Biomarkers + patient-reported outcomes up prediction of interstitial cystitis

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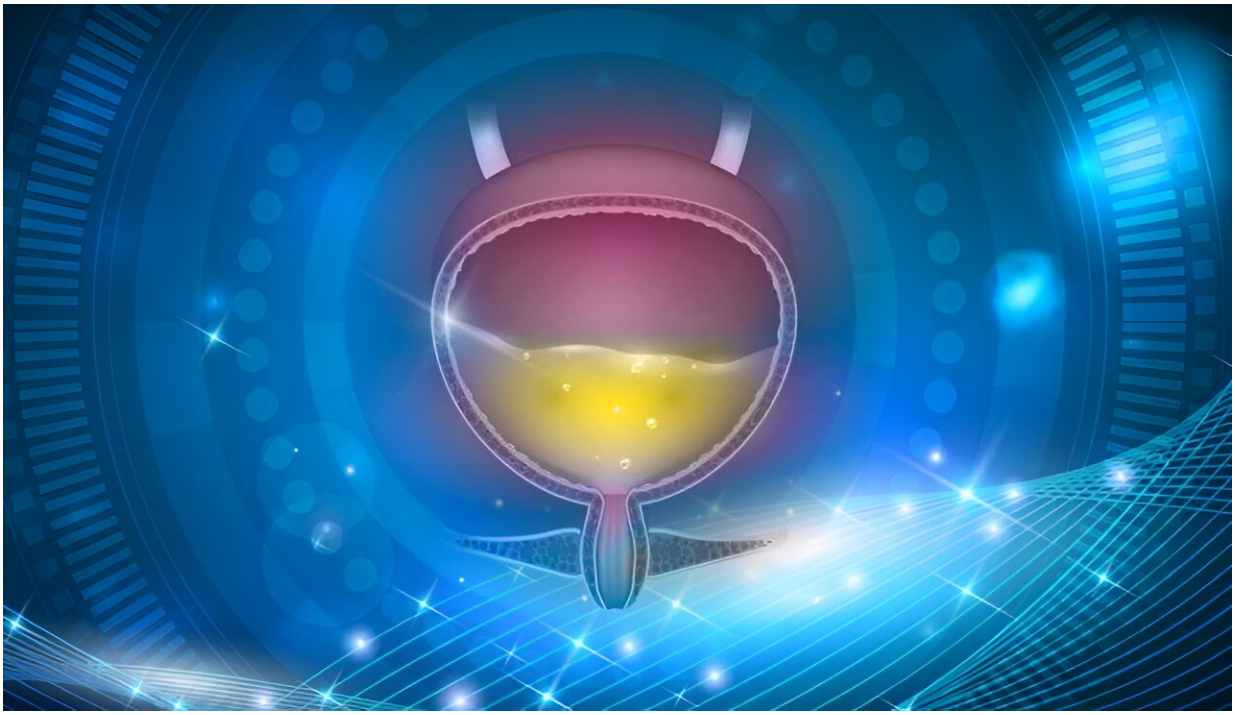

The integration of biomarkers and patient-reported outcomes (PROs) improves prediction of interstitial cystitis (IC)/bladder pain syndrome, according to a study published online April 24 in *Urology*.

Laura E. Lamb, Ph.D., from the Oakland University William Beaumont

School of Medicine in Rochester, Michigan, and colleagues generated a machine learning predictive classification model (the Interstitial Cystitis Personalized Inflammation Symptom score), which uses PRO and cytokine levels, and then compared it to a challenger model.

The machine learning model was based on 1,264 urine samples (536 IC and 728 age-matched controls) with corresponding PRO pain and symptom scores and 296 urine samples (78 IC and 218 controls) from three academic centers.

The researchers found that the top-performing model using biomarker measurements and PROs was a support vector classifier and had an area under the curve (AUC) of 0.87; the model offered better IC prediction than PROs alone (AUC, 0.83). Biomarkers alone did not exhibit strong predictive performance (AUC, 0.58).

"Our study demonstrates its effectiveness in accurately distinguishing individuals with nonulcerative or ulcerative IC from both normal asymptomatic controls and other bladder-centric confusable disorders, surpassing the capabilities of traditional PROs alone," the authors write.

One author disclosed ties to Stata Oncology; several authors have intellectual property associated with methods for diagnosing IC.

More information: Laura E. Lamb et al, Risk Classification for Interstitial Cystitis/Bladder Pain Syndrome (IC/BPS) Using Machine Learning Based Predictions, *Urology* (2024). DOI: 10.1016/j.urology.2024.03.043