for UC or CD in patients treated with these agents is warranted.

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Increased risks of autoimmune rheumatic diseases in patients with psoriasis: A nationwide population-based study

To the Editor: Accumulated evidence suggests overlapping pathophysiology between psoriasis and autoimmune rheumatic diseases (ARDs).[1] Recent genome-wide association studies revealed that psoriasis and ARDs shared genetic susceptibilities.[1] Also, some targeted therapies are used for psoriasis, rheumatoid arthritis (RA), and ankylosing spondylitis (AS).[2] However, there has been a lack of studies on the association of psoriasis and individual ARDs in a large population. We conducted a nationwide, population-based, cross-sectional study to investigate the association between psoriasis and various ARDs by using the Korean National Health Insurance (NHI) claims database (diagnoses according to the *International Classification of Diseases, 10th Revision*).

The case group was defined as all patients who had seen a physician for a principal diagnosis of psoriasis (L40) at least 3 times between 2009 and 2013. An age- and sex- matched control group was randomly selected from among individuals without psoriasis. The outcome of interest was concurrent ARDs identified by a documented principal diagnosis of each disease at least 3 times during the study period: AS (M45), RA (M05 and M06), Behçet disease (M352), systemic lupus erythematosus (SLE) (M32), Sjögren syndrome (M350), systemic sclerosis (SSc) (M34), and dermatomyositis/polymyositis (DM/PM) (M33). Multivariable logistic regression analyses were used to evaluate the association between psoriasis and each ARD with adjustment for age, sex, and insurance type. Sensitivity analyses were performed by changing the number of visits required for enrollment from 1 to 5. Subgroup analyses were also conducted by sex and age group (<40, 40-59, and ≥60 years).

A total of 267,230 patients with psoriasis and 267,230 controls without psoriasis were included. The mean age was 45.59 plus or minus 17.87 years, and a slight male predominance (57.3%) was observed. Psoriasis was significantly associated with 6 of the 7 ARDs (Table I): AS (odds ratio [OR], 2.418), RA (OR, 1.947), Behçet disease (OR, 1.212), SLE (OR, 1.448), SSc (OR, 2.410), and DM/PM (OR, 2.303). In the subgroup analyses, male patients with psoriasis showed higher associations with AS, RA, SLE, SSc, and DM/PM than female patients did (Fig 1). The results did not change substantially with the number of visits (sensitive analyses). The OR was largest with RA in patients who were younger than 40 years and with SLE in patients at least 60 years old, respectively.

The findings of the present study were consistent with those of the previous reports. In an Italian hospital–based study, patients with psoriasis (N = 502) had the strongest association with rheumatic diseases.[3] Another retrospective cohort study in the United States showed that patients with

Table I. Prevalence rates for each autoimmune rheumatic disease in patients with and without psoriasis

			Univariable analyses		Multivariable analyses	
Patient diseases	**Prevalence rate***		**Crude OR (95% CI)**	***P* value**	**Adjusted OR (95% CI)†**	***P* value**
Ankylosing spondylitis						
Controls	100.3	(268/267,230)	Reference		Reference	
Patients with psoriasis	253.0	(676/267,230)	2.526 (2.193-2.910)	<.001	2.418 (2.097-2.789)	<.001
Rheumatoid arthritis						
Controls	101.0	(270/267,230)	Reference		Reference	
Patients with psoriasis	203.6	(544/267,230)	2.017 (1.743-2.334)	<.001	1.947 (1.680-2.256)	<.001
Behçet disease						
Controls	64.4	(172/267,230)	Reference		Reference	
Patients with psoriasis	80.5	(215/267,230)	1.250 (1.023-1.528)	.029	1.212 (1.016-1.474)	.036
Systemic lupus erythematosus						
Controls	48.6	(130/267,230)	Reference		Reference	
Patients with psoriasis	73.7	(197/267,230)	1.516 (1.214-1.891)	<.001	1.448 (1.158-1.810)	.001
Sjögren syndrome						
Controls	44.9	(120/267,230)	Reference		Reference	
Patients with psoriasis	51.6	(138/267,230)	1.150 (0.900-1.469)	.263	1.115 (0.871-1.428)	.387
Systemic sclerosis						
Controls	10.5	(28/267,230)	Reference		Reference	
Patients with psoriasis	25.8	(69/267,230)	2.465 (1.589-3.824)	<.001	2.410 (1.550-3.749)	<.001
Dermatomyositis/polymyositis						
Controls	9.4	(25/267,230)	Reference		Reference	
Patients with psoriasis	22.1	(59/267,230)	2.360 (1.478-3.768)	<.001	2.303 (1.439-3.686)	<.001

CI, Confidence interval; *OR*, odds ratio.
*Per 100,000 population.
†Adjusted for age, sex, and insurance type.

psoriasis (N = 25,341) were at increased risk for RA, SSc, Sjögren syndrome, and SLE.[4] In this study, we showed that Korean patients with psoriasis (N = 267,230) were more likely to have AS, RA, Behçet disease, SLE, SSc, and DM/PM than were individuals who did not have psoriasis.

Our study had a few limitations. First, personal detailed information (such as smoking status, disease onset, disease severity, and duration of disease) was lacking. Second, selection bias may have existed. Third, confounder adjustment was limited to only a few variables. Lastly, the database inherently has diagnostic errors. However, we sought to assess the associations in the real world.

In conclusion, we showed an association between psoriasis and each ARD by using the Korean NHI claims database. The association of psoriasis and AS, SS, and DM/PM was increased by more than 2 times. Males showed a stronger association with psoriasis than females did. Further studies are needed to confirm our findings.

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