

Pathogenesis and Latest Therapy of Atopic Dermatitis

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Masutaka Furue, M.D., Ph.D.**

Update on KHK4083 October 4, 2021



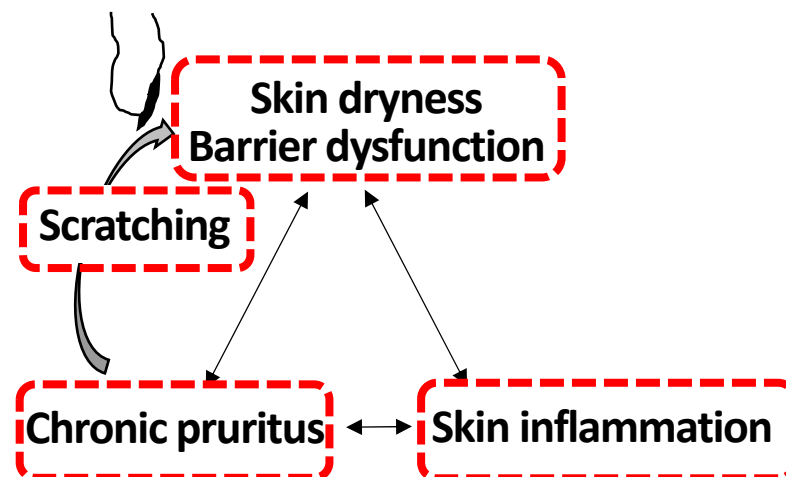
COI regarding the lecture

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- Lecture fee
- Commission fee for consultation, etc.

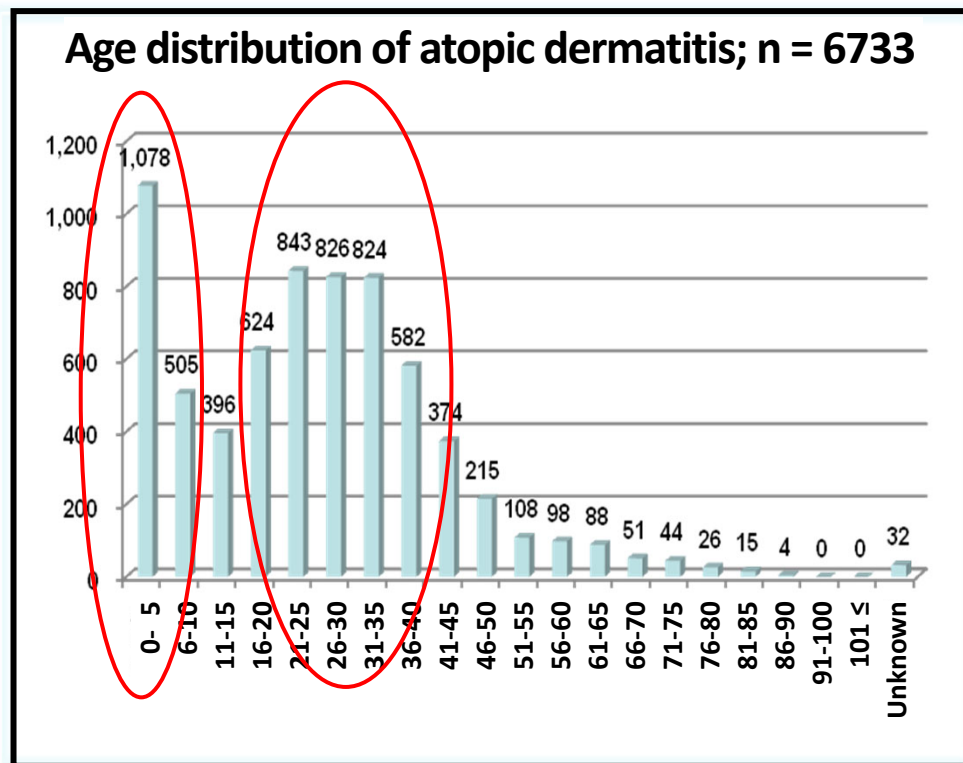
Top 20 prevalence of skin diseases in 67,448 patients

Rank	Name of Disease	67,448	
1	Miscellaneous eczema	12,590	18.67%
● 2	Atopic dermatitis	6,733	9.98%
3	Tinea pedis	4,379	6.49%
4	Urticaria/angioedema	3,369	4.99%
5	Tinea unguium	3,231	4.79%
6	Viral wart	3,028	4.49%
7	Psoriasis	2,985	4.43%
8	Contact dermatitis	2,643	3.92%
9	Acne	2,430	3.60%
10	Seborrheic dermatitis	2,213	3.28%
11	Hand eczema	2,024	3.00%
12	Miscellaneous benign skin tumors	1,666	2.47%
13	Alopecia areata	1,653	2.45%
14	Herpes zoster/zoster-associated pain	1,609	2.39%
15	Skin ulcer (nondiabetic)	1,334	1.98%
16	Prurigo	1,229	1.82%
17	Epidermal cyst	1,194	1.77%
18	Vitiligo vulgaris	1,134	1.68%
19	Seborreic keratosis	1,095	1.62%
20	Drug eruption/toxicoderma	1,018	1.51%
Total		57,557	85.34%

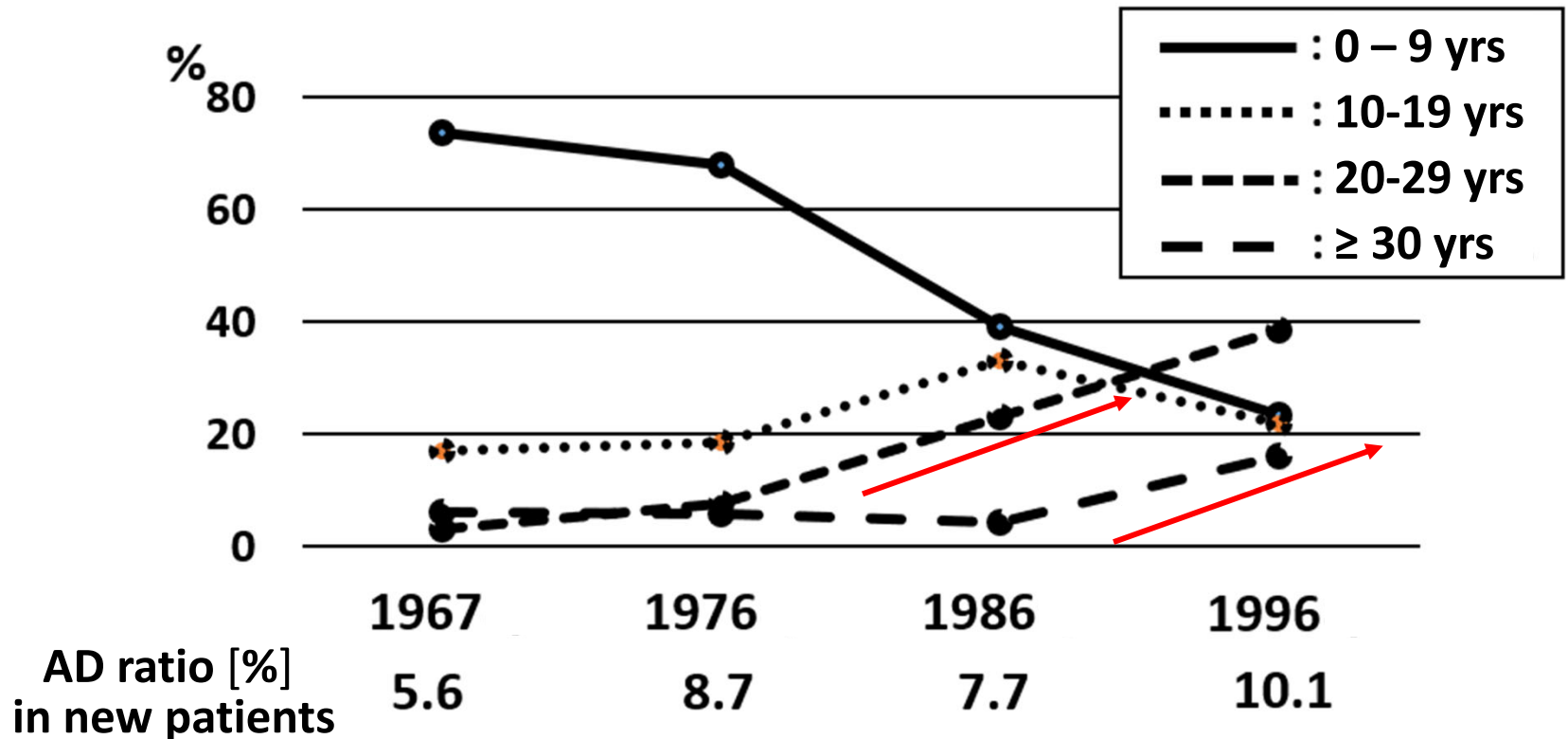


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Chronological age distribution of atopic dermatitis



Masutaka Furue, The Latest Treatment for Atopic Dermatitis, Gakushikai bulletin No.931, 115-120. 2018-IV

Dry skin, pruritic eczema, which expands to the whole body as the patient scratches

Although there were some picture images here,
they have been removed in this file.

Itchy and sleepless

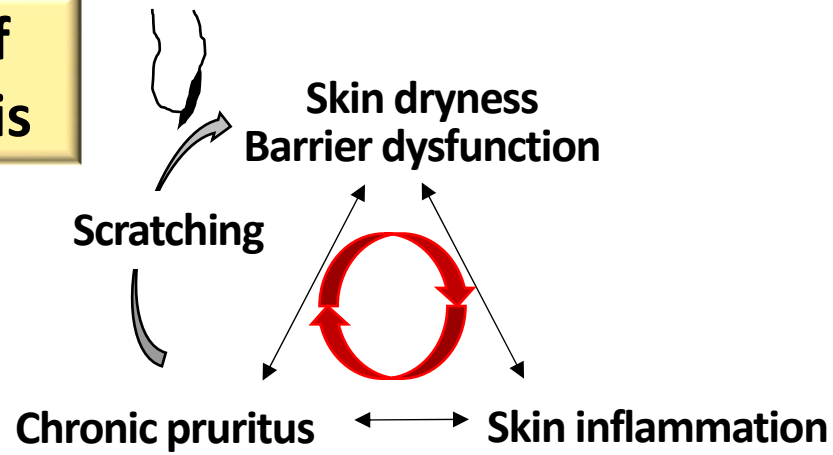
**Children's insomnia causes
parental insomnia**

**Difficulty in
attending school
Difficulty
in working**

**Not attending
school
Socially recluse**

Although there were some picture images here,
they have been removed in this file.

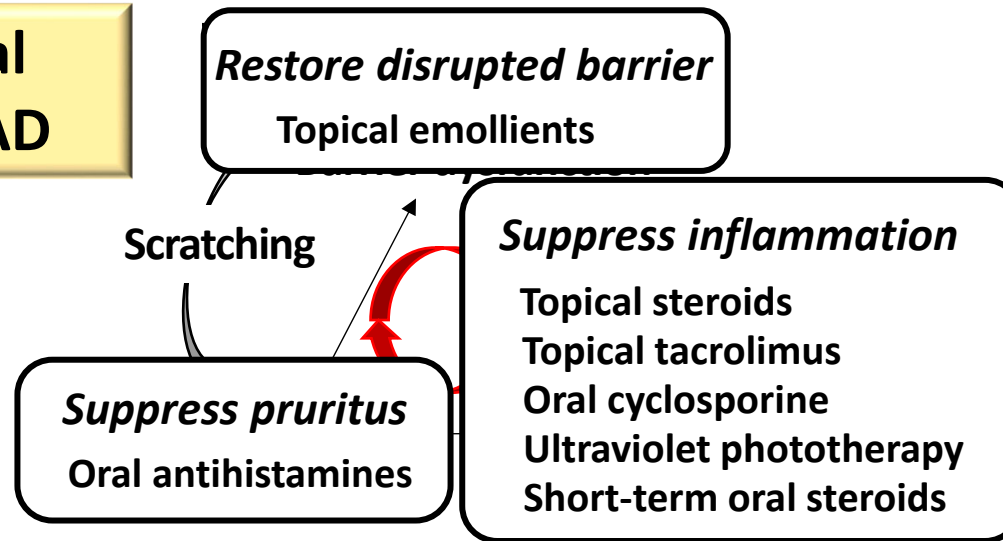
Pathogenesis of Atopic Dermatitis



Furue M, Furue M. J Clin Med. 2021;10:2578.

Furue M. J Clin Med. 2020;9:3741

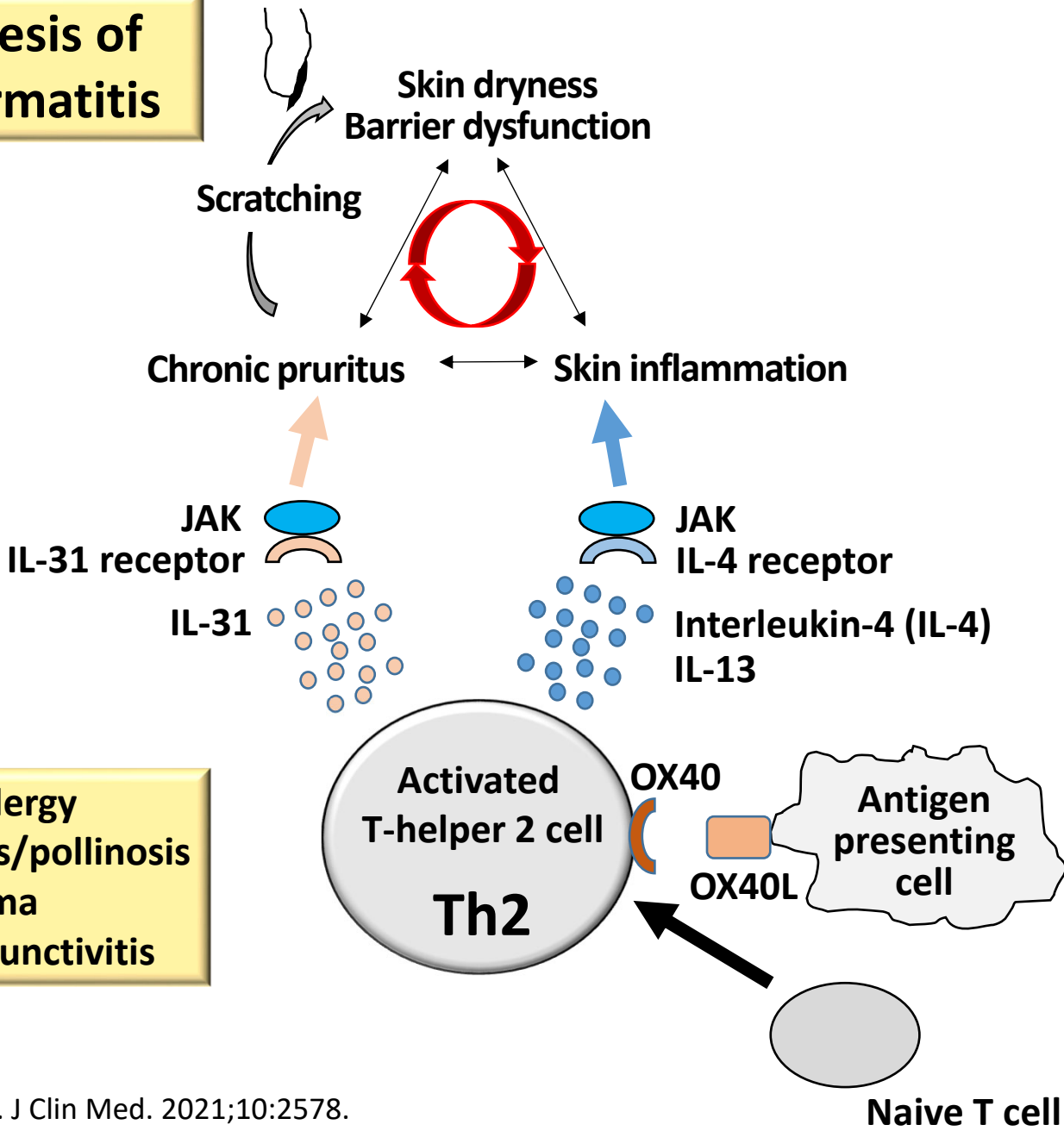
Conventional Therapy for AD



Furue M, Furue M. J Clin Med. 2021;10:2578.

Furue M. J Clin Med. 2020;9:3741

Pathogenesis of Atopic Dermatitis



- Food allergy
- Allergic rhinitis/pollinosis
- Asthma
- Allergic conjunctivitis

Furue M, Furue M. J Clin Med. 2021;10:2578.

Furue M. J Clin Med. 2020;9:3741

Latest Therapy for AD

Restore disrupted barrier
Topical emollients

Suppress inflammation
Topical steroids
Topical tacrolimus
Oral cyclosporine
Ultraviolet phototherapy
Short-term oral steroids

Suppress pruritus
Oral antihistamines

Topical/oral JAK inhibitors

Anti-IL-31R antibody
Nemolizumab

Topical/oral JAK inhibitors

Anti-IL-4R antibody
Dupilumab

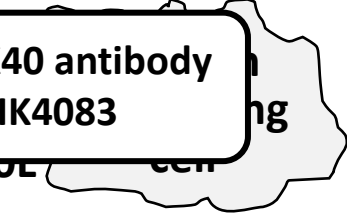
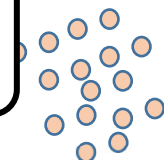
Activated T-helper 2 cell
Th2

Anti-OX40 antibody
KHK4083

Naive T cell

Atopic Dermatitis
Allergic rhinitis
Asthma
Food allergy
Eczema
Hives
Insect bite hypersensitivity
Urticaria

Scratching



Furie M, Furie M. J Clin Med. 2021;10:2578.

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Topical steroids



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Latest Therapy for AD

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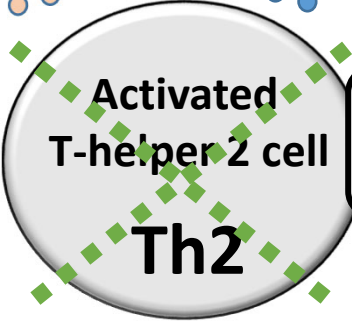
Topical steroids and tacrolimus are undoubtedly effective but do not specifically inhibit IL-4, IL-13, and IL-31 production. So, long-term and high-dose topical medications are required to control skin inflammation adequately, and there always is a side effect concern.

Topical/oral JAK inhibitors

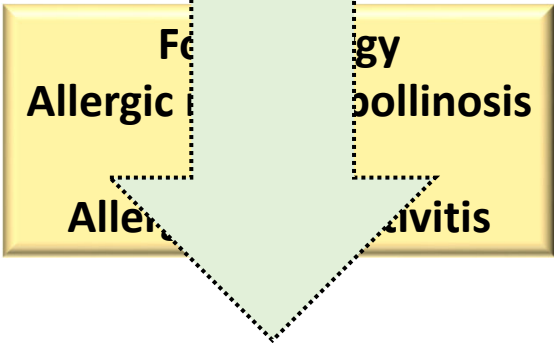
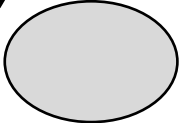
Anti-IL-31R antibody
Nemolizumab

Topical/oral JAK inhibitors

Anti-IL-4R antibody
Dupilumab



Anti-OX40 antibody
KHK4083



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Topical emollients

Scratching

Suppress pruritus
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Topical/oral JAK inhibitors

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Dupilumab

Allergic Fe...
Allergy
Allergic rhinitis
Allergic conjunctivitis

Activated
T-helper 2 cell
Th2

Anti-OX40 antibody
KHK4083

Anti-OX40 antibody therapy may drastically lower IL-4, IL-13, and IL-31 production by decreasing Th2 cells and may markedly suppress inflammation in AD. It may also reduce the volume of concomitant topical steroids or topical tacrolimus.

Naive T cell

Furie M, Furie M. J Clin Med. 2021;10:2578.

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Drug efficacy image of the latest therapy (personal opinion)

	Local skin inflammation		Systemic inflammation	
	IL-4/IL-13 axis inhibition	IL-31 axis inhibition	IL-4/IL-13 axis inhibition	IL-31 axis inhibition
Topical steroids	+	+	+	+
Topical tacrolimus	+	+	+	+
Oral steroids	+	+	+	+
Oral cyclosporin	+	+	+	+
Anti-IL-4R antibody	+	+	+	+
Anti-IL-31R antibody	+	+	+	+
Topical JAK inhibitors	+	+	+	+
Oral JAK inhibitors	+	+	+	+
Anti-OX40 antibody	+	+	+	+

Thank you for your attention

