Effect of Abrocitinib and Dupilumab on the Incidence of Conjunctivitis in Patients With Atopic Dermatitis: An Analysis of Abrocitinib Randomized Controlled Phase 3 Studies

Eingun J. Song,[1] Sébastien Barbarot,[2] Julien Seneschal,[3] Meera R. Gupta,[4] Herwig Koppensteiner,[5] Haiyun Fan,[6] Claire Feeney[7,*]

[1]*Frontier Dermatology, Mill Creek, WA, USA;* [2]*Nantes Université and Department of Dermatology, CHU de Nantes, Nantes, France;* [3]*CHU de Bordeaux, National Reference Center for Rare Skin Diseases, Bordeaux, France;* [4]*Baylor College of Medicine and Texas Children's Hospital, Houston, TX, USA;* [5]*Pfizer Corporation Austria GmbH, Vienna, Austria;* [6]*Pfizer Inc., Collegeville, PA, USA;* [7]*Pfizer Ltd., Tadworth, Surrey, UK*

**Affiliation at the time of the study.*

BACKGROUND

- Atopic dermatitis (AD) is associated with an increased risk of conjunctivitis[1,2]
  - Conjunctivitis is also associated with interleukin (IL)-4 and IL-13 blockade[3]
- Patients with severe or widespread AD may require systemic therapies such as abrocitinib, an oral Janus kinase (JAK) 1-selective inhibitor, or dupilumab, an injectable IL-4 receptor alpha antagonist, to gain control of AD signs and symptoms[4]
  - Treatment with dupilumab is associated with an increased risk of conjunctivitis in patients with AD[5,6]

OBJECTIVE

- To evaluate the incidence of conjunctivitis among patients with AD treated with abrocitinib or dupilumab

METHODS

Study Design and Patients

- This post hoc analysis included data from adolescents (12 to <18 years) and adults (≥18 years) with moderate-to-severe AD who received abrocitinib (200 mg or 100 mg once daily) or placebo for 12 weeks in JADE MONO-1 (NCT03349060), MONO-2 (NCT03575871), and TEEN (NCT03796676)
  - Data were also included from adults (≥18 years) who received abrocitinib (200 mg or 100 mg once daily), dupilumab (300 mg biweekly), or placebo in JADE COMPARE (NCT03720470; 16 weeks) and DARE (NCT04345367; 26 weeks)
- Patients with a history of conjunctivitis and those with conjunctivitis reported as a treatment-emergent adverse event were included in this analysis and evaluated separately
- Treatment of concomitant medical conditions, including conjunctivitis, was permitted per protocol
  - Drugs with a potential for drug-drug interactions with the study drug were prohibited, including CYP2C9 and CYP2C19 inhibitors, and CYP2C9 inducers

Assessments

- Demographics and baseline disease characteristics were assessed for all patients in this analysis
- The incidence rate (IR) of treatment-emergent conjunctivitis by treatment group was evaluated per 100 patient-years (PY)
- Time to treatment-emergent (TE) conjunctivitis events were estimated by Kaplan-Meier analysis
- Severity and outcome of first TE conjunctivitis events were summarized

RESULTS

Demographics and Baseline Disease Characteristics

- Of 2627 patients, 244 (9.3%) had a history of conjunctivitis and 99 (3.8%) reported TE conjunctivitis (200 mg, 20/991; 100 mg, 13/647; dupilumab, 60/607; placebo, 6/382; **Table 1**)
- Compared with the overall population, patients with TE conjunctivitis were generally older with longer duration of disease and more severe AD; prior systemic therapies and head and neck erythema were also generally more frequent in patients with TE conjunctivitis (**Table 1**)
- Among patients with TE conjunctivitis events, numerically higher proportions did not have a history of conjunctivitis versus had a history of conjunctivitis across treatment groups: abrocitinib 200 mg (n=17 [85%] versus n=3 [15%]), abrocitinib 100 mg (n=9 [69.2%] versus n=4 [30.8%]), dupilumab 300 mg (n=53 [88.8%] versus n=7 [11.7%]), and placebo (n=4 [66.7%] versus n=2 [33.3%])

Table 1. Demographics and Baseline Disease Characteristics

	Placebo			Abrocitinib 100 mg QD			Abrocitinib 200 mg QD			Dupilumab 300 mg Q2W		
	History of Conjunctivitis (n=39)	TE Conjunctivitis (n=6)	All Patients (n=382)	History of Conjunctivitis (n=70)	TE Conjunctivitis (n=13)	All Patients (n=647)	History of Conjunctivitis (n=80)	TE Conjunctivitis (n=20)	All Patients (n=991)	History of Conjunctivitis (n=55)	TE Conjunctivitis (n=60)	All Patients (n=607)
Age, mean (SD), years	28.7 (14.8)	31.2 (14.7)	29.7 (15.5)	34.7 (15.7)	40.0 (14.2)	32.9 (16.0)	36.8 (15.2)	41.8 (12.7)	34.0 (15.8)	37.0 (12.2)	38.0 (12.4)	36.1 (13.8)
Sex, n (%)												
Female	15 (38.5)	3 (50.0)	165 (43.2)	30 (42.9)	7 (53.8)	298 (46.1)	32 (40.0)	4 (20.0)	469 (47.3)	31 (56.4)	24 (40.0)	295 (48.6)
Male	24 (61.5)	3 (50.0)	217 (56.8)	40 (57.1)	6 (46.2)	349 (53.9)	48 (60.0)	16 (80.0)	522 (52.7)	24 (43.6)	36 (60.0)	312 (51.4)
Race, n (%)												
Asian	11 (28.2)	4 (66.7)	98 (25.7)	13 (18.6)	2 (15.4)	151 (23.3)	21 (26.3)	7 (35.0)	226 (22.8)	12 (21.8)	6 (10.0)	129 (21.3)
Black or African American	1 (2.6)	0	21 (5.5)	1 (1.4)	0	39 (6.0)	0	0	56 (5.7)	1 (1.8)	0	40 (6.6)
White	26 (66.7)	2 (33.3)	245 (64.1)	56 (80.0)	11 (84.6)	448 (69.2)	59 (73.8)	12 (60.0)	677 (68.3)	40 (72.7)	53 (88.3)	424 (69.9)
Other[a]	0	0	18 (4.7)	0	0	9 (1.4)	0	1 (5.0)	32 (3.2)	2 (3.6)	1 (1.7)	14 (2.3)
Duration since onset of AD, mean (SD), years	23.2 (15.5)	17.2 (8.6)	18.9 (13.5)	28.4 (15.8)	38.5 (13.8)	20.9 (15.5)	25.9 (15.5)	28.3 (12.7)	21.8 (14.6)	28.1 (13.8)	32.8 (13.6)	23.6 (14.3)
IGA, %												
Moderate	56.4	66.7	63.6	50.0	38.5	63.2	58.8	35.0	61.8	65.5	65.0	62.9
Severe	43.6	33.3	36.4	50.0	61.5	36.8	41.3	65.0	38.2	34.5	35.0	37.1
EASI, median (Q1-Q3)	27.8 (20.1-39.0)	22.8 (21.8-26.9)	25.3 (20.0-37.2)	29.4 (21.1-44.3)	28.5 (18.6-51.2)	26.1 (19.9-38.3)	25.8 (20.2-35.1)	32.7 (25.7-48.0)	25.7 (19.8-36.6)	26.8 (19.2-31.6)	24.8 (20.1-38.5)	25.3 (19.6-35.2)
Baseline AD severity score, median (Q1-Q3)	32.5 (24.0-44.0)	28.0 (21.0-45.0)	27.0 (18.0-40.0)	36.0 (24.0-55.0)	32.0 (16.0-45.0)	28.0 (18.0-40.0)	33.0 (20.0-45.0)	28.0 (24.0-60.0)	27.0 (18.0-40.0)	32.0 (24.0-42.0)	30.0 (21.0-38.0)	27.0 (16.0-40.0)
Medication history, n (%)[b]												
No prior medication, n (%)	0	0	1 (0.3)	0	0	2 (0.3)	1 (1.3)	0	7 (0.7)	0	0	1 (0.2)
Prior systemic agents, n (%)	17 (43.6)	3 (50.0)	145 (38.0)	41 (58.6)	9 (69.2)	276 (42.7)	46 (57.5)	13 (65.0)	426 (43.0)	37 (67.3)	33 (55.0)	288 (47.4)
Nonbiologic agents	12 (30.8)	2 (33.3)	126 (33.0)	36 (51.4)	7 (53.8)	243 (37.6)	41 (51.3)	12 (60.0)	391 (39.5)	33 (60.0)	32 (53.3)	276 (45.5)
Corticosteroids	9 (23.1)	1 (16.7)	91 (23.8)	26 (37.1)	6 (46.2)	190 (29.4)	35 (43.8)	8 (40.0)	322 (32.5)	24 (43.6)	27 (45.0)	219 (36.1)
Cyclosporine	5 (12.8)	1 (16.7)	39 (10.2)	12 (17.1)	1 (7.7)	79 (12.2)	15 (18.8)	8 (40.0)	108 (10.9)	8 (14.5)	11 (18.3)	89 (14.7)
Other nonbiologic	2 (5.1)	1 (16.7)	32 (8.4)	12 (17.1)	1 (7.7)	54 (8.3)	4 (5.0)	2 (10.0)	65 (6.6)	6 (10.9)	8 (13.3)	59 (9.7)
Biologic agents	5 (12.8)	1 (16.7)	19 (5.0)	5 (7.1)	2 (15.4)	33 (5.1)	5 (6.3)	1 (5.0)	35 (3.5)	4 (7.3)	1 (1.7)	12 (2.0)
Dupilumab	2 (5.1)	0	11 (2.9)	5 (7.1)	1 (7.7)	21 (3.2)	4 (5.0)	0	15 (1.5)	0	0	0
Other biologic	3 (7.7)	1 (16.7)	8 (2.1)	0	1 (7.7)	13 (2.0)	2 (2.5)	1 (5.0)	22 (2.2)	4 (7.3)	1 (1.7)	12 (2.0)
Head and neck erythema at baseline, n (%)[c]	21 (53.8)	2 (33.3)	151 (39.5)	42 (60.0)	8 (61.5)	252 (38.9)	43 (53.8)	10 (50.0)	378 (38.1)	27 (49.1)	26 (43.3)	237 (39.0)
History of eye disorders, n (%)	32 (82.1)	2 (33.3)	57 (14.9)	63 (90.0)	4 (30.8)	92 (14.2)	61 (76.3)	4 (20.0)	155 (15.6)	45 (81.8)	11 (18.3)	98 (16.1)
History of concurrent allergic rhinitis, n (%)[d]	17 (43.6)	2 (33.3)	79 (20.7)	24 (34.3)	2 (15.4)	118 (18.2)	19 (23.8)	5 (25.0)	158 (15.9)	21 (38.2)	11 (18.3)	108 (17.8)
History of concurrent asthma, n (%)	24 (61.5)	4 (66.7)	141 (36.9)	34 (48.6)	7 (53.8)	229 (35.4)	36 (45.0)	6 (30.0)	343 (34.6)	25 (45.5)	30 (50.0)	228 (37.6)
History of allergic conjunctivitis, n (%)	32 (82.1)	2 (33.3)	32 (8.4)	59 (84.3)	4 (30.8)	59 (9.1)	56 (70.0)	2 (10.0)	56 (5.7)	44 (80.0)	6 (10.0)	44 (7.2)
History of eosinophilia at baseline, n (%)	0	0	3 (0.8)	0	0	5 (0.8)	0	0	6 (0.6)	1 (1.8)	1 (1.7)	6 (1.0)

AD, atopic dermatitis; EASI, Eczema Area and Severity Index; IGA, Investigator's Global Assessment; Q1, quartile 1; Q2W, once every 2 weeks; Q3, quartile 3; QD, once daily; TE, treatment-emergent.

[a]Other includes American Indian or Alaska Native, Native Hawaiian or Other Pacific Islander, multiracial, and race not reported.

[b]Within the systemic nonbiologic or biologic category, patients could be counted more than once for each medication type they had previously used. Background topical therapies started prior to first dose of study treatment in JADE COMPARE were not considered prior medications.

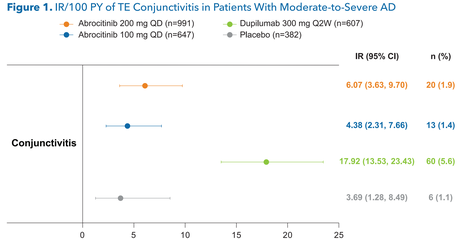
[c]Head and neck erythema at baseline defined as a 3 or 4 erythema score at head and neck (moderate to severe erythema) in according EASI score at baseline.

[d]History of concurrent allergic rhinitis: including patients with history or with concurrent events of rhinitis allergic.

Incidence of TE Conjunctivitis

- The IR/100 PY of TE conjunctivitis was higher in patients treated with dupilumab (17.92 [95% CI 13.53, 23.43]) versus abrocitinib 200 mg (6.07 [95% CI 3.63, 9.70]), abrocitinib 100 mg (4.38 [95% CI 2.31, 7.66]), and placebo (3.69 [95%CI 1.28, 8.49]) (**Figure 1**)

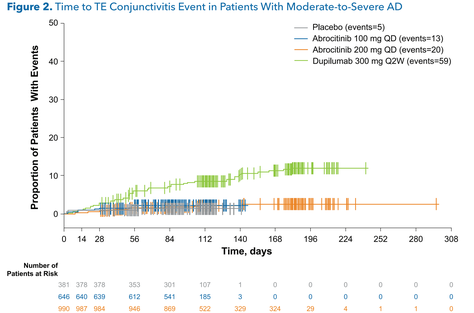
Figure 1. IR/100 PY of TE Conjunctivitis in Patients With Moderate-to-Severe AD



AD, atopic dermatitis; IR, incidence rate; PY, patient-years; QD, once daily; Q2W, once every 2 weeks; TE, treatment-emergent.

- Events of TE conjunctivitis occurred earlier in the dupilumab arm compared with the abrocitinib or placebo arms (**Figure 2**)
- Median time to event could not be estimated for any treatment arm because of low event rates

Figure 2. Time to TE Conjunctivitis Event in Patients With Moderate-to-Severe AD



AD, atopic dermatitis; Q2W, once every 2 weeks; QD, once daily; TE, treatment-emergent.

- All first TE conjunctivitis events were mild or moderate in severity, and the majority of patients recovered or had symptoms which resolved without requiring discontinuation of treatment (**Table 2**)
  - In the dupilumab-treated group, 1 patient discontinued the study due to TE conjunctivitis and 3 patients recovered, but with sequelae
  - In the abrocitinib-treated group, there were no reports of study discontinuation due to TE conjunctivitis or patients with sequelae following recovery (**Table 2**)

Table 2. Summary of Severity and Outcomes of First TE Conjunctivitis Event

n (%)	Placebo (n=6)	Abrocitinib 100 mg QD (n=13)	Abrocitinib 200 mg QD (n=20)	Dupilumab 300 mg Q2W (n=60)
Severity of first conjunctivitis event				
Mild	3 (50.0)	12 (92.3)	15 (75.0)	40 (66.7)
Moderate	3 (50.0)	1 (7.7)	5 (25.0)	20 (33.3)
Severe	0	0	0	0
Discontinuation due to conjunctivitis event				
Discontinued study	0	0	0	1 (0.1)
Discontinued study drug and continued study	0	0	0	0
Dose reduced or temporary discontinuation	0	0	0	0
Outcome of first conjunctivitis event				
Fatal	0	0	0	0
Not recovered/not resolved	0	3 (23.1)	5 (25.0)	15 (25.0)
Recovered/resolved	5 (83.3)	10 (76.9)	14 (70.0)	38 (63.3)
Recovered/resolved with sequelae	0	0	0	3 (5.0)
Recovering/resolving[a]	1 (16.7)	0	1 (5.0)	4 (6.7)
Unknown	0	0	0	0

Q2W, once every 2 weeks; QD, once daily; TE, treatment-emergent.

[a]Conjunctivitis had not yet fully recovered/symptoms had not resolved at the time of study completion.

CONCLUSIONS

- In patients who received abrocitinib, conjunctivitis events tended to occur in older patients with more severe AD and head and neck erythema
- The risk of conjunctivitis was higher and events tended to occur earlier in patients treated with dupilumab versus abrocitinib or placebo; risk and time to event were comparable between patients treated with abrocitinib or placebo
- TE conjunctivitis events tended to occur more often in patients without a history of conjunctivitis, compared with patients with a history of conjunctivitis, irrespective of the treatment arm
- This analysis was limited by short treatment duration and the small sample size of patients with TE conjunctivitis

REFERENCES

1. Wu KK et al. *J Dermatol Treat*. 2021;32(4):455-459.
2. Zhou W et al. *J Eur Acad Dermatol Venereol*. 2024;38(4):769.
3. Shi VY et al. *J Am Acad Dermatol*. 2023;89(2):309-315.
4. Davis DMR et al. *J Am Acad Dermatol*. 2024;90(2):e43-e56.
5. Zirwas M et al. *Br J Dermatol*. 2024;190(suppl_2):ii58-ii59.
6. Blauvelt A et al. *JAMA Dermatol*. 2021;157(9):1047-1055.
7. CIBINQO® (abrocitinib) tablets, for oral use. Prescribing information. Pfizer Inc.; 2022.
8. DUPIXENT® (dupilumab) injection, for subcutaneous use. Prescribing information. Regeneron Pharmaceuticals, Inc.; 2024.

ACKNOWLEDGMENTS

Editorial/medical writing support under the guidance of the authors was provided by Chantell Hayward, PharmD, of ApotheCom, San Francisco, CA, USA, and was funded by Pfizer Inc., New York, NY, USA, in accordance with Good Publication Practice (GPP 2022) guidelines (*Ann Intern Med*. 2015;163:461-464). Pfizer's generative artificial intelligence (AI)-assisted technology, MAIA (Medical Artificial Intelligence Assistant), was used in the production of he first draft of this poster. After using this tool/service, the authors reviewed and edited content as needed and take full responsibility for the content of this publication.

These studies were funded by Pfizer Inc.

CONTACT INFORMATION

Contact Meera Gupta at Meera.Gupta@bcm.edu for questions or comments

Copies of this poster obtained through this QR code are for your personal use only and may not be reproduced without permission from the authors.

Copyright © 2025. All rights reserved.