Research Letter

Trends in the Use of the GreenLight Laser in the Surgical Management of Benign Prostatic Obstruction in France Over the Past 10 Years

Photoselective vaporization of the prostate (PVP), introduced in the late 1990s, is now considered a valuable alternative to transurethral resection of the prostate (TURP) [1]. Although several studies conducted in Asia and North America have highlighted the expanding role of laser prostatectomy [2,3], specific epidemiological data in Europe are critically lacking. We describe the trends in the surgical management of benign prostatic obstruction (BPO) in France over the past 10 yr, with a specific focus on the use of the GreenLight laser.

We analyzed data from a national comprehensive administrative claim database (previously described by Lukacs et al [4]) to estimate the number of endoscopic procedures (whatever the technique) and open prostatectomy surgeries performed each year between 2005 and 2014. We concurrently analyzed data from the manufacturer regarding use of the GreenLight laser fibers (American Medical Systems, Minnetonka, MN, USA) in France during the same period. PVP numbers were subtracted from the group of endoscopic procedures. Because enucleation was introduced in France only very recently, the remaining endoscopic procedures were hereafter designated as TURP. For the 2014 figures, data were extrapolated from those obtained for the period from January to September.

The overall number of BPO surgical procedures in France remained stable during the study period (61,993 in 2005 and 60,184 in 2014). During the past decade, the share of PVP has dramatically increased from 0.2% in 2005 to 22.9% of all procedures in 2014, whereas the number of TURPs and open prostatectomies conducted per year decreased from 52,828 to 40,436 and from 9,069 to 5,948 (34.4% reduction), respectively (Fig. 1A). In 2014, TURP, open prostatectomy, and PVP accounted for 67.2%, 9.9%, and 22.9%, respectively, of all benign prostatic hyperplasia surgeries. The fibers used were mostly KTP 80 W between 2005 and 2006, HPS 120 W between 2007 and 2010, and XPS 180 W between 2011 and 2014 (Fig. 1B). The increased use of PVP thus mainly occurred during the XPS era.

Our results are consistent with previous findings outside Europe [2,3,5]. However, in 2014, the rate of TURP remained higher in France (67%) compared with South Korea in 2008 and the United States in 2011, where it accounted for approximately 50%, with >40% cases of laser therapy [2,3,5]. A possible explanation could be that the GreenLight laser was approved by the French health agency, but there is no specific reimbursement for its increased costs compared with TURP, possibly limiting its use in private hospitals.

PVP has become an established alternative to TURP, based on evidence provided by several randomized studies that investigated all the generations of PVP (ie, 80 W, 120 W, and 180 W) [1]. Especially with new-generation HPS and XPS lasers, short-term efficacy outcomes seem comparable after PVP and TURP, but PVP has been associated with shorter length of stay and lower immediate postoperative complication rates [1,6]. Continuous improvement of the device and significant advantages of the XPS 180-W system over past-generation devices (greater power output, reduced laser and operating time, and less use of fibers) [7] may explain the dramatic increase in the use of the GreenLight laser over the past few years.

The spread of PVP has been associated with a simultaneous decrease in open prostatectomy, suggesting that PVP is also suitable for larger glands. This is in line with recent reports about the safety and effectiveness of 180-W PVP and vapoenucleation techniques in patients with prostate volumes >80 ml [8,9].

The present analysis has several limitations. Although the use of administrative data allowed us to obtain information about 100% of all procedures performed in France over the study period, procedures performed with lasers other than the GreenLight (ie, holmium laser enucleation, thulium vaporization) as well as bipolar techniques were also included in the TURP group that is not perfectly homogeneous. Furthermore, the GreenLight data were obtained as numbers of fiber sales that do not perfectly reflect the surgeries performed and might lead to marginal corrections in the numbers presented. Another important shortcoming is the lack of detailed clinical information that prevented us from comparing patient characteristics and surgical outcomes between each technique. These limitations underline the need for a more accurate codification system that would allow an accurate monitoring of the outcomes and costs of new technologies in the field.

This study, conducted for the first time at a nationwide level in Europe, has shown the expanding role of the
GreenLight laser that accounted for 22.9% of BPO surgeries in 2014. This increase mostly seems related to the marketing of the XPS 180-W fiber and has resulted in a simultaneous decrease in both TURP and open prostatectomy.

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References


Fig. 1 – (A) Trends in the surgical management of benign prostatic hyperplasia over the past 10 yr in France; (B) respective share of each type of fiber sold each year by the manufacturer. Numbers indicate the absolute values. TURP = transurethral resection of the prostate.


