

Atopic dermatitis is associated with osteoporosis and osteopenia in older adults



To the Editor: Atopic dermatitis (AD) is associated with risk factors for osteopenia and osteoporosis, including corticosteroid usage, less physical activity,¹ and chronic inflammation. In a previous US population-based survey, the authors found that AD was associated with osteopenia and osteoporosis in adults.² However, when self-reported diagnoses are used in studies, results are subject to misclassification bias. In our study, we sought to confirm the associations of osteopenia and osteoporosis with AD in adults by using physician-diagnosed AD.

We used data from the 2006-2012 Nationwide Emergency Department Sample (NEDS) database and 2002-2012 National Inpatient Sample (NIS). NEDS and NIS are the largest all-payer emergency department and inpatient databases, respectively, containing a ~20%-stratified sample of all emergency department and inpatient visits, respectively, in the United States. AD (691.8), osteoporosis (733.0x), and osteopenia (733.9) were identified by using the primary or secondary International Classification of Disease, Ninth Revision, Clinical Modification codes.

Data processing and statistical analyses were performed by using SAS version 9.4 (SAS Institute, Cary, NC). Multivariable logistic regression models were constructed with osteopenia or osteoporosis as the dependent variable and AD as the independent variable. Age, sex, race/ethnicity (white, nonwhite), insurance (private, government, self-pay, no charge, other) and household income quartile were included as covariates. A 2-tailed *P* value <.05 indicated statistical significance. Approval by the Northwestern University institutional review board was waived for this study.

A total of 61,065,660 and 44,425,777 encounters for persons aged ≥50 years were present in NEDS and NIS, respectively. AD was associated with a higher odds of osteoporosis in NEDS (adjusted odds ratio [aOR] 1.31, 95% confidence interval [CI] 1.12-1.54) and NIS (aOR 1.25, 95% CI 1.24-1.26) and osteopenia in NEDS (aOR 1.86, 95% CI 1.36-2.55) (Table 1). In sensitivity analyses among persons aged ≥70 years, AD was likewise associated with higher odds of osteoporosis in NEDS (aOR 1.37, 95% CI 1.12-1.67) and NIS (aOR 1.24, 95% CI 1.22-1.25) and osteopenia in NEDS (aOR 1.84, 95% CI 1.20-2.82). Some chronic outpatient disorders might not be well-documented in the emergency department or inpatient setting, which could lead to an underestimation the true effect-size of these associations.

These results confirm previous studies that found a higher risk for osteoporosis and osteopenia among US adults with AD.² In a study in Taiwan, adult AD was found to be associated with a 4-fold increased risk for osteoporosis, particularly in women, older persons, and those who had depression and used corticosteroids.³ In 1 study, low lumbar spine bone mineral density was found in patients using moderate-to-high potency topical corticosteroids.⁴ Unfortunately, we could not examine the impact of corticosteroids because past and current medication use are not available in NEDS or NIS. In another study, adults with moderate-severe AD were found to have high rates of osteopenia and osteoporosis.⁵ Taken together, AD patients aged ≥50 years might particularly benefit from increased screening for osteoporosis and osteopenia. AD patients should be encouraged to increase their physical activity, maintain adequate weight-bearing activities, and intake adequate amounts of calcium and vitamin D. Older AD patients might be particularly vulnerable to the harmful effects of high-potency topical and systemic corticosteroids on bone mineral density.

In conclusion, AD is associated with osteoporosis and osteopenia in older adults. Further studies are needed to confirm these findings, determine their major risk factors, determine the role of systemic steroids and other medications, and identify optimal strategies to reduce these comorbidities.

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Table I. Pooled multivariate analysis of association of atopic dermatitis with osteoporosis and osteopenia in 2006-2012 Nationwide Emergency Department Sample and 2002-2012 Nationwide Inpatient Sample

Variable	Age, y	National Emergency Department Sample				Atopic dermatitis				Nationwide Inpatient Sample			
		No. n (%)	Yes, n (%)	aOR (95% CI)	P value	No. n (%)	Yes, n (%)	aOR (95% CI)	P value	No. n (%)	Yes, n (%)	aOR (95% CI)	P value
Osteoporosis	≥50	1,537,839 (2.52)	236 (2.57)	1.31 (1.12-1.54)	.0008	2,113,599 (5.05)	164,872 (6.38)	1.25 (1.24-1.26)	<.0001	164,872 (6.38)	164,872 (6.38)	1.25 (1.24-1.26)	<.0001
Osteopenia	≥50	264,851 (0.43)	64 (0.70)	1.86 (1.36-2.55)	.0001	2,255 (0.01)	133 (0.01)	0.86 (0.71-1.04)	.1121	133 (0.01)	133 (0.01)	0.86 (0.71-1.04)	.1121
Osteoporosis	≥70	1,173,036 (4.64)	163 (5.91)	1.37 (1.12-1.67)	.0022	1,644,675 (7.47)	106,765 (10.11)	1.24 (1.22-1.25)	<.0001	106,765 (10.11)	106,765 (10.11)	1.24 (1.22-1.25)	<.0001
Osteopenia	≥70	172,510 (0.68)	33 (1.20)	1.84 (1.20-2.82)	.0052	992 (0.0045)	53 (0.005)	1.018 (0.75-1.38)	.9082	53 (0.005)	53 (0.005)	1.018 (0.75-1.38)	.9082

Values that are statistically significant are in bold.
aOR, Adjusted odds ratio; CI, confidence interval.

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High prevalence of clinical spondyloarthritis features in patients with hidradenitis suppurativa



To the Editor: Hidradenitis suppurativa (HS) is associated with several comorbidities, including possibly spondyloarthritis.¹ Spondyloarthritis is a group of interrelated chronic autoinflammatory rheumatic conditions.² A spondyloarthritis diagnosis is based mainly on the presence of spondyloarthritis features, which includes spinal (axial) features sacroiliitis and spondylitis, peripheral features, such as peripheral arthritis, enthesitis, and dactylitis; and the extra-articular manifestations uveitis, psoriasis, and inflammatory bowel disease.² The probability of spondyloarthritis increases with the presence of more spondyloarthritis features.²

Two recent studies showed a higher prevalence of spondyloarthritis in the HS population than in the general population (~1%), but the reported prevalence rates have a wide range of 2.3%-28.2%.²⁻⁴

A cross-sectional study was performed to investigate the prevalence of self-reported clinical spondyloarthritis features in HS patients and to identify patients' characteristics associated with the presence of spondyloarthritis features. A questionnaire was developed on the basis of the Assessment of SpondyloArthritis international Society axial (back pain for ≥3 months, age of onset <45 years) and peripheral (peripheral arthritis, enthesitis, or dactylitis) spondyloarthritis entry classification criteria and other clinical spondyloarthritis features (past or present). When applicable, the spondyloarthritis questions were illustrated with colored prototypical pictures. The questionnaire was sent to all adult patients with a billing code for HS assigned, between 2010 and 2016, by a dermatologist or dermatology resident of 2 Dutch tertiary HS referral centers.