Automated AI classification reduces diagnostic variability in uroflowmetry.

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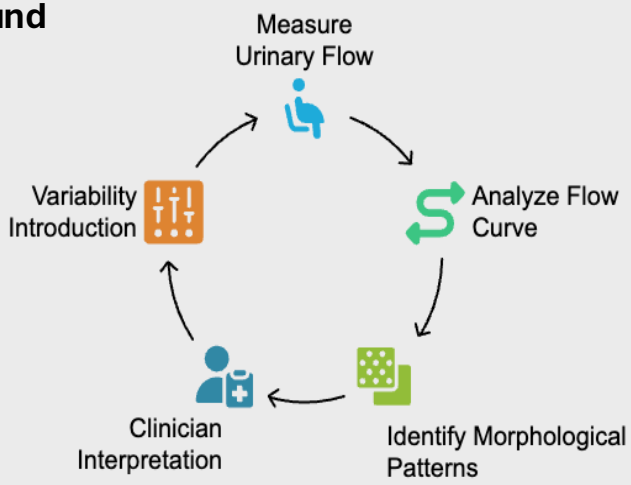
AI-Based Platform for Automated Uroflowmetry Curve Morphology Classification

Background



This study aimed to **develop** an **AI-based platform** for **automated** classification of **uroflowmetry curve morphology.**

Methods

- **50 uroflowmetries** were interpreted by a single urologist (25 female, 25 male).
- Voided volume <150 or >500 mL = equivocal.
- Curves classified: **continuous** (bell-shaped) vs. **non-continuous** (all other morphologies).
- A platform was developed to automatically classify uroflowmetry curves.
- Frequency analysis generated 112 features per curve, used to train a machine-learning classifier.

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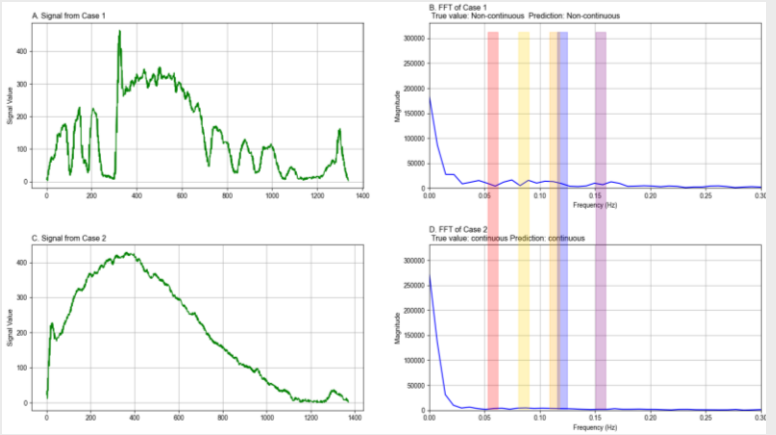
Results

Extracted uroflow signals and frequency patterns for AI classification



- **Low-frequency** components (0.02–0.13 Hz) were crucial for **identifying non-continuous morphologies.**
- **F1-score 75%**

Implications

- **AI reduces variability** in uroflowmetry interpretation and provides quantitative, objective analysis.
- **Potential for clinical practice:** AI can support routine evaluation of flow-volume alterations and decision-making.
- **Future direction:** include other uroflowmetry parameters to develop a comprehensive AI-based uroflowmetry assessment.