

Burden of Atopic Dermatitis in Infants/Preschoolers From EPI-CARE: An International Survey

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Word count: 654/700

Introduction: Atopic dermatitis (AD) is a chronic inflammatory skin disease often observed in early childhood; however, global AD-related burden in infants/preschoolers is not well understood. Improved knowledge of AD-related burden may be informative for disease management strategies. Here, we report on AD severity and outcomes in infants/preschoolers aged 6 months to <6 years in 18 countries from 5 regions, including North America, Latin America, Europe, Middle East/Eurasia, and East Asia, from the EPI-CARE study.

Methods: Designed to be representative of general pediatric populations (aged 6 months to less than 18 years), EPI-CARE is a cross-sectional, web-based survey conducted between September 2018 and December 2019. Eligible infants/preschoolers were identified as having “diagnosed AD” based on meeting all items of the International Study of Asthma and Allergies in Childhood criteria and parent/guardian-report of ever being told by a physician that their child had eczema. In addition, infants/preschoolers <6 years of age were required to meet two additional criteria: (1) itchy rash affecting the face (cheeks, forehead) at any time; and (2) affecting elbows to wrist or knee to ankle at any time. Parents/guardians answered all questions for infants/preschoolers aged <4 years. Preschoolers aged 4 to <6 years were asked to answer questions related to the impact of AD on their health-related quality of life (HRQoL) if the parents/guardians agreed to pass control to them; parents/guardians answered questions related to disease severity and outcomes. AD severity was assessed using Patient Global Assessment (PtGA), where parents/guardians described their child’s eczema severity over the last week as mild, moderate, or severe. Outcomes were stratified by geographic region and AD severity and included atopic comorbidities, worst itch/worst skin pain/overall sleep disturbance in the past 24 hours, (Numeric Rating Scale [NRS]; 0–10 higher scores

indicate worse severity), eczema-related hospitalization in the past 12 months, frequency and average duration of flares over the past month, HRQoL (Children's Dermatology Life Quality Index [CDLQI] or Infants' Dermatitis Quality of Life Index [IDQOL]; range, 0–30 [worst HRQoL]), and missed school days in the past 4 weeks (for preschoolers aged 4 to <6 years).

Results: Of 1,489 infants/preschoolers aged <6 years with diagnosed AD, the mean (standard deviation [SD]) age was 3.0 (1.6). According to PtGA-based AD severity, the majority (61.6%) had mild disease, and ≥ 1 atopic comorbidity was reported in 88.3%, 92.1%, and 95.8% of patients with mild, moderate, and severe AD, respectively (Table). Infants/preschoolers with moderate or severe AD had worse itch, skin pain, and sleep disturbances over the past 24 hours, compared with those with mild AD across regions (Table). The majority of infants/preschoolers with severe AD (54.1%) reported being hospitalized in the past 12 months (ranging from 30.2% to 71.3% across regions), as did large proportions of patients with moderate AD (35.0%) and mild AD (32.1%) (Table). More than half of severe AD infants/preschoolers also had >2 flares in the past month (50.6%) compared with smaller proportions of moderate (18.1%) and mild AD (6.3%) infants/preschoolers. In addition, 50.7% of severe AD infants/preschoolers had an average flare duration of ≥ 2 weeks, compared with smaller proportions of moderate (20.8%) and mild AD (10.0%) infants/preschoolers (Table). Higher CDLQI/IDQOL mean scores were observed with increasing AD severity across regions (Table). The majority (78.3%) of preschoolers aged 4 to <6 years missed at least 1 school day in the past 4 weeks, with a mean (SD) of 5.1 (5.7) days lost in mild AD, 7.3 (7.1) days in moderate AD, and 12.1 (7.8) days in those with severe AD.

Conclusions: Infants/preschoolers with AD experience a substantial disease burden across multiple domains, including atopic comorbidities, pruritus, sleep loss, hospitalizations, frequent prolonged flares, HRQoL, and school attendance. There was a trend of increased burden with more severe AD. Notably, infants/preschoolers with mild AD also experienced considerable burden. Daily and cumulative burden should be considered when assessing AD severity and therapeutic management plans for infants/preschoolers with the goal of improving their HRQoL and reducing impact in later life.

	All regions			North America			Latin America			Europe			Middle East/Eurasia			East Asia		
PtGA-based AD severity	Mild	Mod.	Severe	Mild	Mod.	Severe	Mild	Mod.	Severe	Mild	Mod.	Severe	Mild	Mod.	Severe	Mild	Mod.	Severe
Base	924	469	93	124	61	12	218	132	17	304	167	46	119	67	11	159	42	7
≥1 atopic comorbidity, %	88.3	92.1	95.8	81.6	84.5	87.9	95.8	97.1	100	79.4	83.0	97.3	96.8	99.2	94.0	74.8	84.9	100
Itch ^a , mean (SD)	3.9 (2.9)	5.6 (2.4)	7.8 (2.0)	3.2 (2.7)	4.8 (2.6)	7.7 (2.4)	4.4 (3.0)	6.1 (2.4)	8.0 (1.6)	3.6 (2.7)	5.4 (2.4)	7.6 (1.9)	4.3 (2.8)	5.5 (2.2)	8.5 (1.8)	2.9 (2.5)	5.7 (1.9)	6.7 (1.2)
Skin pain ^a , mean (SD)	3.8 (3.0)	5.3 (2.6)	7.5 (2.1)	2.9 (2.6)	4.1 (2.6)	6.2 (2.4)	4.5 (3.0)	5.9 (2.4)	8.4 (1.5)	3.4 (2.7)	5.3 (2.4)	7.2 (2.0)	4.3 (3.1)	5.4 (2.4)	8.5 (1.8)	2.5 (2.5)	4.2 (2.8)	6.8 (1.4)
Sleep disturbance ^a , mean (SD)	3.9 (3.0)	5.2 (2.6)	7.3 (2.4)	3.0 (2.7)	4.6 (2.6)	6.2 (2.3)	4.6 (3.1)	5.6 (2.6)	7.8 (1.9)	3.5 (2.7)	4.8 (2.5)	7.0 (2.6)	4.5 (2.9)	5.3 (2.1)	8.9 (2.0)	2.6 (2.7)	4.2 (2.6)	6.0 (2.4)
Hospitalization ^b in the past 12 months, %	32.1	35.0	54.1	23.7	18.6	30.2	42.1	53.6	71.3	19.2	21.1	48.8	48.4	24.3	65.9	7.7	11.3	49.1
>2 flares in the past month, %	6.3	18.1	50.6	18.1	30.6	62.5	2.6	9.5	43.2	4.9	22.3	46.9	2.5	16.6	64.9	6.2	38.2	33.0
Flare duration ≥2 weeks ^d , %	10.0	20.8	50.7	14.3	20.0	54.4	7.3	20.5	48.2	9.0	24.5	49.2	8.0	16.6	52.7	17.5	26.2	49.5
CDLQI ^d																		
Base	241	126	30	28	19	4	58	41	4	88	48	15	29	6	3	38	12	4
Mean (SD)	11.2 (8.3)	14.7 (7.4)	21.8 (6.5)	8.0 (8.2)	15.4 (7.4)	23.4 (6.0)	13.3 (7.6)	15.8 (7.4)	22.5 (2.9)	10.0 (7.9)	12.7 (7.0)	18.9 (6.8)	15.1 (8.2)	13.4 (3.9)	28.0 (2.4)	4.6 (4.7)	9.1 (6.6)	15.9 (7.6)
IDQOL ^e																		
Base	682	341	63	96	42	8	159	90	13	216	118	31	90	61	8	121	30	3
Mean (SD)	9.7 (7.3)	12.1 (6.0)	18.3 (8.0)	9.3 (7.2)	10.7 (4.3)	10.9 (6.1)	10.4 (7.7)	12.6 (6.7)	19.3 (8.3)	9.1 (7.1)	12.1 (6.3)	20.9 (6.4)	11.4 (6.5)	13.3 (4.8)	22.5 (5.9)	6.7 (5.9)	8.8 (5.4)	18.7 (4.5)

^aWorst instance as assessed by Numeric Rating Scale; 0–10 higher scores indicate worse severity

^bHospitalization due to eczema

^cAverage duration of flares in the past month

^dCDLQI was administered in preschoolers aged 4 to <6 years if parents/guardians agreed to pass control to their child

^eIDQOL was administered to parents/guardians of infants/preschoolers aged <4 years old and those aged 4 to <6 years old for whom parents/guardians did not agree to pass control

AD, atopic dermatitis; CDLQI, Children's Dermatology Life Quality Index; IDQOL, Infants' Dermatitis Quality of Life Index; Mod., moderate; PtGA, Patient Global Assessment; SD, standard deviation.

Acknowledgments and funding sources

This study was funded by Regeneron Pharmaceuticals, Inc. and Sanofi. Medical writing/editorial assistance was provided by Erin Burns-Tidmore, PhD, of Curo, a division of Envision Pharma Group, and funded by Regeneron Pharmaceuticals, Inc. and Sanofi.

Disclosures

SW: co-principal investigator of the German Atopic Dermatitis Registry TREATgermany, and has received institutional research grants from Novartis, Pfizer, L'Oreal and LEO; has performed consultancies for Sanofi-Genzyme, Regeneron, LEO Pharma, Incyte, and Novartis; has lectured at educational events sponsored by Sanofi-Genzyme, Regeneron, LEO Pharma, Abbvie and Galderma; and is involved in performing clinical trials with many pharmaceutical industries that manufacture drugs used for the treatment of psoriasis and atopic eczema. **ELS:** grants/research support from Amgen, Celgene, Chugai, Galderma, Genentech, Medimmune, Sanofi/Regeneron Pharmaceuticals, Tioga, Vanda, Lilly, and is a consultant for Anacor, Celgene, Galderma, Genentech, Medicis, Sanofi/Regeneron Pharmaceuticals, and Merck. **JIS:** consultant for and/or received grants/honoraria from AbbVie, AnaptysBio, Asana Biosciences, LLC, Eli Lilly and Company, Galderma Research & Development, LLC, GlaxoSmithKline, Glenmark Generics Inc., Kiniksa Pharmaceuticals, Ltd., Leo Pharma Inc., Medimmune, Menlo Therapeutics, Pfizer Inc., PuriCore, Inc., Regeneron, Sanofi. **SB:** research grants from Pierre Fabre Laboratory and Fondation pour la dermatite atopique; personal fees from Bioderma, Laboratoire La Roche Posay, Sanofi-Genzyme, Novalac, Ferring; and non-financial support from AbbVie, Novartis, Janssen. **ABR, LE, GBLB, JL, and CC** are employees of, and stockholders in, Sanofi. **LB** is an employee of Kantar Health, Paris, France, a company which received research funds from Sanofi/Regeneron Pharmaceuticals, Inc. during the conduct of the study. **AB** and **RBT** are employees of, and stockholders in, Regeneron Pharmaceuticals, Inc.