

Atopic dermatitis is associated with multiple behavioral problems in United States children

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Atopic dermatitis (AD) is a chronic, inflammatory skin disease associated with intense itch, sleep disturbance, psychosocial distress, and symptoms of anxiety and depression. All of these sequelae of AD may negatively impact the emotional health and social functioning in children, and ultimately lead to behavioral problems. We aimed to understand the association between AD and aberrant childhood behaviors. Data were analyzed from the Fragile Families and Child Wellbeing Study, a longitudinal birth cohort study of 4898 children in 20 US cities. AD was associated with the $\geq 75^{\text{th}}$ percentile of mean behavioral scores at 5 years (multivariable logistic regression; adjusted odds ratio [95% confidence interval]: 1.51 [1.18-1.93]), 9 years (1.62 [1.32-1.99]) and 15 years (1.44 [1.17-1.76]). There was significantly increased behavioral problems at age 15 when AD persisted at ages 5, 9 and 15 (Poisson regression; adjusted risk ratio [CI95]: 1.17 [1.01-1.35]), ages 5 and 15 (1.33 [1.08-1.63]) and ages 9 and 15 (crude risk ratio [CI95]: 1.27 [1.03-1.56]). AD was associated with 12 aberrant behaviors, particularly fighting (repeated measures logistic regression; adjusted odds ratio [CI95]: 1.40 [1.15-1.70]), physically attacking people (1.38 [1.09-1.76]), being sullen (1.31 [1.15-1.49]), worrying (1.41 [1.23-1.61]), and threatening others (1.35 [1.08-1.70]). AD at age 15 was associated with $\geq 75^{\text{th}}$ percentile of the CBCL subscales: anxious/depressed (aOR [CI95]: 1.44 [1.16-1.78]), withdrawn (1.40 [1.11-1.77]), attention problems (1.33 [1.09-1.63]), social problems (1.39 [1.13-1.72]) and aggressive (1.49 [1.22-1.82]). Significant two-way interactions were present between AD and sleep as predictors of underactivity (4.31 [3.06-6.08]), being threatening (aOR [CI95]: 3.42 [2.20-5.34]), being sullen (3.86 [2.74-5.43]) and nervousness (4.56 [3.29-6.32]). In conclusion, childhood AD, particularly persistent disease with sleep disturbances, was associated with a wide range of behavioral problems in US children and/or adolescents.

Key Words: atopic dermatitis; childhood behavioral checklist; aggressive; withdrawn; anxiety; depression; social problems; attention problems