

# APPLICATION OF REAL-WORLD EVIDENCE TO ASSESS OUTCOMES AFTER SURGICAL TREATMENT FOR BENIGN PROSTATIC HYPERPLASIA

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## Introduction

- Benign prostatic hyperplasia (BPH) affects at least one-third of men older than 50 years, and prevalence increases to 90% in men older than 80 years
- Many men with BPH experience bothersome lower urinary tract symptoms (LUTS)<sup>1,2</sup> and a negative impact on sexual function<sup>3,4</sup> that can substantially disrupt their quality of life, including by social isolation, depression, decreased productivity, and poor sleep<sup>2,4</sup>
- Around a quarter of men with bothersome LUTS will need surgical treatment,<sup>5</sup> for which the gold standard is endoscopic transurethral resection of the prostate (TURP), but this method is invasive and is associated with comorbidities that vary broadly by type and incidence<sup>6</sup>
- Electronically captured real-world patient data provide an overview of health conditions, not only by diagnosis and treatment but also complications, quality of life, and use of resources, at individual, sub-population, and population levels
- Such data might also facilitate analysis of which patients are likely to experience specific complications and could improve targeting of health-care resources
- This analysis was performed to capture the real-world experience of patients before and after monopolar or bipolar TURP for treatment of BPH

## Methods

- The Health Improvement Network (THIN) database holds nationally representative pseudonymised data on patients, conditions, consultations, treatments, and health-care providers, gathered directly from electronic medical records in around 400 UK practices, and covers around 3.5 million actively treated patients (~5% of the UK population)
- Data are obtained directly from primary care electronic medical systems and are organised by Read Codes, which enable powerful analysis not possible with prescribing data alone (Table 1)
- Because data are linked to patients' records, the health and treatment of individuals may be followed up over time
- Primary care data were obtained for all men who were recorded as having a diagnosis of BPH (K20 Read Codes) and who underwent TURP (7B39 Read Codes) from January 2010 to December 2014
- The data were evaluated from 24 months before to 24 months after the procedure

## Results

### Before TURP

- In 2010–14, among 29,159 men with BPH, 1,678 men (5.7%) were recorded as having undergone TURP
- The average age of patients was 72 years
- 837 men (49.9%) had Read Codes for the symptoms urinary retention, urinary tract infections, haematuria, and cystitis before TURP, among whom the greatest proportion was affected by urinary retention (Figure 1)
- 564 men (33.6%) had been receiving medication to manage BPH
- Other symptoms are shown in Figure 2
- Psychosexual dysfunction was recorded in 73 men (4.4%)
- Falls had occurred in 37 men (2.2%), which is in line with the national rate of 2.3%
- 54 men had diagnosed prostate cancer before TURP
- The population under evaluation had attended a total of 868 consultations and had had 53 visits from district nurses before surgery
- Although sleep disturbances, a known bothersome symptom, were seen in 360 (1.2%) of 29,159 men before BPH diagnosis and 395 (1.4%) men after diagnosis, this complication was not recorded before surgery among the men who underwent TURP (Figure 2)

### After TURP

- By 24 months after surgery, the number of patients with urinary symptoms had fallen to 494 (29.4%)
- Among men experiencing urinary symptoms there was a substantial decrease in the proportion with urinary retention, whereas for other symptoms proportions remained similar or were or markedly increased (Figure 1)
- The number of men taking BPH medication remained high at 376 (22.4%)
- Psychosexual dysfunction was more prevalent after surgery, being recorded in 105 men (6.3%)
- The proportion of men with falls (138 [8.2%]) had risen to around 3.5 times the national rate
- TURP surgery within 24 months was recorded for 242 (14.4%) patients
- 67 (4.0%) patients were referred from primary care to urologists after TURP
- After TURP, a further 64 men had a diagnosis of prostate cancer
- After surgery, the population under evaluation attended a total of 1,051 consultations and received 41 visits from district nurses
- Sleep disturbances were recorded after TURP, albeit in 1.6% of the cohort (Figure 2)

Figure 1: Major urinary symptoms before and after TURP

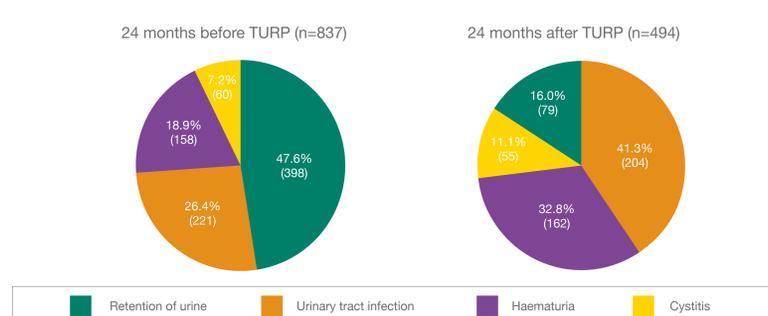


Figure 2: Other symptoms before and after TURP

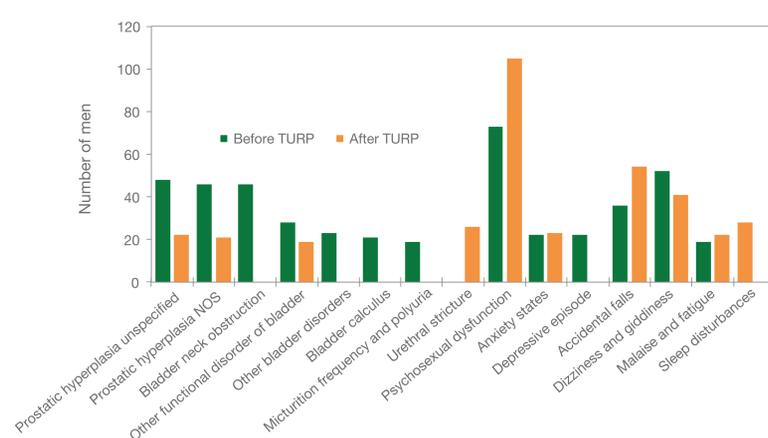


Table 1: Read Codes associated with TURP

Read Code	Read Code
<b>Bladder</b>	<b>Sexual function</b>
Benign prostatic hypertrophy	K20.
Prostatic hyperplasia unspecified	K200
Prostatic hyperplasia NOS	K20z
Retention of urine	R082
Urinary tract infection unspecified site	K190
Haematuria	K197
Cystitis	K15.
Bladder neck obstruction	K160
Other functional disorder of the bladder	K165
Other bladder disorders	K16y
Bladder calculus	K140
Micturition frequency and polyuria	R084
Urethral stricture	K18.
	<b>Psychosexual dysfunction</b>
	E227
	<b>Anxiety and depression</b>
	Anxiety states
	E200
	Depressive episode
	Eu32
	<b>Cancer</b>
	Malignant neoplasm of prostate
	B46.
	<b>Other</b>
	Accidental falls
	TC..
	Dizziness and giddiness
	R004
	Malaise and fatigue
	R007
	Sleep disturbances
	R005

## Conclusions

- In this real-world data analysis of men receiving TURP surgery for BPH, the number of men with urinary retention fell by 80% after compared with before TURP, but haematuria and cystitis changed very little and the proportion with urinary infections notably increased
- Of the 29% of men experiencing urinary symptoms following TURP, the greater proportions affected by haematuria and urinary infections were marked
- While TURP offers maximum improvement in International Prostate Symptom Scores and maximum urinary flow rate, quality-of-life factors, such as psychosexual dysfunction and sleep disturbances, affected more men after surgery than before
- Some complication rates differed from those expected,<sup>7</sup> which might be due to coding issues, reluctance to discuss some types of symptom, or lack of association with BPH in primary care
- As the population ages, the incidence of BPH and the need for treatment are expected to increase, as is the length of time that people live after treatment
- Alternative interventions to TURP that balance broader quality-of-life issues of specific concern to patients, such as conserved sexual function or rapid recovery,<sup>8</sup> should be discussed
- In future analyses, issues to consider will include how and when men are labelled or diagnosed as having BPH versus an alternative or no diagnosis, and accuracy of coding

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