	
Female, n (%)	1 (16.7)	10 (50.0)	0.197
Onset age, years (mean ± SD)	36.8 ± 11.6	43.8 ± 18.0	0.386
Duration from onset to biologic treatment, years (mean ± SD)	17.5 ± 8.5	14.0 ± 10.2	0.458
Age at the initiation, years (mean ± SD)	54.3 ± 9.0	58.6 ± 13.3	0.472
Number of patients within 2 years of disease, n (%)	0	4 (22.2)	0.539
IL-17 inhibitors, n (%)	4 (66.7)	14 (70.0)	1.000

p values were calculated using t test and Fisher's exact tests. Italic indicates statistically significant values.
Abbreviations: PsV, psoriasis vulgaris; PsA, psoriatic arthritis; GPP, generalized pustulotic psoriasis; n, number of patients; SD, standard deviation; IL, interleukin.

compared to the pre-pandemic group (13.9 ± 10.6 in pre-pandemic group vs. 6.3 ± 4.0 in post-pandemic group, p = 0.013). Conversely, there was no difference in the mean PASI among male patients (13.5 ± 7.6 in pre-pandemic group vs. 10.4 ± 5.9 in post-pandemic group, p = 0.148). The mean disease duration of post-pandemic group was significantly shorter compared to pre-pandemic group not only in whole population but also in patients with PsV without PsA (p = 0.040 and p = 0.022, respectively). Such differences were not observed in PsA population.

Among PsV without PsA patients, the proportion of those who started IL-17 inhibitors was significantly lower in the post-pandemic group compared to the pre-pandemic group (45.5% in pre-pandemic group vs. 6.5% in post-pandemic group, p = 0.002). Similar tendency was observed in the breakdown of biologic therapy across the whole cases in which biologic treatments were newly started regardless of bio-naïve or bio-switch status (Supplementary Table S1). However, there was no significant difference among PsA patients in this sense.

The COVID-19 pandemic led to excessive fear of infections, treatment interruptions, social isolation, and economic hardship in patients with psoriasis [3]. Indeed, we experienced treatment discontinuation in a portion of patients with psoriasis during COVID-19 pandemic. To look at the opposite perspective of

psoriasis treatment, this study focused on the initiation of biologic therapy. We found a notable shift in the trends of biologic treatment for psoriasis after the COVID-19 pandemic. With growing awareness of the safety of biologics during COVID-19 pandemic, biologic treatment seems to have been well accepted by psoriasis patients even with milder disease and a greater proportion of female patients. Recent studies have demonstrated that early initiation of systemic therapy can reduce disease burden and lower the risk of developing psoriatic comorbidities [4, 5]. Therefore, aside from the influence of COVID-19 pandemic, our results may also reflect recently increasing recognition of the importance of early intervention. The established high efficacy and safety of biologics can offer improved quality of life and peace of mind, leading to patients' preference for biologic treatments regardless of their costs. Based on the data from COVID-19 pandemic-era, the American Academy of Dermatology reported that IL-17 and IL-23 inhibitors did not increase the risk of COVID-19 and suggested that biologics treatment should not necessarily be avoided even during outbreaks [2]. This increased perception of safety may have lowered the threshold for initiating biologic treatments, which may promote their use in patients with shorter disease duration and less severe symptoms. However, as this was a single-center study with a limited sample size, our findings may not be simply generalizable. Further large-scale studies are needed.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Ethics statement

The studies involving humans were approved by Nihon University Itabashi Hospital. The studies were conducted in accordance with the local legislation and institutional requirements. Written informed consent for participation was not required from the participants or the participants' legal guardians/next of kin because Retrospective observational study.

Author contributions

All authors listed have made a substantial, direct, and intellectual contribution to the work and approved it for publication.

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Conflict of interest

NI has received honoraria for speakers from AbbVie, Amgen, Asahi-Kasei, Eisai, Eli Lilly, Janssen, Kyowa-Kirin, Novartis, Maruho, Sun Pharma, Taiho, Taisho, and UCB. HF has received research grant or honoraria for speaker and/or consultancy from AbbVie, Amgen, Boehringer-Ingelheim, Bristol Myers Squibb, Eisai, Eli Lilly, Janssen, Kyowa Kirin, LEO, Mitsubishi Tanabe, Novartis, Maruho, Sanofi, Sun Pharma, Takeda, Torii, Taiho, and UCB.

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Supplementary material

The Supplementary Material for this article can be found online at: https://www.frontierspartnerships.org/articles/10.3389/jcia.2025.15613/full#supplementary-material

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