A Systematic Review and Meta-Analysis of The Association between Atopic Dermatitis and Hypertension

M Yousaf[1], M Ayasse[2], A Ahmed[1], E Gwillim[1], SR Janmohamed[1], KR Patel[1,3], JP Thyssen[4], JI Silverberg[5]

[1]Department of Dermatology, Feinberg School of Medicine, Northwestern University, Chicago, IL USA
[2]Department of Dermatology, George Washington University School of Medicine, Washington, DC USA
[3]Massachusetts General Hospital, Harvard Medical School, Boston, MA USA
[4]Department of Dermatology, Copenhagen University Hospital Herlev-Gentofte, Copenhagen, Denmark
[5]The George Washington University School of Medicine and Health Sciences, Washington, DC USA

Background: Atopic dermatitis (AD) is a chronic skin disease associated with increased tobacco use, systemic inflammation, and significant physical and emotional disability. It is unclear whether this translates into increased occurrence of hypertension among AD patients.

Objective: To determine whether hypertension is increased in people with AD, particularly moderate-severe AD.

Methods: A systematic review was performed of all published studies in MEDLINE, EMBASE, Scopus, Web of Science, and GREAT databases. All studies examining hypertension in AD patients were included. At least 2 reviewers conducted title/abstract, full-text review, and extraction. Pooled random-effects meta-analysis of the proportion of hypertension in patients with vs without AD was performed (I2=99.3%).

Results: Overall, 47 studies had sufficient data for meta-analysis and reported on prevalence of hypertension in AD and reference population, including 19 controlled studies. AD was associated with significantly higher odds of hypertension compared to healthy controls (n=9 of 16 studies; prevalence=18.1% vs. 15.3%; pooled odds ratio [95% confidence interval]=1.16; [1.04-1.30]; P<0.001]). However, AD was associated with significantly lower prevalence and odds of hypertension compared to psoriatic controls (6 of 8 studies; 15.4% vs. 24.9%; pooled odds ratio [95% confidence interval]=0.53; [0.37-0.76]; P<0.001]). In particular, moderate-to-severe and severe AD was associated with significant differences of hypertension (3 of 5 studies; 24.0% vs 13.9%; 2.46; [1.06-5.68]; P < 0.001), whereas mild AD was not associated with hypertension (0 of 3 studies; 17.9% vs 18.2%; 0.98; [0.83-1.15]; P=0.033).

Conclusion: AD, particularly moderate-to-severe AD, is associated with increased prevalence of hypertension compared to healthy controls, but lower prevalence than psoriasis.

This data will be presented at the American Academy of Dermatology 2020.