Incidence of and factors associated with the use of medications and surgical retreatment after transurethral resection of the prostate


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KEYWORDS
Transurethral resection of the prostate; Retreatment

Abstract

Introduction: Transurethral resection of the prostate (TURP) is a standard procedure for obstructive prostatic growth. Medical retreatment with anticholinergics, alpha-blockers, and 5 alpha reductase inhibitors is from 16 to 50%. A second surgical retreatment is associated with internal urethrotomy, cervicotomy, and re-TURP between 5 and 13% at 5 years. Re-TURP is associated with residual tissue.

Aim: To determine the incidence of and factors associated with the use of medications and surgical retreatment after TURP.

Material and methods: A retrospective study was conducted on patients that underwent TURP within the time frame of January 2010 and December 2011 with follow-up to the present. Preoperative, intraoperative, and postoperative variables were analyzed and the chi-square test was used for the statistical analysis.

Results: Follow-up was carried out on 158 patients that underwent TURP. The overall accumulated incidence of retreatment was 43%, surgical retreatment was 17.7%, and medical treatment was 30.4%. TURP retreatment was 7.6% and transvesical prostatectomy was 1.3%. The mean time until prostate surgery retreatment was 30.5 months. Postoperative medical treatment was: anticholinergics 17.1%, alpha-blockers 15.2%, 5 alpha reductase inhibitors 6.3%, and combination 8.2%. During follow-up, 22.8% of the patients had residual tissue, which was the main cause of retreatment. Preoperative prostatic volume > 80 g was associated with residual tissue (p = 0.024).

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PALABRAS CLAVE
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Incidencia y factores asociados al uso de medicamentos y retratamiento quirúrgico posterior a resección transuretral de próstata

Resumen

Introducción: La resección transuretral de próstata (RTUP) es el procedimiento estándar del crecimiento prostático obstructivo. El retratamiento médico con anticolinérgicos, alfa bloqueadores e inhibidores 5 alfa reductasa es del 16-50%. Un segundo tratamiento quirúrgico se asocia a uretrotomía interna, cervicotomía y re-RTUP en el 5-13% a 5 años. La re-RTUP se asocia a tejido residual.

Objetivo: Determinar la incidencia y factores asociados al uso de medicamentos y retratamiento quirúrgico posterior a RTUP.

Material y métodos: Se realiza estudio retrospectivo de pacientes operados de RTUP de enero de 2010 a diciembre de 2011 con seguimiento hasta la actualidad. Se analizaron variables pre-, trans- y postoperatorias. Se utilizó chi-cuadrada para el análisis estadístico.

Resultados: Se dio seguimiento a 158 pacientes operados de RTUP. Se reportó la incidencia acumulada de retratamiento global (43%), quirúrgico (17.7%) y médico (30.4%). Para la re-RTUP fue del 7.6% y la prostatectomía transvesical del 1.3%. El tiempo promedio para retratamiento quirúrgico prostático fue de 30.5 meses. El tratamiento médico posquirúrgico fue: anticolinérgicos 17.1%, alfa bloqueadores 15.2%, inhibidores 5 alfa reductasa 6.3% y combinado 8.2%. Durante el seguimiento el 22.8% tuvo tejido residual y fue la principal causa de retratamiento. El volumen prequirúrgico > 80 g se asoció a tejido residual (p = 0.024).

Conclusiones: La incidencia de retratamiento quirúrgico es mayor que la de la literatura (17.7% vs. 13%). El tratamiento médico es menor del 30.4% vs. 50% reportado. Los anticolinérgicos son los medicamentos más utilizados. La adecuada selección de los pacientes nos disminuirá las complicaciones y el riesgo de retratamiento.

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Introduction

For more than 60 years, transurethral resection of the prostate (TURP) has been the standard procedure for the treatment of obstructive prostatic growth.1-2 The main indications are the persistence, despite medical treatment, of moderate or severe symptoms identified in the International Prostate Symptom Score (iPSS), acute urinary retention, medical treatment-refractory gross hematuria, renal insufficiency, bladder lithiasis, and recurrent lower urinary tract infections.1-2 TURP involves the resection of the transition zone of the prostate causing the obstruction, preferably in prostate volumes < 80 g.2 In 1943, Nesbit described the technique by beginning at the ventral zone of the gland (between the 11 o’clock and 1 o’clock positions), followed by the lateral lobes, mid lobe, and ending at the apex. Mauermayer, Hargin, and May modified the technique beginning at the mid lobe, followed by the lateral lobes, ventral zone, and apex.4 In regard to the type of energy utilized in TURP, the bipolar type has practically eliminated post-TURP syndrome and reduced clot retention and the need for transfusion.5-6 TURP improves quality of life, there is an average 70% reduction in the IPSS, and a 77% decrease in residual urine.2,7-8 Some postoperative TURP patients require medical treatment with anticholinergics or alpha-blockers for overactive bladder symptoms and 5-alpha reductase in case of presenting with obstructive prostate tissue.9-10 Re-TURP is generally associated with incomplete resection or with disease course.4,11-12 The most common late complications are urethral stricture, ranging from 2.2 to 9.8%, mainly in the bulb urethra; bladder neck sclerosis, ranging from 0.3 to 9.2%; and retrograde ejaculation, ranging from 53 to 75%.4,13 Urethral stricture is associated with inadequate lubrication and a lengthy resection time.4,14-15 Bladder neck sclerosis has been associated with the resection of prostates < 30 g, to perioperative bleeding, and to excessive resection and fulguration of the bladder neck, and it generally presents within the first 6 months.16 The aim of the present study was to know the incidence and causes of medical and surgical retreatment in patients that underwent TURP and compare them with the international literature.
Materials and methods

A retrospective analytic study was conducted. The case records were included of patients that underwent TURP within the time frame of January 2010 to December 2011 at the Hospital General Dr. Manuel Gea González. Follow-up was carried out until August 2015. Incomplete case records were excluded, as well as those containing a history of prostate cancer, urethral stricture, bladder neck sclerosis, and previous prostate surgeries.

The accumulated post-TURP retreatment incidence, both medical and surgical, was calculated. Retreatment causes and frequency were identified. The following variables were analyzed: age, comorbidities, surgery duration, type of TURP, preoperative transurethral catheter use, dilation or meatotomy during surgery, perioperative blood loss, postoperative IPSS, postoperative Qmax, preoperative prostate volume, resected prostate volume, and residual tissue. In addition, the postoperative use of medications (anticholinergics, 5-alpha reductase inhibitors, and alpha-blockers) was analyzed, as well as surgical re-interventions (re-TURP, cervicotomy, urethrotomy, urethroplasty, and adenomectomy). The time lapse from initial TURP to retreatment was also evaluated. A qualitative statistical analysis was done with the chi-square test between the variables.

Results

One hundred fifty-eight patients were included that underwent TURP within the time frame of January 2010 to December 2011 with follow-up until August 2015. The mean age of the patients was 66 (44-90) years. A total of 58.8% of the patients did not present with comorbidities, 17% had high blood pressure, and 12.4% had diabetes mellitus. Table 1 describes the clinical characteristics of the patients.

Overall accumulated retreatment incidence was 43%, of which 17% required some type of surgical re-intervention and 30.4% required medical treatment after TURP (fig. 1 and table 2).

Prostate re-intervention, whether re-TURP or transvesical prostatectomy was performed in 8.8% (14 patients) and the mean time after initial TURP was 30.5 (2-48) months. Another relevant datum is that there was a greater association with a new prostate surgery, the larger the volume of the prostate (fig. 2).

In regard to the development of urethral stricture that required urethrotomy, the mean was 24 (4-56) months after TURP. Bulbar stricture presented in 50% of the cases, meatal stricture in 33.3%, and penile stricture in 16.6%. No patient required urethroplasty. Urethral or meatal dilation was the only statistically significant risk factor for the development of urethral stricture and later urethrotomy (p = 0.014). Bladder neck sclerosis presented at a mean 9.3 (3-13) months after TURP.

Anticholinergics were the most widely used medication after TURP and the mean time of their use was 8.7(1-36) months.

During follow-up, 22.8% of the patients presented with residual tissue. One hundred percent of the patients that underwent retreatment had residual tissue. A preoperative prostate volume > 80 g was associated with residual tissue (p = 0.024). There was no statistically significant association between surgery duration, the type of energy utilized, perioperative blood loss, volume of resected prostate, or preoperative transurethral catheter and surgical or medical retreatment of any kind.
TURP has been shown to be efficacious as surgical treatment for obstructive prostate growth. However, different studies have reported the need for a second urologic procedure at the mid to long-term follow-up. In Austria, Madersbacher et al. reported a 12.3% incidence of surgical re-intervention at 5 years in 20,671 patients, with re-TURP representing 5.8%. Wasson et al. carried out a 5-year follow-up on North Americans that underwent TURP and described a re-TURP rate < 5%. Finally, in a follow-up at 10 years, Varkarakis et al. reported re-TURP in 1.9%, urethrotomy in 1.7%, and cervicotomy en 1.9%. Upon comparing these figures with our study, we found a slight increase in incidence of surgical re-intervention (17%), re-TURP (7.6%), and urethrotomy (7.6%). Lee et al. reported a 12% bladder sclerosis incidence and prostates < 30 g and perioperative bleeding as risk factors. Upon comparing these figures with our study, we found a slight increase in incidence of surgical re-intervention (17%), re-TURP (7.6%), and urethrotomy (7.6%). Lee et al. reported a 12% bladder sclerosis incidence and prostates < 30 g and perioperative bleeding as risk factors. Upon comparing these figures with our study, we found a slight increase in incidence of surgical re-intervention (17%), re-TURP (7.6%), and urethrotomy (7.6%). Lee et al. reported a 12% bladder sclerosis incidence and prostates < 30 g and perioperative bleeding as risk factors. Upon comparing these figures with our study, we found a slight increase in incidence of surgical re-intervention (17%), re-TURP (7.6%), and urethrotomy (7.6%).

**Conclusions**

In the present study, there was a relation between greater preoperative prostate volume (> 40 g) and prostate re-intervention (p = 0.013), and prostates > 80 g were associated with residual tissue (p = 0.024). This situation was probably the result of incomplete resection due to technical difficulties, the risk of post-TURP syndrome due to prolonged resection time, and because the procedures were performed by residents at a university hospital. The latter also could explain why the incidence of urologic procedures after TURP in our study was slightly higher than that reported in the international literature. Therefore, adequate selection of the patients that will undergo TURP, supervision of the procedure by experienced surgeons, and satisfactory follow-up of these patients are all a necessity.

**Ethical responsibilities**

Protection of persons and animals. The authors declare that no experiments were performed on humans or animals for this study.

Data confidentiality. The authors declare that they have followed the protocols of their work center in relation to the publication of patient data.

Right to privacy and informed consent. The authors declare that no patient data appear in this article.

Financial disclosure

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Conflict of interest

The authors declare that there is no conflict of interest.

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