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Authors
Kantor, Robert
Kim, Ashley
Thyssen, Jacob
et al.

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Abstract

Association of atopic dermatitis with tobacco smoke exposure: a systematic review and meta-analysis

Robert Kantor, BS¹, Ashley Kim, BS¹, Jacob Thyssen, MD, PhD² and Jonathan I. Silverberg, MD, PhD, MPH³,⁴

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¹Department of Dermatology, Northwestern University Feinberg School of Medicine, Chicago

²Department of Dermato-Allergology, Herlev and Gentofte University Hospital, Hellerup, Denmark.

³Departments of Dermatology, Preventive Medicine and Medical Social Sciences, Northwestern University Feinberg School of Medicine, Chicago

⁴Northwestern Multidisciplinary Eczema Center, Chicago

Previous studies found conflicting results about whether exposure to tobacco smoke is associated with increased atopic dermatitis (AD). We examined this association by systematic review and meta-analysis of MEDLINE, EMBASE, Scopus, and Cochrane Library and identified 86 studies, including 680,176 patients from 39 countries. A meta-analysis was performed using random-effects models to estimate pooled odds ratios (OR). Subset analyses were performed for different ages (children or adult), regions, study designs (cross-sectional vs. longitudinal), sizes (<5,000 or ≥5,000) and quality (Newcastle-Ottawa Score [NOS] <6 or ≥6), and amount of smoking (mild or extensive). Overall, 17,969 (12.9% [range 1.2–50.0%]) were active smokers, 33,200 (15.3% [range 0.9–56.8%]) were passively exposed to tobacco smoke in the home and 14,004 (15.4% [range 2.3–34.4%]) of children born to mothers who smoked during pregnancy, respectively, had a previous and/or current history of AD. Atopic dermatitis was associated with higher odds of active smoking (random-effects OR [95% CI]: 1.87 [1.32–2.63]) and exposure to passive smoke (1.18 [1.01–1.38]), but not maternal smoking during pregnancy (1.06 [0.80–1.40]). In sensitivity analyses, the association between active smoking and AD remained significant in children and adults, in all continents studied and study sizes, but all studies were cross-sectional designs and had a NOS score ≥6. Exposure to passive smoke was associated with AD in children and adults, cross-sectional studies, South/Central American and African studies, study size <5,000 and NOS <6. This study demonstrates that active smoking and passive exposure to smoke are associated with increased AD prevalence.