

Dermatologic Therapy / Early View / e15237

LETTER |  Full Access

Patient with atopic dermatitis, hyper IgE syndrome and ulcerative colitis, treated successfully with dupilumab during pregnancy

Inés Gracia-Darder , Jaime Pons De Ves, Miguel Reyero Cortina, Ana Martín-Santiago

First published: 01 December 2021

<https://doi-org.bibliosan.clas.cineca.it/10.1111/dth.15237>

Dear Editor,

We present a 28-year-old woman, diagnosed with Hyper immunoglobulin E syndrome (HIES) at 10 years old (the age of 10). Genetic variants in STAT3, DOCK8, TYK2 and PGM3 have been associated with increased HIES risk. Although the genetic study of our patient did not show mutations in these genes, clinically it was compatible and the HIES score calculated by NIH was 41 points (highly likely with a score of >40). The patient reported continuous outbreaks of severe atopic dermatitis (AD) from the first year of life that were accompanied by incoercible itching and multiple comorbidities: short stature, baby teeth retention, skin infections, pneumonia, asthma, rhinoconjunctivitis, food and pollens sensitization, and anxiety-depressive syndrome. She had also suffered from ulcerative colitis with a poor response to medical treatment with corticosteroids, mesalazine and infliximab, requiring finally a total colectomy when she was 24 years old. Very high levels of IgE stood out in the analysis, reaching a maximum value of IgE 59,200 IU/ml and eosinophilia 1910 cells/IU. Topical corticosteroids, topical calcineurin inhibitors, oral cyclosporine, oral corticosteroids, oral antibiotics, intravenous immunoglobulins, antihistamines and antidepressants had been used to treat her AD unsuccessfully. At 26 years old with a SCORAD of 62 (Figure [S1](#)) with a profound effect on quality of life (DLQI score of 28/30, NRS-itch 9/10 and NRS-sleep 9/10), she began treatment with dupilumab, maintaining the previous treatment with immunoglobulin replacement therapy every 14 days. In the following weeks there was a marked improvement in itching. At 16th week of treatment she had a SCORAD of 21/103, with a NRS-itch of 3/10. Slowly but progressively during the following months the skin lesions disappeared, as well as, the respiratory symptoms, while the digestive symptoms did not become worse. The unique adverse effect was an aggravation of ocular discomfort, which responded well to topical cyclosporine, and also, a transient increase of eosinophils. After 10 months of treatment, she got pregnant. Despite exposing the lack of information

about dupilumab on the fetus, the patient insisted on continuing with the biological treatment, giving birth to a healthy girl of normal weight and height without any abnormalities. IgE levels decreased to 4160 IU/ml while eosinophilia cut down to 960 cells/IU. There was not a reduction in the cutaneous efficacy of dupilumab during pregnancy. The patient chose not to breastfeed while receiving dupilumab.

Atopic dermatitis is a chronic, pruritic inflammatory skin disorder that affects patients of reproductive age and can worsen during pregnancy, being the most common gestational dermatosis.¹ In a normal pregnancy state, the balance between the T-helper Th1/Th2 cytokine response is altered; in order to prevent fetal rejection, the Th1 response decreases whereas the Th2 response becomes stronger. This adaptation is thought to increase the severity of AD. Systemic therapeutic options for AD during pregnancy include oral corticosteroids, azathioprine, cyclosporine, and phototherapy.²

There is a lack of knowledge about treatment with dupilumab during conception, neither there are studies to date on fertility, pregnancy, embryotoxicity, or on the consequences of breastfeeding. However, animal studies do not indicate direct or indirect harmful influence of dupilumab on reproduction.^{1, 3-5}

About 20 cases of pregnancy have been reported on dupilumab trials with no birth defects reported in the majority of cases. Three recently published case reports of pregnant patients with AD and treated with dupilumab depicted good outcomes for the patients and their babies (Table 1).^{2, 3, 6} One of the patients maintained the dupilumab treatment during the lactation with no adverse maternal or fetal outcomes observed.³

TABLE 1. Characteristics of the reported patients on the literature treated with dupilumab during pregnancy

Author	N of patients	Age	Diagnosis of AD	Comorbidities	Previous treatments	SCORAD/EASI/IGA pre-dupilumab	Months since dupilumab until pregnancy
Kage P et al ³	1	35	Since childhood	Allergic rhinoconjunctivitis and allergic asthma	TCS, SCS, UVB, cyclosporine	SCORAD 51.7	8

Author	N of patients	Age	Diagnosis of AD	Comorbidities	Previous treatments	SCORAD/EASI/IGA pre-dupilumab	Months since dupilumab until pregnancy
Mian M et	1	28	Lifelong history of	Hypertension and a small-for-	TCS, SCS, IIVR	IGA 4 (severe)	-

Note: Number (N), atopic dermatitis (AD), topical corticosteroids (TCS), systemic corticosteroids (SCS), ultraviolet-B phototherapy (UVB), methotrexate (MTX), topical calcineurin inhibitors (TCI), immunoglobulins intravenous (Igiv).

Three cases are reported on literature of HIES treated successfully with dupilumab. HIES is a rare immunodeficiency characterized by a high serum IgE level, atopic dermatitis, and recurrent cutaneous and lung infections. In all three cases, they stood out the great improvement in pruritus, skin lesions and cutaneous infections, and there was a remarkable decrease in IgE values, without significant difference in absolute eosinophil count.^{7, 8}

Although there is a publication mentioning one case of mimicking ulcerative colitis after 3 months of initiating dupilumab, it is contradictory if AD is independently associated with the development of inflammatory bowel disease. They are both Th2-dominant inflammations having a barrier dysfunction as a common risk factor involved in their pathology.⁹

To conclude, it is important to provide effective treatment to pregnant women with severe AD. Though there is insufficient data to ensure the safety of dupilumab during pregnancy, here it is reported a case where the safety was proven.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

AUTHOR CONTRIBUTIONS

Conception, Design, Acquisition of data, Analysis, Interpretation of data, Drafting the manuscript, Given final approval of the version to be published: Inés Gracia-Darder. *Acquisition of data, Analysis, Interpretation of data, Given final approval of the version to be published:* Jaime Pons De Ves. *Acquisition of data, Analysis, Interpretation of data, Given final approval of the version to be published:* Miguel Reyero Cortina. *Conception, Design, Acquisition of data, Analysis, Interpretation of data, Drafting the manuscript, Given final approval of the version to be published:* Ana Martín-Santiago.

Open Research



DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

Supporting Information



Filename	Description
dth15237-sup-0001-FigureS1.jpg JPEG image, 1.7 MB	Figure S1 A) Eczematous lesions of the patient, prior to starting dupilumab. It can be seen multiple confluent erythematous-brownish lichenified plaques on trunk, neck, and extremities. B) Improvement of cutaneous lesions at 16 weeks of treatment with a SCORAD of 15/103. C) Disappearance of lichenification after 40 weeks of treatment. At that time, the patient was already 5 weeks pregnant. D) The patient at 35 weeks of gestation, having been treated with dupilumab for 75 weeks with a SCORAD of 8/103

Please note: The publisher is not responsible for the content or functionality of any supporting information supplied by the authors. Any queries (other than missing content) should be directed to the corresponding author for the article.

REFERENCES



1 Bosma AL, Gerbens LAA, Middelkamp-Hup MA, Spuls PI. Paternal and maternal use of dupilumab in patients with atopic dermatitis: a case series. *Clin Exp Dermatol*. 2021; **46**: 1089-1092. doi:[10.1111/ced.14725](https://doi.org/10.1111/ced.14725)

[Wiley Online Library](#) | [CAS](#) | [PubMed](#) | [Web of Science®](#) | [Google Scholar](#)

2 Mian M, Dunlap R, Simpson E. Dupilumab for the treatment of severe atopic dermatitis in a pregnant patient: a case report. *JAAD Case Rep*. 2020; **6**(10): 1051- 1052. doi:[10.1016/j.jdcr.2020.08.001](https://doi.org/10.1016/j.jdcr.2020.08.001)

[Crossref](#) | [PubMed](#) | [Google Scholar](#)

3 Kage P, Simon JC, Treudler R. A case of atopic eczema treated safely with dupilumab during pregnancy and lactation. *J Eur Acad Dermatol Venereol*. 2020; **34**(6): e256- e257. doi:[10.1111/jdv.16235](https://doi.org/10.1111/jdv.16235)

[Wiley Online Library](#) | [CAS](#) | [PubMed](#) | [Web of Science®](#) | [Google Scholar](#)

4 Napolitano M, Ruggiero A, Fontanella G, Fabbrocini G, Patruno C. New emergent therapies for atopic dermatitis: a review of safety profile with respect to female fertility, pregnancy, and breastfeeding. *Dermatol Ther*. 2021 Jan; **34**(1):e14475. doi:[10.1111/dth.14475](#)

[Wiley Online Library](#) | [PubMed](#) | [Web of Science®](#) | [Google Scholar](#)

5 Hamilton JD, Suárez-Fariñas M, Dhingra N, et al. Dupilumab improves the molecular signature in skin of patients with moderate-to-severe atopic dermatitis. *J Allergy Clin Immunol*. 2014; **134**(6): 1293- 1300. doi:[10.1016/j.jaci.2014.10.013](#)

[Crossref](#) | [CAS](#) | [PubMed](#) | [Web of Science®](#) | [Google Scholar](#)

6 Lobo Y, Lee RC, Spelman L. Atopic dermatitis treated safely with dupilumab during pregnancy: a case report and review of the literature. *Case Rep Dermatol*. 2021; **13**(2): 248- 256. doi:[10.1159/000515246](#)

[Crossref](#) | [PubMed](#) | [Web of Science®](#) | [Google Scholar](#)

7 Su CJ, Tseng HC. Treatment efficacy of dupilumab in a hyper-immunoglobulin E syndrome patient with severe atopic dermatitis. *JAAD Case Rep*. 2021; **9**(11): 60- 62. doi:[10.1016/j.jdcr.2021.03.007](#)

[Crossref](#) | [Google Scholar](#)

8 Lévy R, Béziat V, Barbieux C, et al. Efficacy of dupilumab for controlling severe atopic dermatitis in a patient with hyper-IgE syndrome. *J Clin Immunol*. 2020; **40**(2): 418- 420. doi:[10.1007/s10875-020-00751-4](#)

[Crossref](#) | [PubMed](#) | [Web of Science®](#) | [Google Scholar](#)

9 Shimodaira Y, Takahashi S, Iijima K. Anti-IL-4Ralpha monoclonal antibody dupilumab mimics ulcerative colitis: a case report. *BMC Gastroenterol*. 2021; **21**(1): 207. doi:[10.1186/s12876-021-01803-8](#)

[Crossref](#) | [CAS](#) | [PubMed](#) | [Web of Science®](#) | [Google Scholar](#)

[Download PDF](#)

About Wiley Online Library

Privacy Policy

Terms of Use

Cookies

Accessibility

Publishing Policies

Help & Support

Contact Us
Training and Support
DMCA & Reporting Piracy

Opportunities

Subscription Agents
Advertisers & Corporate Partners

Connect with Wiley

The Wiley Network
Wiley Press Room

Copyright © 1999-2021 John Wiley & Sons, Inc. All rights reserved

