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Revisiting atopic dermatitis and cardiovascular disease

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In the June 2018 issue of *British Journal of Dermatology*, we wrote a commentary on the potential association (or lack thereof) between atopic dermatitis (AD) and cardiovascular disease.¹ Our commentary, which was in response to a meta-analysis of observational studies, noted that within the evidence to that point, there did not appear to be a consistent causal link.² However, we did maintain some skepticism given the flaws in many of the studies included in that meta-analysis. In particular, we felt that further studies using validated AD case definitions based on physician diagnosis with stratification by AD severity were warranted.

Since we penned that commentary, an important study has been published in the *British Medical Journal*,³ which used data from the UK Clinical Practice Research Datalink to investigate links between AD and cardiovascular outcomes. Importantly, they used a validated case definition (positive predictive value 82%) to define cases of AD. They were also able to explore some of the clinical details of patients' AD, including how active their disease had been (defined by their visits to physicians or prescriptions for AD) and how severe (defined by the treatments they were prescribed or whether they required a referral). In adjusted models they found findings in line with previous studies in the area: very modest or null associations between AD and myocardial infarction, unstable angina, heart failure, atrial fibrillation, stroke and cardiovascular death. However, in their analyses stratified by disease severity and persistence, effect estimates were generally increased among AD patients with

more severe and persistent disease. For example, severe and persistently active AD were each significantly associated with cardiovascular death (adjusted hazard ratio 1.47, 95% CI 1.19-1.81 and 1.16, 1.07-1.25 respectively).

It remains to be teased-out whether it is severe disease itself or treatments for severe AD, particularly systemic immuno-suppressive therapy, which drive that risk. In sum, Silverwood et al. have executed a well-conducted observational study.³ It does not necessarily trump all previous literature in the area, but it does suggest that particularly severe and persistent AD raises the risk of developing cardiovascular disease.

Reference

- 1 Drucker A, Flohr C. Atopic dermatitis and cardiovascular disease: have we seen enough to refute a causal link? *The British journal of dermatology* 2018.
- 2 Thyssen JP, Halling-Overgaard AS, Andersen YMF *et al.* The association between cardiovascular disease and type 2 diabetes in adults with atopic dermatitis: a systematic review and meta-analysis. *The British journal of dermatology* 2017.
- 3 Silverwood RJ, Forbes HJ, Abuabara K *et al.* Severe and predominantly active atopic eczema in adulthood and long term risk of cardiovascular disease: population based cohort study. *Bmj* 2018; **361**: k1786.