A clinical prediction rule containing 6 variables accurately predicted hypersensitivity pneumonitis


**QUESTION**
In patients presenting with a pulmonary syndrome, does a clinical prediction rule for hypersensitivity pneumonitis (HP) accurately predict which patients have HP?

**DESIGN**
2 cohort studies, 1 for derivation and 1 for validation.

**SETTING**
7 clinical sites in Canada, France, Germany, Spain, Finland, Japan, and Mexico.

**PATIENTS**
661 patients who were ≥ 18 years of age (mean age 55 y, 56% women), presented with a pulmonary syndrome that could be HP; did not have stage 1 sarcoidosis or a previous diagnosis of HP; and were not referred for therapeutic evaluation of a known interstitial disease. The derivation set had 400 patients, and the validation set contained 261 patients.

**DESCRIPTION OF PREDICTION GUIDE**
Logistic regression was used to compare the clinical characteristics of patients with and without HP for 18 variables.

**MAIN OUTCOME MEASURE**
Detection of HP. A diagnosis of HP was made on the basis of bronchoalveolar lavage lymphocytosis and bilateral ground-glass or poorly defined centrilobular nodular opacities on high-resolution computed tomography (HRCT). If these tests failed to yield a final diagnosis, then clinicians could use other procedures according to their usual practice. If a diagnosis was still not reached, then patients had a surgical lung biopsy. A committee (4 clinicians, 1 pathologist, and 1 radiologist) adjudicated the final diagnoses.

**MAIN RESULTS**
6 predictors of HP were identified: exposure to a known antigen, positive precipitating antibodies to the offending antigen, recurrent episodes of symptoms, inspiratory crackles on physical examination, symptoms occurring 4 to 8 hours after exposure, and weight loss (Table). For the derivation group, the area under the receiver-operating characteristic (ROC) curve was 0.93 (95% CI 0.90 to 0.95). The threshold showing the most appropriate tradeoff between sensitivity and specificity was a probability for HP of 45% (sensitivity 86%, CI 79 to 92; specificity 86%, CI 81 to 90). Results for the validation group were similar (area under the ROC curve 0.90, CI 0.87 to 0.94). The observed proportion of patients with HP was similar to the predicted proportion in both the derivation and validation groups.

**CONCLUSION**
In patients presenting with a pulmonary syndrome, a clinical prediction rule containing 6 variables was accurate for predicting hypersensitivity pneumonitis.

**REFERENCE**

The patients with HP in this study overwhelmingly had either farmer lung or bird fancier disease, the most common forms of HP. Not surprisingly, the most important predictor of HP was exposure to a known offending antigen, with an odds ratio of 38.8. However, > 300 causative agents have been identified, and the number continues to grow. Clearly, where a previously recognized offending agent is not present, a diagnosis of HP may only be considered after the pathologic characteristics or HRCT raises the possibility. In patients where a recognized antigen other than a common one is present, the usefulness of the clinical prediction rule remains to be tested.