

Learning points from Trial Without Catheter (TWOC) clinics: a predicting model detecting which patients will fail the catheter removal

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INTRODUCTION AND AIM

Urinary catheters and their removal are an essential part of urological practice. Many factors contribute to the efficiency and success of Trial without catheter (TWOC) clinics.

We carried out a retrospective audit to assess its efficiency and compare the outcomes of TWOCs according to differing indications. We used the information to generate a predictive model for the outcome of TWOCs aiming to streamline the process and minimise the waiting times when possible.

METHODS AND MATERIAL

A retrospective study of all patients who attended outpatient TWOC between September 2022 and January 2023 at a single hospital was carried out.

We extracted data for comorbidities, indications, age, prostate size, retention volume, prostate medication, the outcome of the TWOC and retention volume.

RESULTS

126 patients underwent TWOC between September 2022 and January 2023. 72 of the patients were on Tamsulosin, 49 on Finasteride, 29 were diabetic and 9 were suffering from dementia. The average age was 72.9 years old. The use of Tamsulosin and Finasteride did not alter significantly the outcome of the TWOC neither did the presence of dementia or diabetes.

The overall success rate of TWOCs was 41% and was highest following bladder outflow obstruction surgery patients 53.7%, followed by acute urine retention 36.6% and other causes 28.6%. Post-surgery, TWOC success was 100% (7/7) for stricture surgery, 83% (5/6) for Greenlight Vaporisation, 0% (0/2) for Uro-lift. All bladder outlet obstruction patients who failed outpatient TWOCs after a failed inpatient TWOC, had long-term catheters beforehand.

The strongest model predictors of TWOC success were reduced retention volume (AUC 0.69) and increased eGFR (AUC 0.67). A model combining retention volume and EGFR had an AUC of 0.81 for predicting TWOC success.

Table 1. Causative Events and Success Rates

Causative event	Successful	Total	(%) Percentage
Acute Urinary Retention	26	71	36.6
Following any surgery	29	54	53.7
Other	2	7	28.6
Post Bladder Outlet Surgery	-	-	-
Stricture	7	7	100.0
TURP	2	8	25.0
Greenlight Laser Vaporisation	5	6	83.3
Uro-lift	0	2	0.0
Overall	55	133	41.3

Figure 1. Patient's Age Distribution

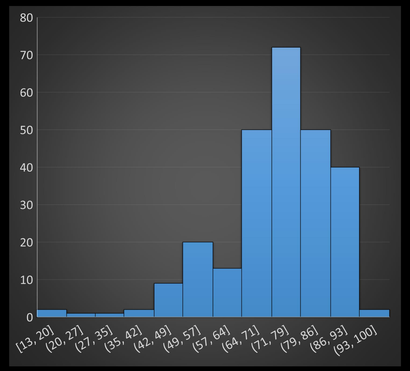


Figure 2. Gender Ratio

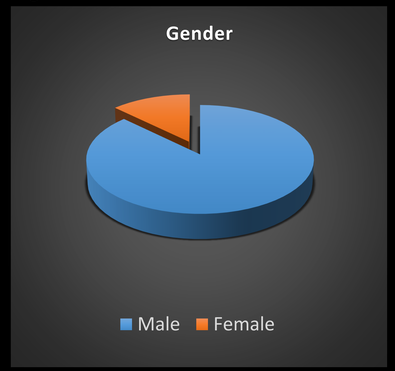
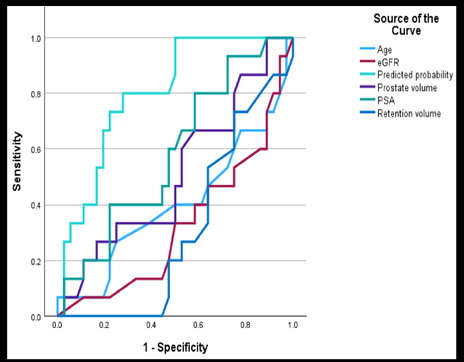


Table 2. Model AUC based on Predictor

Test Result Variable(s)	Area Under the Curve
Prostate volume	0.513
PSA	0.585
Age	0.597
Retention volume	0.691
eGFR	0.673
Predicted probability	**0.801**

Figure 3. ROC Prediction Curve



CONCLUSIONS

The model data can be used to streamline the clinic focusing on the patients who have a higher risk of failure, and determine the groups that may be suitable for outpatient or self-TWOCs.

REFERENCES

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