

## INTRODUCTION

Urodynamic studies (UDS) are an integral diagnostic test in urology. The use of artificial intelligence (AI) in healthcare has shown great potential, with a growing body of evidence of superiority in the fields of radiology and pathology. This study aims to compare the interpretation of UDS traces using ChatGPT to expert human interpretation. In addition, treatment plan formulation by ChatGPT will be compared to experts.

## METHODS

We conducted a prospective observational study that included patients aged 18–85 who underwent UDS between March and September 2024.

### Data Provided to ChatGPT:

- Demographics & presenting symptoms
- Blinded UDS printouts

### ChatGPT Analyse:-

Filling phase: Bladder Capacity (BC), Compliance, Leakage, Sensation, uninhibited detrusor contraction (UDC), and EMG

Voiding phase: Voided volume (VV), Qmax, and Pdet@Qmax.

Additionally, the calculated bladder contractility index (BCI) and the bladder outlet obstruction index (BOOI).

**ChatGPT** was prompted to generate a diagnosis and management plan based on the provided data and the data analyzed.

The interpretation of UDS data, diagnosis, and management plans generated by ChatGPT was compared with those of two expert urologists, and concordance was assessed using percentage agreement, with concordance defined as exact agreement. A third urologist reviewed discordant cases.

## RESULTS

Data were collected from 100 patients, with the majority being female (75%) and a mean age of 49 years. Mixed urinary incontinence was the most common presenting complaint.

During the filling phase, ChatGPT demonstrated concordance rates for the BC 96%, compliance 90%, leakage 88%, sensation 87%, EMG 85% and 80% for UDC. [chart 1](#)

In the voiding phase, concordance was 93% for VV and 80% for Qmax.

Moderate concordance was observed for Pdet@Qmax 66%.

Calculated BCI and ( BOOI for male patients ) both show a concordance rate of 60%. [chart 2](#)

ChatGPT's **diagnosis matched** expert opinions in **77%** of cases, and **management plans** were accurate in **76%** of cases.

**Overall concordance** across UDS parameters, diagnoses, and management recommendations was **79.3%**.

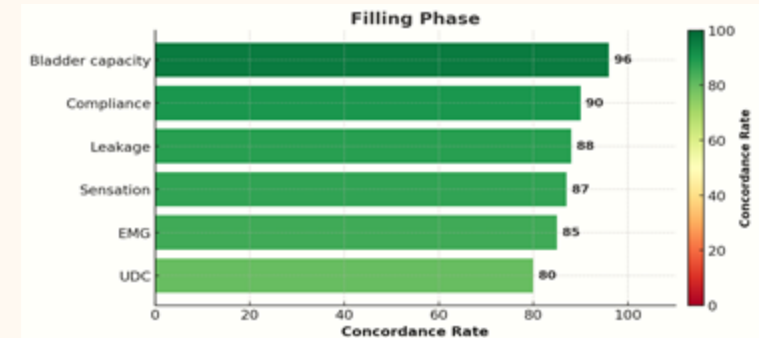


Chart 1: Filling phase concordance rate

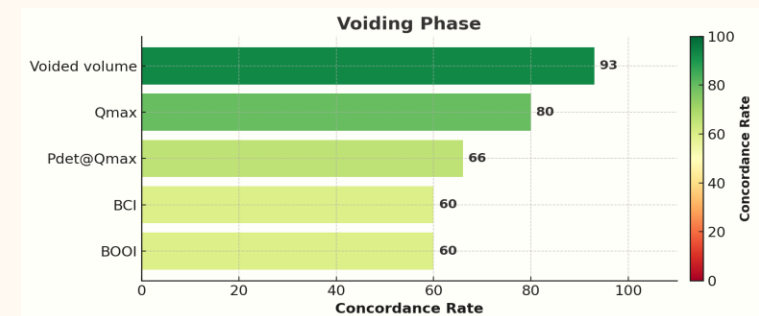


Chart 2: Voiding phase concordance rate

## CONCLUSIONS

This study demonstrates that ChatGPT showed high concordance rates with expert interpretation of UDS. Similarly, the suggested treatment plan was highly concordant with those of human experts. This exploratory study paves the way for further studies to unlock the potential applications of AI-powered software in the interpretation of UDS.

## REFERENCES

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## DISCLOSURE

The authors have no potential conflict of interest.