

# Impact of Pharmacotherapy on the Incidence of Transurethral Prostatectomy for Benign Prostatic Hyperplasia and the Implications for Surgical Training

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## Abstract

Medical therapy has become first line treatment for Benign Prostatic Hypertrophy (BPH) and in many cases TURP may no longer be required. Proof and quantification of this evolution in practice has been somewhat elusive and provided the principle impetus for this study. This is a retrospective study of BPH management in Republic of Ireland from 1995 to 2008. National treatment databases were sourced for numbers undergoing TURP and pharmacotherapy prescribing data was obtained from individual pharmaceutical companies. A total of 28,240 TURP's were performed nationally between 1995 and 2008. TURP's performed annually, decreased by 1,494 (51%), alpha-blocker prescriptions increased from 8,710 to 302,159 units and the number of urology trainees increased by 10(60%). Clear association between decreases in TURP's and increases in pharmacotherapy for BPH is demonstrated. Implications on training likely exist and will require proper evaluation in order to maintain future standards in this surgical practice.

## Introduction

Benign Prostatic Hypertrophy has been a problem for the ageing male for centuries and treatment options can be traced back to the 5th century BC. Over the last 30 years and until recently, TURP has been the mainstay of treatment for patients with BPH and it remains the surgical Gold Standard. However, it has limitations, which include the morbidity of surgery, failure to consistently achieve a successful outcome and sometimes the need for repeat procedures. Since the advent of alpha-blockers in the 1980's and in particular with the selective alpha1-blockers in the 1990's, enthusiasm for pharmacotherapy has increased and is now considered the first line and mainstay of treatment in this group of patients. The skill of endoscopic prostatectomy has been important for competent endoscopic training. This shift in treatment practice may have dramatically decreased the number of procedures available to trainees. Access to sufficient numbers of surgical procedures for trainees is vital if they are to be adequately trained. The central hypothesis of this study was that the number of men undergoing TURP in Ireland in the last decade has undergone substantial reduction, and this may be related to a change in the consumption of pharmacotherapy.

## Methods

This is a retrospective study over a 14 year period from 1995 to 2008. The national figures for TURP's were obtained from the Economic and Social Research Institute (ESRI) using the National Hospital In-Patient Enquiry Scheme (HIPE) figures and from the National Treatment Purchase Fund (NTPF). HIPE is a computer-based national database of coded discharge summaries designed to collect demographic, clinical and administrative data on discharges and deaths from acute general hospital services within the public health service in Ireland. The NTPF is a scheme introduced by the Health Service Executive for patients on public waiting lists for over 3 months. These patients are offered their operations in private hospital after this time period. The scheme was established in 2002 with the first TURP's performed on it in 2004. This only accounted for 1,003 cases from 2004-2008. These figures are included together with the HIPE figures.

Over this 10-year period the medical therapies licensed for the treatment of BPH nationally have included, alpha-blockers; tamsulosin, alfuzosin and indoramin and 5-alpha reductase inhibitors; finasteride and dutasteride. Sales figures were obtained from individual pharmaceutical companies for the period under investigation. These include Astellas (Ireland) Co. Ltd, GlaxoSmithKline (Ireland) Ltd, Merck Sharp & Dohme (Ireland) Ltd, Sanofi-Aventis (Ireland) Ltd. The sales/consumption data presented is in units with a single unit defined as a monthly supply of tablets prescribed for an individual patient. The numbers of urology trainees in Ireland were obtained from the Royal College of Surgeons in Ireland. All data was entered into a Microsoft Excel data sheet. We used SPSS Version 11.5 for statistical analysis. The Correlation between the reduction in TURP's performed annually was compared with the increase in BPH therapies using a 2-tailed Pearson's Correlation.

Figure 1: National TURP Trends (Ireland)

## Results

A total of 28,240 TURP's were performed nationally between 1995 and 2008. The mean age ranged from 70.7 - 72.0 years. Almost three thousand TURP's were performed in 1995 and each year in the subsequent decade (Figure 1) saw a reduction in numbers reaching a level of 1,587 in 2005 and stabilizing over the following 4 years. This equates with a 50% reduction over this period. Sales of alpha-blocker therapies increased by a massive 2,531% from 8,710 to 220,536 units over the same time period (Figure 2). An increase in sales of 5-alpha reductase inhibitors was also

observed during this time period, from 3,705 to 40,186 units. The Correlation between the reduction in TURP's compared with the increase in BPH therapies reached statistical significance ( $p < 0.05$ ) over the 14 years. In 1995 there were 15 clinical Urology registrar posts nationally and this has increased to 25 posts currently. The average case available per trainee number has decreased by 70%, from 197 per year in 1995 to 58 per year in 2008.

Figure 2: National Pharmacotherapy Trends (Ireland)

### Discussion

Trends in the treatment of symptomatic BPH have changed over the years. Alpha-blockers have changed our approach to the male patient with lower urinary tract symptoms (LUTS). Previously the indications for surgery were much broader. Dominant indications for surgery currently are symptoms refractory to medical therapy or recurrent urinary retention, as opposed to simply LUTS as in 1995. This study supports the logical suggestion that a correlation between the huge increase in alpha-blocker prescribing and decline of the TURP exists. Previous work supports this statement as it has been shown that both alpha-blockers and 5-alpha reductase inhibitors alone and in combination reduce the need for surgical intervention. Vela-Navarrete et al looked at 85 patients undergoing either open or Transurethral prostatectomy for BPH in a single centre and also found a decrease between the years 1992 - 2002. They also attributed this to medical therapy. Other factors may also have contributed somewhat to this decrease. Better understanding of the natural history of BPH and in particular, improved patient selection have influenced practice. The impact since the introduction of current alpha-blockers has been dramatic and has coincided with a halving in the number of TURP's performed nationally.

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There are limitations to this study. The most obvious being, that it is retrospective and the ESRI figures do not include data for private hospitals in the Republic of Ireland. There may also be a slight skew in the figures with the advent of newer techniques such as Transurethral Needle Ablation of the Prostate and laser prostatectomy. However, to the best of our knowledge there is only limited use of these techniques in Ireland. TURP for the trainee is the "gateway" to the more challenging areas of endoscopic surgery e.g. bladder tumour resection. The dramatic decline in TURP's is of great concern. Along with this dramatic decrease in the number of procedures other factors are likely to reduce operative experience. In particular the continuing expansion in the number of consultant and training posts will likely only further dilute training opportunities. The advent of new procedures such as the green light laser/photoablative prostatectomy will also further reduce the number of TURP's undertaken by trainees. Training programs may need to be extended to ensure competency or alternative training techniques such as models and simulators used. The concern persists that future urological surgeons will not possess the same competency at TURP as their predecessors. In conclusion, the dramatic increase in pharmacotherapy is associated with a decrease in number of TURP's being performed. Alternative training strategies to compensate for the loss in workload must be sought if high competency levels are to be preserved.

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