Center, San Francisco, California[d]; Dell Seton Medical Center, University of Texas, Austin, Texas[e]; Department of Pediatrics, Taipei City Hospital Zhongxiao Branch, Taipei, Taiwan[f]; Division of General Internal Medicine, Brigham and Women's Hospital, Harvard Medical School, Boston, Massachusetts[g]; Tsaotun Psychiatric Center, Ministry of Health and Welfare, Nantou, Taiwan[h]; Department of Psychiatry, School of Medicine, National Yang-Ming University, Taipei, Taiwan[i]; Center for Neuropsychiatric Research, National Health Research Institutes, Zhunan, Taiwan[j]; University of Taipei, Taipei, Taiwan[k]; Department of Education and Research, Taipei City Hospital, Taipei, Taiwan[l]; Management Office for Health Data, China Medical University Hospital, Taichung, Taiwan[m]; College of Medicine, China Medical University, Taichung, Taiwan[n]; Department of Nuclear Medicine and Positron Emission Tomography Center, China Medical University Hospital, Taichung, Taiwan[o]; Department of Bioinformatics and Medical Engineering, Asia University, Taichung, Taiwan[p]; and Center of Augmented Intelligence in Healthcare, China Medical University Hospital, Taichung, Taiwan.[q]

Drs Chiu and Kao contributed equally to this article.

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Key words: herpes simplex virus; herpes viruses; HSV; HV; National Health Insurance Research Database; NHIRD; solid organ transplantation; SOT; varicella-zoster virus; VZV.

Reprint requests: Chia-Hung Kao, MD, Graduate Institute of Biomedical Sciences and School of Medicine, College of Medicine, China Medical University, No. 2, Yuh-Der Road, Taichung 404, Taiwan

E-mail: d10040@mail.cmuh.org.tw or dr.kaochiahung@gmail.com

Conflicts of interest

None disclosed.

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Atopic dermatitis and the risk of eating disorders: A population-based cohort study

To the Editor: Atopic dermatitis (AD) is a common chronic inflammatory skin disease that significantly impairs the quality of life of patients and their relatives[1] and is associated with mental disorders at any age.[2,3] Despite emerging knowledge of other comorbidities, no data on eating disorders (EDs) in patients with AD exist. We conducted this retrospective, nationwide, registry-based study to determine whether the risk of EDs is higher in AD patients than in the general population.

The Finnish Care Register for Health Care database was queried to extract all AD-diagnosed individuals between 1987 and 2018. Only patients

Table I. Characteristics of the study populations with and without atopic dermatitis

	Atopic dermatitis	Controls
N	70,584*	270,783†
Female	45.3%	48.3%
Male	54.7%	51.7%
Age at the onset of ED‡	16.4 (4.19)	16.1 (3.62)
Prevalence of food allergy	21,892 (31.0%)	3870 (1.43%)
Prevalence of ED by the age of 18 y	424 (0.6%)	938 (0.35%)
Prevalence of ED by the age of 30 y	542 (0.77%)	1275 (0.47%)

ED, Eating disorder.
*Excluding 499 individuals from the final study population with the diagnosis of atopic dermatitis recorded only once in the Finnish Care Register for Health Care.
†Excluding 299,217 individuals either with no records or with a recorded diagnosis of AD in the Finnish Care Register for Health Care.
‡Data were represented as years, mean (standard deviation).

under the age of 18 years at the time of the first AD diagnosis were included in the study population. A group of age- and sex-matched control individuals was derived from the Finnish Population Register Center database (Supplementary Methods, available via Mendeley at https://data.mendeley.com/datasets/gjh23tttfw/1.) The prevalence of preselected codes for EDs (Supplementary Table I, available via Mendeley at https://data.mendeley.com/datasets/gjh23tttfw/1) for both the cases and controls was analyzed, and their associations were evaluated using a logistic regression model.

A total of 70,584 individuals with a diagnosis of AD and 270,783 controls were included in the present study (Table I). In an adjusted model controlling for birth year, sex, depression, anxiety, and food allergy, the AD patients had higher odds of having any ED than the controls at the age of both 18 and 30 years. The highest association between AD and ED was found in relation to bulimia nervosa (adjusted odds ratio 2.31; 95% CI 1.54-3.48), followed by binge eating disorder (adjusted odds ratio 1.86; 95% CI 1.29-2.68) at the age of 18 years (Table II). It is of note that a high prevalence of food allergies in the AD population did not seem to explain the co-occurrence of AD and ED.

In the present study, we found a positive association between AD and ED. A negative cutaneous body image may be the link between AD and mental disorders[4] because both AD and ED have been shown to be associated with a disturbed body image, and negative attitudes toward weight, body, and eating are important factors influencing the onset and maintenance of EDs.[5] In addition, autoreactivity, defined as evidence of an immune response against self-antigens, may also play a role in the pathophysiology behind the association between AD and ED because immune dysregulation has been shown to be linked to both the disease entities.[1,4]

The main strength of our study is the high validity and completeness of the medical register data. We admit that our results need to be interpreted with caution because in large datasets, statistical significance may be seen with minor differences that are not clinically relevant. Additionally, we could not consider all confounding factors—eg, socioeconomic status—although E values suggested that unmeasured confounding is unlikely to explain the association (Supplementary Table I).

Our findings suggest that AD patients are at particular risk of concomitant ED. Hence, it is important to be aware of the cutaneous signs of hidden ED as well as discuss eating habits and possible anxiety related to food in patients with AD.

Saana Kauppi, MD,[a,b] Jari Jokelainen, MSc,[c] Markku Timonen, MD, PhD,[d] Kaisa Tasanen, MD, PhD,[a,b] and Laura Huilaja, MD, PhD[a,b]

From the PEDEGO Research Unit, University of Oulu,[a] Department of Dermatology and Medical Research Center Oulu, Oulu University Hospital,[b] Infrastructure for Population Studies, Faculty of Medicine,[c] and Unit of General Practice, Oulu University Hospital, and Center for Life Course Health Research, University of Oulu, Oulu, Finland.[d]

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Correspondence to: Laura Huilaja, MD, PhD, Department of Dermatology, Medical Research Center Oulu, University of Oulu, Aapistie 5A, FIN-90220 Oulu, Finland

E-mail: laura.huilaja@oulu.fi

Conflicts of interest

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Table II. Odds ratios of eating disorder diagnoses in study populations with and without atopic dermatitis

		By the age of 18y			By the age of 30 y		
Comorbidity	Group	N (%)	Crude OR (95% CI)	Adjusted OR (95% CI)*	N (%)	Crude OR (95% CI)	Adjusted OR (95% CI)*
All eating disorders	AD	424 (0.6)	1.74 (1.55-1.95)	1.31 (1.15-1.49)	542 (0.77)	1.64 (1.48-1.81)	1.25 (1.11-1.40)
	Controls	938 (0.35)	Reference	Reference	1,275 (0.47)	Reference	Reference
Anorexia nervosa	AD	214 (0.3)	1.54 (1.31-1.80)	1.15 (0.96-1.38)	266 (0.38)	1.47 (1.28—1.70)	1.09 (0.93-1.28)
	Controls	534 (0.2)	Reference	Reference	693 (0.26)	Reference	Reference
Bulimia	AD	45 (0.06)	2.79 (1.90-4.09)	2.31 (1.54-3.48)	90 (0.13)	1.75 (1.37-2.25)	1.58 (1.21-2.06)
	Controls	62 (0.02)	Reference	Reference	197 (0.07)	Reference	Reference
Binge eating disorder	AD	57 (0.08)	2.33 (1.68-3.24)	1.86 (1.29-2.68)	82 (0.12)	2.25 (1.71-2.95)	1.68 (1.25-2.27)
	Controls	94 (0.03)	Reference	Reference	140 (0.05)	Reference	Reference
EDNOS	AD	273 (0.39)	1.91 (1.65—2.21)	1.39 (1.17-1.63)	367 (0.52)	1.84 (1.62-2.08)	1.33 (1.16-1.53)
	Controls	549 (0.2)	Reference	Reference	769 (0.28)	Reference	Reference

AD, Atopic dermatitis; *EDNOS*, eating disorder not otherwise specified; *OR*, odds ratio.
*Adjusted for age, sex, depression, anxiety and food allergy.

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Dermatologic findings in individuals with Turner syndrome: A cross-sectional study across the lifespan

To the Editor: Turner syndrome (TS) is a common sex-chromosome—associated condition defined by complete or partial loss of 1 X chromosome.[1] Lymphedema, nail dysplasia, increased pigmented and halo nevi, and keloids have been previously reported in association with TS[1]; however, their frequencies have not been well defined. We sought to investigate cutaneous features associated with TS to better understand their prevalence and uncover possible karyotype-phenotype correlations.

In this study, we summarized the cutaneous features of 236 patients with karyotype-confirmed TS from a TS-specific clinic with integrated dermatology care (Supplementary Fig 1, available via Mendeley at https://doi.org/10.17632/d5n6m8wghs.1.) A cross-sectional chart review of Massachusetts General Hospital Turner Syndrome Clinic patients was conducted from June 1, 2010 to December 31, 2019. Dermatologic findings were extracted primarily from dermatology notes, with consensus between 2 researchers. Fisher's exact tests were used to compare frequencies between patients with 45,X monosomy and those with pooled non-monosomy karyotypes.

Table I summarizes the characteristics and karyotypes of the 236 individuals (mean age: 26.7 years; adult: 71.6%; 45,X monosomy: n = 79, 33.5%). Table II presents the dermatologic findings, including prevalence data on acne (n = 7, 3.0%), atopic dermatitis (n = 43, 18.2%), psoriasis (n = 21, 8.9%), alopecia areata (n = 7, 3.0%), and vitiligo (n = 5, 2.1%). Increased or prominent melanocytic nevi was the most observed dermatologic feature (n = 168, 71.2%; halo: 2, 0.8%). Seventeen (7.2%) individuals had keloids (7 on the head or neck, 4 on the trunk, 3 on extremities, 3 multisite, 4 unknown).[2] The keloids occurred after cardiothoracic surgery (3/17); neck webbing reduction (3/17); upper extremity fracture repair (2/17); skin biopsy, excision, or grafting (6/17); or ear piercing (3/17). Nail changes were common (hyperconvex: n = 63, 26.3%; dysplastic: n = 46, 19.5%). Lymphedema was reported in 64 (27.1%) patients; symptomatic lymphedema was more prevalent in the 45,X monosomy group than in the nonmonosomy group (29.1% vs