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CORRESPONDENCE

Drug survival rate of dupilumab in Japanese patients with atopic dermatitis

Dupilumab, a fully human monoclonal antibody which blocks signaling pathways of interleukin (IL)-4 and IL-13, was shown to be effective in treating patients with atopic dermatitis (AD) in daily practice.[1] There have been few studies on drug survival of dupilumab in AD patients in Western countries.[2–5] In this study, we investigated the drug survival rate of Japanese AD patients, reasons for drug discontinuation, and predictive parameters of drug survival.

This retrospective study included patients with moderate to severe AD aged 15 years and older, prescribed dupilumab at Nippon Medical School from April 2018 to July 2019, and observed for 12 months. The study was approved by the ethical committee of the Nippon Medical School. Drug survival was evaluated by Kaplan–Meier survival analysis using EZR.[6] Differences in characteristics between those who continued and discontinued dupilumab were determined using the chi-square test and *t*-test for categorical and continuous variables, respectively. A p value of <.05 was judged to be significant.

In all, 58 patients (78% male, age 38.8 ± 12.0 years [mean ± SD]) were prescribed dupilumab. The age at diagnosis, disease duration, and eczema area and severity index (EASI) were 8.6 ± 11.3 years, 30.2 ± 11.8 years, and 23.9 ± 7.4, respectively. Eight of the 58 patients discontinued dupilumab during the 12 months, and the overall probability of dupilumab survival at 12 months was 86.2% (Figure 1). The most frequent reason for dupilumab discontinuation was cancelation of a hospital visit for four patients (6.9%). The improvement rates of EASI at the last visits of these four patients were 97.4%, 96.4%, 86.5%, and 70.1%, respectively, indicating no treatment failure. The other four patients discontinued dupilumab

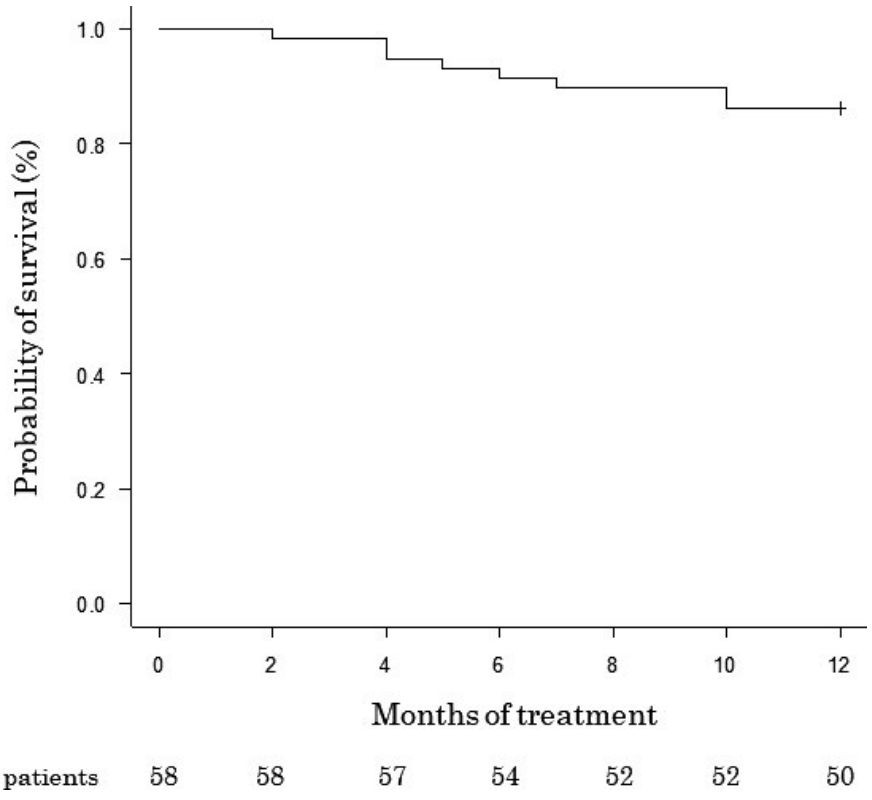

FIGURE 1 Cumulative probability of drug survival on dupilumab

due to a side effect (conjunctivitis), studying abroad, hoping for a baby, and needle phobia, respectively. Patients who continued dupilumab were older than that of those who discontinued it (40.4 ± 11.4 vs. 29.4 ± 11.9 years, $p < .05$), and the disease duration of those who continued was longer than that of those who discontinued (32.1 ± 11.4 vs. 18.5 ± 9.56 years, $p < .01$). Other characteristics analyzed (gender, age at diagnosis, and EASI) were not associated with drug discontinuation.

Four previous studies in Western countries disclosed that the drug survival rates for dupilumab in AD patients were 91% at 12 months, 82% at 16 months, 89% at 800 days (about 26 months), and 94% at 20 months, respectively.[2-5] Our study in Japan showed almost the same tendency of high drug survival rates for dupilumab. Dal Bello *et al.* reported that in patients who discontinued dupilumab the mean disease duration was 14.0 years, compared to 22.3 years in those who continued treatment ($p < .05$), which was confirmed by our study. AD patients who have longer disease duration seem to be more worried about the disease recurrence after the discontinuation of dupilumab than those who have shorter disease duration, explaining one of the reasons why the former have longer survival rates. Interestingly, all the 11 patients whose treatments were switched from cyclosporin continued dupilumab during the 12 months.

CONFLICT OF INTEREST

The author declares no conflicts of interest.

DECLARATION SECTION

Approval of the research protocol: Approved.
Informed Consent: Obtained.
Registry and the Registration No.: N/A.
Animal Studies: N/A.

Susumu Ichiyama[1]
Michiko Ito[1]
Toshihiko Hoashi[1]
Naoko Kanda[2]
Hidehisa Saeki[1]

[1]*Department of Dermatology, Nippon Medical School, Tokyo, Japan*
[2]*Department of Dermatology, Nippon Medical School Chiba Hokusoh Hospital, Chiba, Japan*

Correspondence
Hidehisa Saeki, Department of Dermatology, Nippon Medical School, 1-1-5, Sendagi, Bunkyo-ku, Tokyo 113-8603, Japan.
Email: h-saeki@nms.ac.jp

ORCID

Hidehisa Saeki https://orcid.org/0000-0002-1095-0355

REFERENCES

1. Matsutani M, Imai Y, Inoue Y, Hosotani Y, Kusakabe M, Natsuaki M,et al. Real-world use of dupilumab for 53 patients with atopic dermatitis in Japan. J Cutan Immunol Allergy. 2020;3:35–6.
2. Spekhorst LS, Ariëns LFM, van der Schaft J, Bakker DS, Kamsteeg M, Oosting AJ, et al. Two-year drug survival of dupilumab in a large cohort of difficult-to-treat adult atopic dermatitis patients compared to cyclosporine A and methotrexate: results from the BioDay registry. Allergy. 2020;75:2376–9.
3. Dal Bello G, Maurelli M, Schena D, Girolomoni G, Gisondi P. Drug survival of dupilumab compared to cyclosporin in moderate-to-severe atopic dermatititis patients. Dermatol Ther. 2020;33:e13979. https://doi.org/10.1111/dth.13979
4. Khosravi H, Zhang S, Anderson AM, Ferris LK, Choudhary S, Patton T. Dupilumab drug survival, treatment failure, and insurance approval at a tertiary care center in the United States. J Am Acad Dermatol. 2020;84:1023–4.
5. Pereyra-Rodriguez JJ, Dominguez-Cruz J, Ruiz-Villaverde R, Silvestre JF, Galán M, Curto L, et al. Drug survival of systemic and biological treatments for moderate-to-severe atopic dermatitis in adults: a multicentre retrospective observational study. Br J Dermatol. 2021;184(1):175–6. https://doi.org/10.1111/bjd.19428
6. Kanda Y. Investigation of the freely available easy-to-use software 'EZR' for medical statistics. Bone Marrow Transplant. 2013;48:452–8.

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