RESEARCH LETTER

Criteria to identify patients with atopic dermatitis in the National Health Insurance data in Korea

To the Editor: Many researchers have conducted studies about atopic dermatitis, using health insurance data.[1] Although atopic dermatitis diagnostic codes are usually used to select patients with the disease from the health insurance data, they may be inaccurate. In the Korean National Health Insurance system, certain treatments must have an atopic dermatitis code, allowing the treatment covered by the insurance. Therefore, to use the data in this database, a validation must be conducted to exclude patients with just atopic dermatitis codes who are not validated atopic dermatitis patients.

Three dermatologists and 2 dermatology residents reviewed charts of patients who visited the National Medical Center dermatology clinic from January 1, 2016, to December 31, 2018. The institutional review board approved this study.

We evaluated the presence of validated atopic dermatitis, atopic dermatitis codes, and atopic dermatitis–related tests. The diagnosis of atopic dermatitis was made according to the Hanifin-Rajka criteria. The atopic dermatitis codes used were as follows: other atopic dermatitis, atopic dermatitis, unspecified (L20.8, L20.9). The atopic dermatitis–related tests used were as follows: total immunoglobulin E, specific immunoglobulin E, skin-prick test, and skin intradermal test. A total of 12,678 patients' charts were reviewed. There were 293 validated atopic dermatitis patients and 12,385 patients who had atopic dermatitis codes but were not validated atopic dermatitis patients. Three hundred nine subjects were randomly selected from the 12,385 subjects without atopic dermatitis for analysis. The subjects were divided into 4 groups: 1 with 2 diagnostic codes (group A), 1 with 1 diagnostic code and 1 atopic dermatitis–related test code (group B), 1 with 1 diagnostic code and 2 atopic dermatitis–related test codes (group C), and 1 with 1 code and 3 or more atopic dermatitis–related test codes (group D). Each group was analyzed for sensitivity, specificity, positive predictive value, and negative predictive value for predicting actual atopic dermatitis. Specificity was the same in all groups. The positive predictive value was highest in group C. The results are shown in Table I.

Table I. Sensitivity, specificity, positive predictive value, and negative predictive value of each group

Groups	Sensitivity (%)	Specificity (%)	Positive predictive value (%)	Negative predictive value (%)
2 AD codes (group A)	3	99	90	52
1 AD code + 1 AD laboratory code (group B)	30	99	96	60
1 AD code + 2 AD laboratory codes (group C)	29	99	98	59
1 AD code + 3 or more AD laboratory codes (group D)	11	99	97	54

AD, Atopic dermatitis.

Previous studies in the United Kingdom reported that the positive predictive value was 86% when 1 atopic dermatitis code and 2 atopic dermatitis–related treatment codes were used.[2] These criteria were not considered appropriate because Korean physicians assign diagnostic codes for treatment purposes. In addition, studies conducted in the United States showed that if only 1 or 2 diagnostic codes were present, it was not sufficient to screen atopic dermatitis patients.[3] A high positive predictive value was associated with other allergic diseases.[3] The presence of other allergic diseases may not be accurate for studies conducted in a single institution, as was this study. Therefore, we evaluated whether the use of atopic dermatitis–related tests would more accurately identify validated atopic dermatitis patients. The results showed that group C most appropriately identified validated atopic dermatitis patients because the positive predictive value was highest; therefore, we recommend group C as a criterion.

Limitations include that this was a retrospective study conducted at a single institution. We used immunoglobulin E tests, so intrinsic atopic dermatitis could have been missed. Furthermore, sensitivity and negative predictive value were low. Therefore, it

is necessary to develop more appropriate validation criteria that increase sensitivity and specificity.

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