

# A Novel Two-step Model Combining CT Bladder Wall Thickening and Urine Biomarkers Predicts IC/BPS Treatment Response – Separating Bladder-Centric Inflammation from Systemic pain.

Min-Ching Liu, Yu-Shuang Lee, Tsung-Yi Lin, Tian-Lin Chang,  
Wan-Ru Yu, Yuan-Hong Jiang, Hann-Chorng Kuo  
Department of Urology, Hualien Tzu Chi Hospital & Tzu Chi University,  
Hualien, Taiwan

## BACKGROUND & PATIENT SELECTION

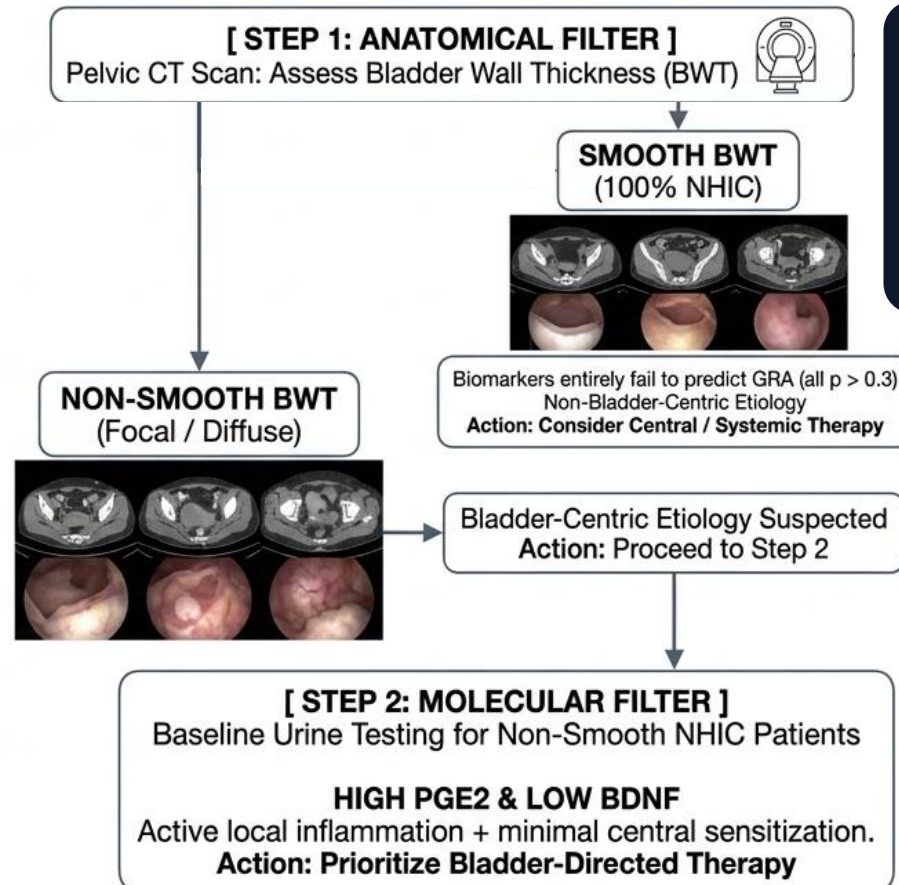
- Interstitial cystitis/bladder pain syndrome (IC/BPS) is highly heterogeneous, requiring shifting from static diagnosis to dynamic outcome prediction.
- **Study cohort (N=149):** 149 cystoscopy-proven IC/BPS patients (123 NHIC, 26 HIC).
- **Outcome:** Global Response Assessment (GRA > 1: Favorable Responder vs. GRA ≤1: Poor Responder).

## ROC Performance for Predicting GRA > 1

In non-smooth NHIC

| Biomarker              | AUC   | Cut-off  | Sensitivity | Specificity | p-value |
|------------------------|-------|----------|-------------|-------------|---------|
| BDNF                   | 0.683 | ≤ 0.530  | 76.5%       | 64.3%       | 0.019   |
| PGE2                   | 0.727 | ≥ 46.61  | 70.6%       | 71.4%       | 0.050   |
| Combined (BDNF + PGE2) | 0.758 | ≥ -0.678 | 76.5%       | 75.0%       | <0.05   |

## Two-Step Diagnostic Flowchart



## KEY CLINICAL TAKEAWAY

**Non-smooth BWT with High PGE2 & Low BDNF:** Prioritize local bladder-directed therapies.

**Smooth BWT:** Avoid futile bladder-centric treatments; consider central neuromodulation or systemic therapies early in the disease course.