

Sexual dysfunctions after transurethral resection of the prostate (TURP): Evidence from a retrospective study on 264 patients

Carlo Pavone, Daniela Abbadessa, Giovanna Scaduto, Giovanni Caruana, Cristina Scalici Gesolfo, Dario Fontana, Luigi Vaccarella

Section of Urology, Department of Surgical, Oncological and Stomatological Sciences, University of Palermo, Italy.

Summary *Objectives:* Benign prostatic hyperplasia (BPH) and sexual dysfunctions are diseases with a high prevalence in aged men. Several studies have found a link between BPH and LUTS resulting from deterioration in sexual function in men aged 50 years and older for whom TURP is considered the gold standard. The impact of TURP on sexual functions still remain uncertain, nor is it clear what pathophysiological mechanism underlying the emergence of new episodes of Erectile Dysfunction (ED) following TURP in patients with normal sexual function before surgery, while retrograde ejaculation and ejaculate volume reduction represent a clear side effect; derived from BPH treatment. The aim of this study was to retrospectively evaluate the effects of transurethral resection of the prostate (TURP) on sexual function in patients operated in the period 2008-2012 at the Department of Urology of the University Hospital P. Giaccone, and at Villa Sofia-Cervello Hospital-Palermo. Secondary objective was to reconnect the sample data to interventional practice and international standards. *Materials and methods:* The retrospective longitudinal study was conducted on 264 of the 287 recruitable patients, aged between 50 and 85 years, suffering from BPH who underwent to TURP in the period 2008-2012. Telephone interviews were conducted and the International Index of Erectile Function (IIEF) was administered to assess sexual function. Patients enrolled were asked to respond to the test by referring at first to their sexual status in the period before surgery and subsequently to the state of their sexual function after treatment so as to obtain, for each patient, a pre- and post-TURP questionnaire in order to get comparisons that corresponding to reality and to avoid overestimation of the dysfunctional phenomenon.

Results: In the pre-TURP, the 94.32% of the sample reported being sexually active, with good erectile function in 41.3% of cases, ED mild/moderate in 51.5% and complete ED in 1, 5% of cases; good libido in 62.9% of cases, lack of libido in 31.4% of cases and absent in 5.7% of cases (the latter data corresponded to patients not sexually active); to be sexually satisfied in 29.5% of cases, slightly dissatisfied in 11, 7% of cases, moderately in 35.3% of cases, dissatisfied and very dissatisfied in 23.5% of cases (of which 17.8% sexually active and 5.7% non-active). In the post-TURP 89.4% of the sample

reported being sexually active, with good erectile function in 39.1% of cases, DE mild/moderate in 46.9% and complete DE in 4% of cases; good libido in 53.8% of cases, lack of libido in 33.7% of cases and absent in 13.5% of cases (including 1.9% of sexually active and 10.6% of non-active); to be sexually satisfied in 29.5% of cases, slightly dissatisfied in 9.5% of cases, moderately in 35.3% of cases, dissatisfied and very dissatisfied in 17.8% of cases (of which 14.8% sexually active and 10.6% inactive). Retrograde ejaculation was referred in 47.8% of those sexually active after TURP (42.8% if we consider the whole sample).

Conclusions: TURP had no negative impact on erectile function in contrast to ejaculatory function. Of the 109 patients with good erectile function in pre-TURP, 5.8% reported a worsening of erectile function after TURP. Among the 136 patients with ED moderate/mild pre-TURP 3.7% reported a worsening in the post-TURP, 16.2% reported an improvement, while 9.5% stopped any sexual activity. In 3.7% of the cases a complete ED was reported after TURP, while a decline of libido and sexual satisfaction was detected in all patients with worsening of sexual function. Retrograde ejaculation was observed in 48% of those sexually active after TURP. Particular attention has to be paid to the psychological aspects, both before surgery and in the postoperative period, which may become an important factor in the decline of sexual activity.

KEY WORDS: Benign prostatic hyperplasia (BPH); Erectile Dysfunction (ED); Transurethral resection of the prostate (TURP), International index of erectile function (IIEF); Low urinary tract symptoms (LUTS).

Submitted 30 July 2014; Accepted 30 August 2014

INTRODUCTION

Benign prostatic hyperplasia (BPH) and sexual dysfunctions are disorders that occur with high prevalence in aged men. Several studies have found a link between Low Urinary Tract Symptoms (LUTS) due to BPH and deterioration of sexual function in men over the age of 50 (1) and for which transurethral resection of the prostate (TURP) is considered the gold standard treat-

ment despite the new minimally invasive surgical options (2, 3). However, the impact of TURP on sexual function still remain uncertain and contradictory, with a number of patients who actually refers new episodes of ED following endoscopic resection (4). Nor is It clear what pathophysiological mechanism is underlying the emergence of new episodes of ED after TURP in patients with normal sexual function before surgery. Recent studies have shown that the treatment of LUTS by TURP lead to an overall improvement of sexual function in patients suffering from ED and ejaculatory discomfort existing before surgery, and that this proportion of patients is still higher than that of those who have any kind of sexual disorders as a result of TURP (5, 6). Similar considerations also apply to other aspects of sexual function, such as libido, ejaculatory orgasm and comfort, with the exception of retrograde ejaculation and ejaculate volume reduction which represent a clear side effect derived from BPH treatment. Several comparative studies that have linked sexual outcomes after TURP with those obtained with the use of new minimally invasive techniques have also shown similar results except for retrograde ejaculation (7). However, to date none of these new techniques in respect to TURP in the treatment of BPH (8). Therefore primary objective of this study was to understand if the sexual dysfunction's area, especially erectile dysfunction, should be considered severable from the long-term complications of endoscopic resection surgery as the more recent literature would seem to indicate. Secondary objective was to connect our data to surgery good practice and international standards.

MATERIALS AND METHODS

At the Department of Urology of the University Hospita "P. Giaccone" and the "Villa Sofia-Cervello" Hospital of Palermo, according to the inclusion criteria listed in Table 1, was conducted a longitudinal retrospective study on a group of 287 recruitable patients who underwent to TURP after diagnosis of BPH from January 2008 to December 2012 (Table 1).

The patient list was obtained by consulting University Hospital's electronic archives and by verification of Villa Sofia-Cervello Hospital's records.

All patients were contacted by telephone and, after explaining the purpose of the study, they were interviewed after obtaining consent to participate in total anonymity about the sensitive data. Telephone interviews were conducted and the International Index of Erectile Function (IIEF) was administered to assess sexual function. Patients enrolled were asked to respond to the test by referring at first to their sexual status in the period

before surgery and subsequently to the state of their sexual function after treatment so as to obtain, for each patient, a pre- and a post-TURP questionnaire in order to get information about outcomes corresponding to reality and avoid over estimation of dysfunctional phenomenon. Speculation about libido, its eventual decay and overall satisfaction derived from sexual intercourse may also allow to have a complete picture of the psychological component of sexual health and to hypothesize the impact on the recovery of sexual function after surgery.

RESULTS

Of the 287 patients recruitable, 23 were lost for various reasons (refusal to join the study, health status deteriorated, inability to understand the questions and/or not compliance to the test, patients not found by phone). Therefore, the sample was composed of 264 patients aged between 50 and 85 years. To overcome the bias "age" related to the time frame of the study (5 years), the average age of the sample was calculated to T0 (before-TURP) = 67.9 years and T1 (after-TURP) = 71.3 years. Of the 264 patients enrolled, 249 (94.32%) reported having been sexually active in the pre-TURP and at IIEF 109 (41.3%) reported adequate erectile function; 136 (51.5%) reported episodes of mild or moderate ED; while only 4 cases (1.5%) reported complete erectile dysfunction (Figure 1). Also before-TURP, libido (Figure 2) was reported as good in 166 patients (62.9%), while it was poor in 83 patients (31.4%) in combination with mild to moderate ED. The 15 patients (5.7%) not sexually active claimed that they had no sexual desire, and we have no other data about the status of their sexual function.

Regarding the satisfaction derived from sexual activity pre-TURP (Figure 3), among the sexually active patients: 78 (29.5%) were satisfied; 31 (11.7%) were slight dissatisfied; 93 (35.3%) were moderately dissatisfied; the remaining 47 (17.8%) showed a severe degree of dissatisfaction.

The sexually active patients in the post prostatic resection period were 236 (89.4%) and at IIEF: 103 (43.6%) reported a satisfactory erection capacity; 124 (52.5%) a moderate or mild ED; while the presence of complete erectile dysfunction was found in 9 individuals (3.8%) (Figure 4).

Following TURP, 89 patients (37.7%) among those sexually active had low libido; in 28 patients (10.6%) who had not had sexual intercourse after surgery, libido was absent. Furthermore, while in 4 patients suffering from Severe ED before surgery was not found a decreased libido, in 5 new cases of ED following TURP was present a total decay of sexual desire (Figure 5).

After TURP, 89 patients (37,7%) among sexually active ones had low libido; no libido was present in 28 patients (10,6%) who had not had sexual intercourses after operation. Moreover while no decrement of libido was detected in 4 patients with complete ED before surgery, in 5 new cases of ED after TURP a complete decrement of sexual desire was found (Figure 5).

After operation 78 patients (29,5%) kept on being satisfied; 25 patients (9,5%) were a little unsatisfied; 94 (35,6%) mildly unsatisfied; 39 sexually active patients (14,8%) were highly unsatisfied, as well as 13 patients

Table 1.
Inclusion criteria.

- Aged between 50 and 85 years
- Suffering from BPH and LUTS symptoms
- Undergoing TURP in the period January 2008 - December 2012
- Compliance to the interview and IIEF

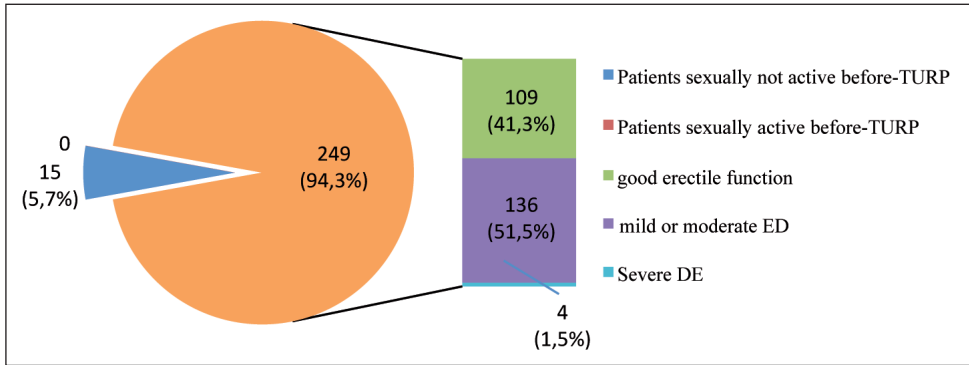


Figure 1.
Erectile function before-TURP.

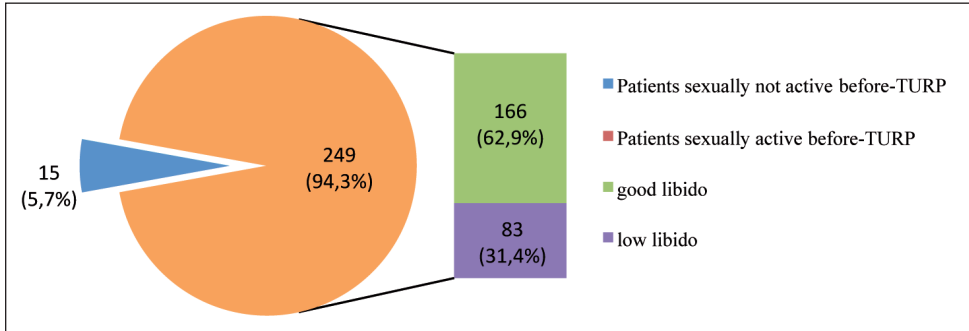


Figure 2.
Sexual desire before-TURP.

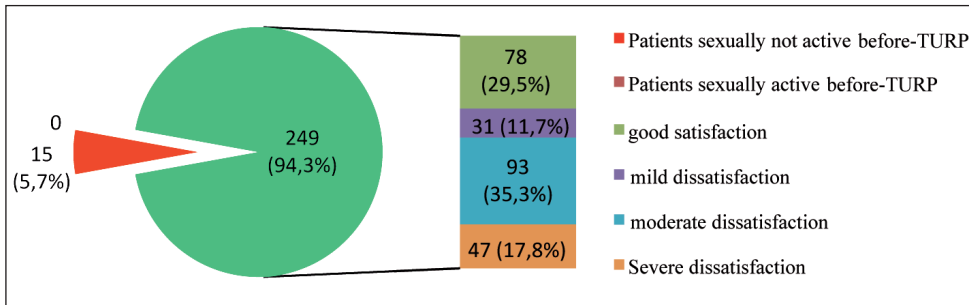


Figure 3.
Sexual satisfaction before-TURP.

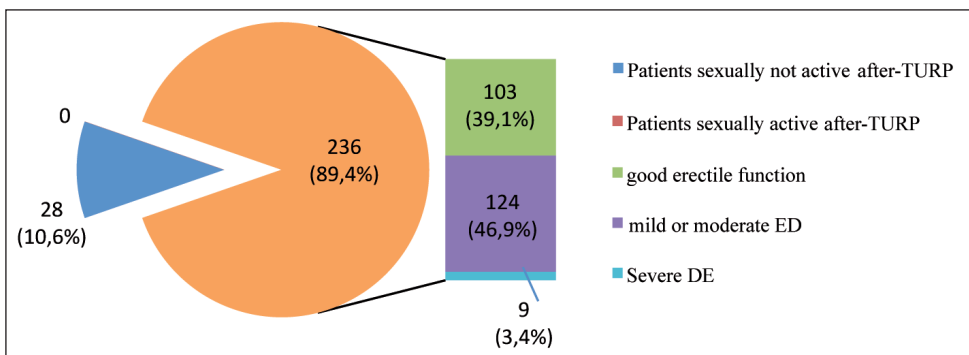


Figure 4.
Erectile function after-TURP

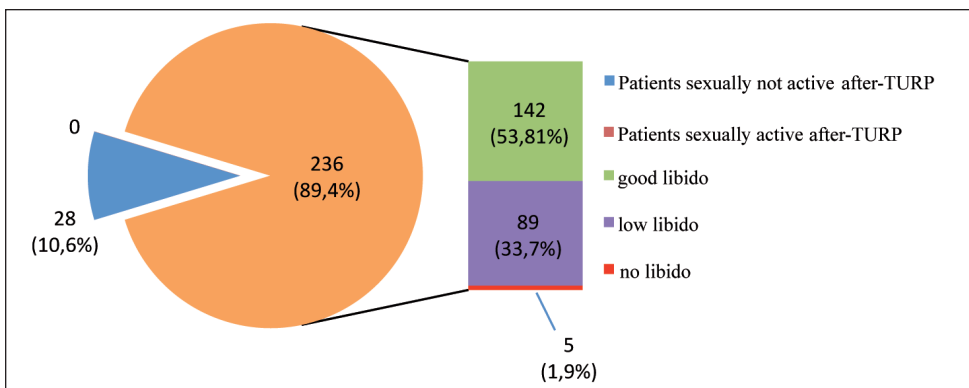
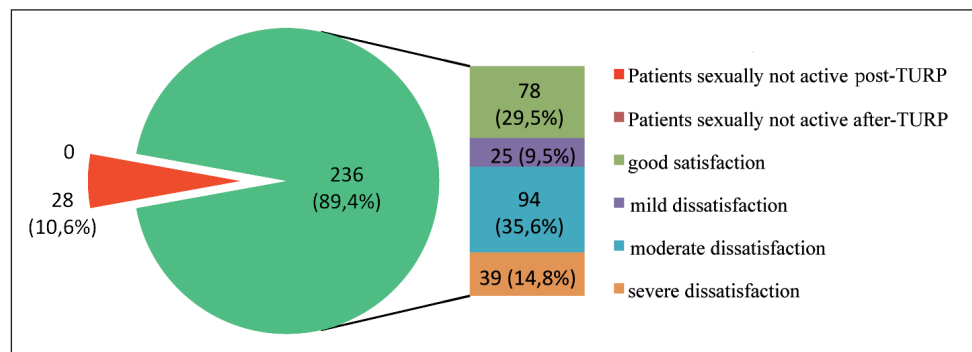


Figure 5.
Sexual desire after-TURP.

Figure 6.
Sexual satisfaction after-TURP.



who stopped sexual activity after operation and became not sexually active.

Absence of ejaculation or an important decrease of ejaculated volume, before surgery, were seen after TURP in 113 patients (47.8% considering the sexually active patients; 42.8% considering the whole sample).

DISCUSSION

The survey about the sexual dysfunctions before and after surgery for bph allowed to obtain post-surgical outcomes scientifically verified.

It is noteworthy (Figures 1 and 4) that 103 of 109 patients with good sexual function before TURP maintained the same state of functionality after operation, in contrast to 6 patients who referred a low or mild decrement. However, considering the average age of the sample, there is the doubt that this decrement may be related to increasing age, as the epidemiological data suggest. Comparing our data pre and post-TURP (Figure 7) we may infer there are no significant variations in erectile function. In addition we found that in 22 (16.2%) of 136 patients with low/mild ED pre-TURP little improvements of the frequency of dysfunctional episodes were detected. Even the percentage of patients with mild/low ED reporting a noteworthy pejorative change of the sexual condition in the questionnaire about the post-operative period is restrained: only 13 (9.5%) of 136 initial patients stopped

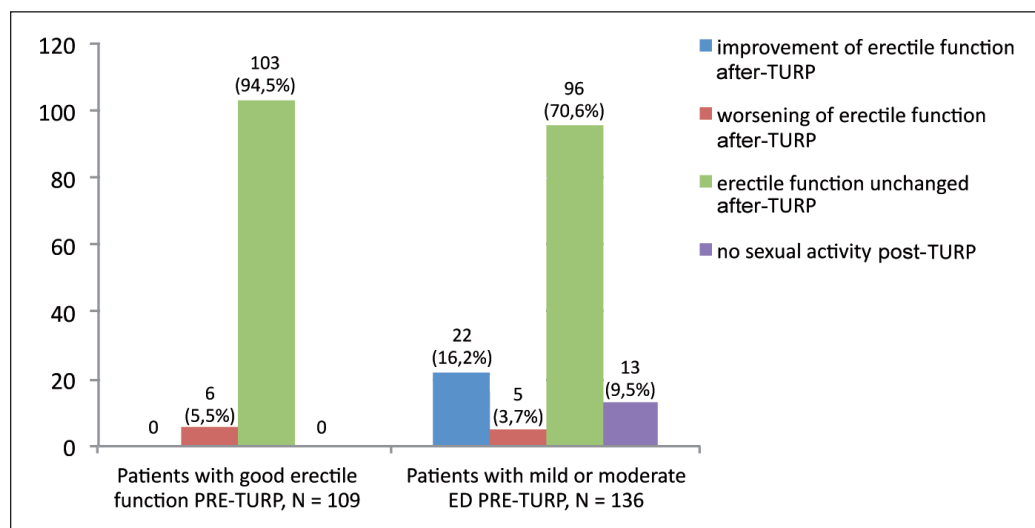
any sexual activity after operation. In these patients, considering the retrospective study, there is no way to evaluate the possible onset of functional worsening but we may suppose the onset of (psychological vicious circle) major psychological agitation related to operation.

A further factor making us to think there might be a possible psychological cause for the decrement of sexual function in patients with LUTS in BPH, and eventually also in the same patients after surgical therapy, was the finding of a contemporary decrement of libido.

In 83 (61%) of 136 patients who already had a mild/low ED before surgery, a poor sexual desire was detected in association with a low satisfaction from sexual intercourse. Several Authors have explained this situation (9), finding out a condition of psychophysical discomfort due to symptoms of BPH, that could act on the patient's feeling of a disease state. Such feeling, that often lasts more than the moment of surgery and, therefore, the subsequent overcoming of symptoms, would affect the sexual desire significantly, inducing setbacks on frequency and quality of patient's sexual activity.

Moreover, a further decrement of libido has been always detected in 24 patients who referred a worsening of their sexual function after operation, in terms of higher incidence of ED and interruption of sexual activity (Figure 8). In similar studies (10) analogous data have been related to a psychological effect due to operation itself that may interfere with consciousness of own sexual capacity (11).

Figure 7.
Changes in sexual function after-TURP.



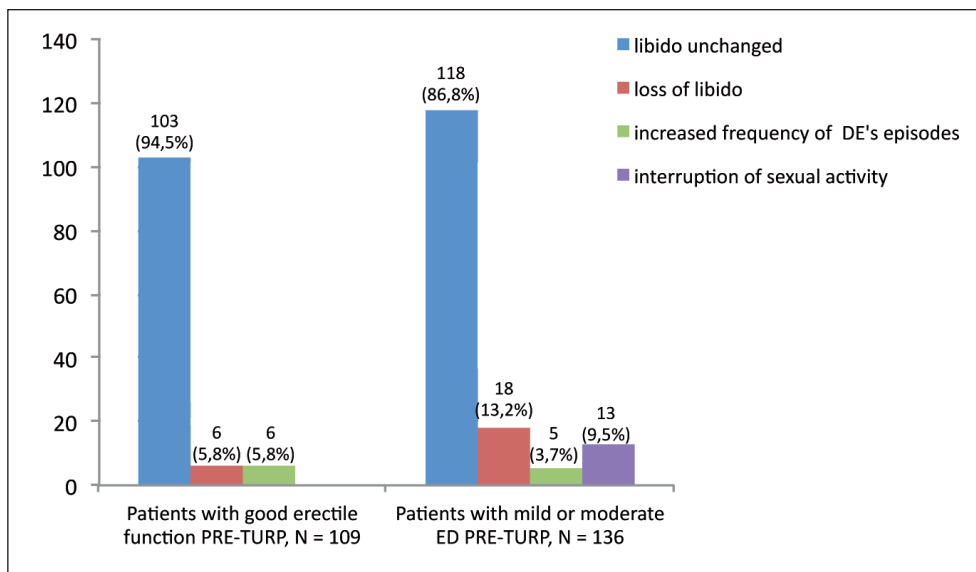


Figure 8. Association between decreased libido and impaired sexual function.

The satisfaction derived from sexual intercourse, highly connected to the capacity of completing the sexual intercourse successfully, indeed, decreases with the increase of frequency of ED episodes, and it expires in patients who have a complete ED or no sexual activity.

Considering other specific aspects of sexual functionality, the patients did not report any problems in the orgasm or in a possible painful or late ejaculation when they had a complete sexual intercourse. On the contrary, as we expected, the failed ejaculation or a considerable decrement of ejaculation volume, not present in the preoperative period, were detected in 47.8% of sexually active patients after TURP (the 42.8% of sample). These conditions are caused by the operation of prostatic resection that weakens a lesion of closure mechanism of bladder neck during ejaculation with consequent retrograde ejaculation. It is important to underline that the absence of a normal ejaculation might be felt as a deficiency of patient's sexual capacity what does not allow him to complete nor-

mally a sexual intercourse. Therefore this functional consequence of TURP would deserve higher attention during the preoperative counselling (12).

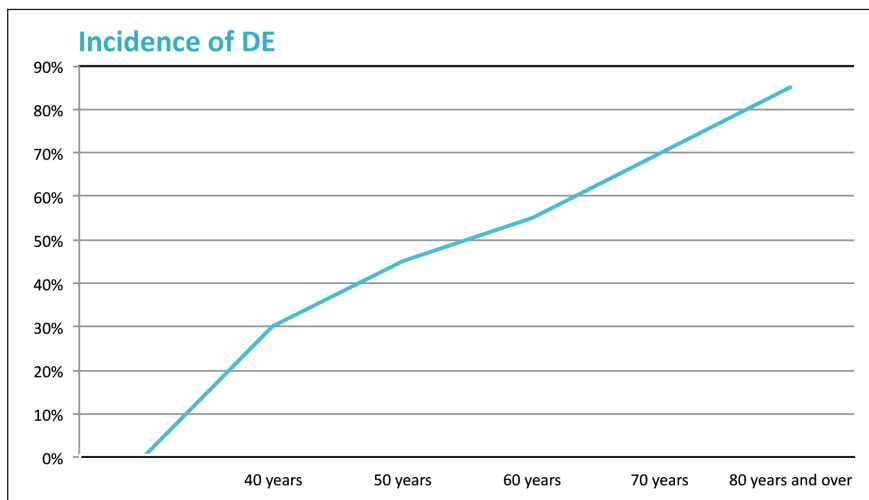
It must be emphasized that the data referred to cases of patients with complete ED pre-TURP (1.6% of total pre-TURP sexually active patients, 1.5% of sample) are compatible with indexes of incidence of the phenomenon in the general population (Figure 9) (13, 14). At the same time, the increase of number of completely dysfunctional patients after TURP (3.4% of sexually active patients after TURP), among patients who had ED already before therapy, may not be indicative of a possible damage caused by the surgery. In fact, this condition should be related with patients' age, as a consequence of the ageing or other newly occurring diseases during the period of observation, in some cases as long as 5 years.

Several authors have reported some peri-operative complications after TURP, such as drilling of prostatic capsule or a not well known effect of thermal lesion on the surrounding nervous structures, may represent important risk factors for the progress of ED in the short or long term (15).

Through our survey it was not possible to determine if such complication has presented. However, not detecting significant data about a higher presence of de novo ED episodes after TURP is somehow re-assuring, considering the frequency of these peri-operative complications in the surgical reality.

Finally, the data about a low improving of erectile function in a restricted group of patients of our sample, condition detected in other similar studies (5), do not allow to confirm an effective benefit to sexual health in its various aspects due to the operation of

Figure 9. Effect of varying degrees of ED in the general population (Adapted by writers from data by Feldman HA et al., 1994 and Lyngdorf P. et al., 2004).



prostatic resection. Moreover, in our sample the frequency of sexual dysfunction significantly from the incidence of dysfunctional situation in the general population with same age. In addition it must be said there is an over-evaluation of the sexual deficit considered consequent to TURP, because we were not able to search the presence of contemporary diseases and risk factors that notoriously may influence adversely the sexual activity. However, TURP is demonstrated to influence adversely none of sexual health aspects, except for ejaculatory function. Since in case of ED a variable level of decrement of libido was always detected, we might consider the psychological aspect may have a certain importance in dysfunctional patients, even when it is not the "primum movens".

CONCLUSIONS

The identified concordance between the latest literature about this thorny topic and our results, although with the limits of a retrospective study, allows us to deduce a common consciousness of the effects of TURP on sexual function is going to be gleaned. From the analysis of our data no direct correlation between ED and the most used surgical therapy for BPH is found out. Always considering the effects on ejaculation, that by now notoriously affect a large proportion of patients, the TURP is in any case the gold standard in the treatment of symptomatic prostatic adenoma. It derives that the specialist can indicate TURP with science and consciousness as a preferential option of treatment for patients who ask for this kind of therapeutic approach, wishing anyway a recovery of their sexual life. It is apparent that the specialist must pay particular attention to the psychological implications, both in the preoperative and in the postoperative time, that may start a vicious circle and become cause, in some cases primary cause, of the decay with consequent avoidance of sexual activity in this kind of patients. According to actual researches, the patient can be reassured and correctly taught about the real possibilities of recovery and/or improvement of his own sexual function. In addition it would be desirable requiring assessments to evaluate the patient's sexual history before the prostatic resection that might help doctor (and patient himself) to understand what results will be present in the post-operative period. That means a specialist's higher consciousness who, relating with the patient at the time of the choice of the best therapeutic option, will be able to choose TURP, confident to guarantee with good probability a correct recovery of sexual functionality in the post-operative time in the post-operative time, clearly just in case it was previously satisfying previously and the requirements and conditions were adequate.

REFERENCES

1. Rosen RI, Altwein J, Boyle P, et al. Lower urinary tract symptoms and male sexual dysfunction: the multinational survey of the aging male (MSAM-7). *Eur Urol.* 2003; 44:637-49.
2. Reich O, Gratzke C, Stief C. Techniques and long-term results of surgical procedures for BPH. *Eur Urol.* 2006; 49:970-8 (discussion 978).
3. Donovan JL, Peters TJ, Neal DE, et al. A randomized trial com-

paring transurethral resection of the prostate, laser therapy and conservative management in men with symptoms associated with benign prostatic enlargement: the CLaSP study. *J Urol.* 2000; 164:65-70.

4. Tscholl R, Largo M, Poppinghaus E, et al. Incidence of erectile impotence secondary to transurethral resection of benign prostatic hyperplasia, assessed by preoperative and postoperative Snap Gauge tests. *J Urol.* 1995; 153:1491-3.

5. Van Moorselaar RJA, Hartung R, Emberton M, et al. Alfuzosin 10 mg once daily improves sexual function in men with lower urinary tract symptoms and concomitant sexual dysfunction. *BJU Int.* 2005; 95:603-8.

6. De Rose AF, Carmignani G, Corbu C, et al. Observational multicentric trial performed with doxazosin: evaluation of sexual effects on patients with diagnosed benign prostatic hyperplasia. *Urol Int.* 2002; 68:95-8.

7. Mishriki SF, Grimsley SJS, Lam T, et al. TURP and sex: patient and partner prospective 12 years follow-up study. *BJU International.* 2012; 109:745-750.

8. Brookes ST, Donovan JL, Peters TJ, et al. Sexual dysfunction in men after treatment for lower urinary tract symptoms: evidence from randomized controlled trial. *BMJ.* 2002; 324:1059-64.

9. Muntener M, Aellig S, Kuettel R, et al. Sexual Function after Transurethral Resection of the Prostate (TURP): Results of an Independent Prospective Multicentre Assessment of Outcome. *Eur Urol.* 2007; 52:510-516.

10. Ibrahim AL, El-Malik EM, Ismail G, et al. Risk factors associated with sexual dysfunction after transurethral resection of the prostate. *Ann Saudi Med.* 2002; 22:8-12.

11. Spengler A. Psychosexual disorders following genital operations in urology. *Wien Med Wochenschr.* 1988; 138:81-5.

12. Soderdahl DW, Knight RW, Hansberry KL. Erectile dysfunction following transurethral resection of the prostate. *J Urol.* 1996; 156:1354-6.

13. Feldman HA, Goldstein I, Hatzichristou DG, et al. Construction of a surrogate variable for impotence in the Massachusetts Male Aging Study. *J Clin Epidemiol.* 1994; 47:457-467.

14. Lyngdørf P, Hemmingsen L. Epidemiology of erectile dysfunction and its risk factors: a practice-based study in Denmark. *Int J of Impot Res.* 2004; 16:105-111.

15. Poulakis V, Ferakis N, Witzsch U, et al. Erectile dysfunction after transurethral prostatectomy for lower urinary tract symptoms: results from a center with over 500 patients. *Asian J Androl.* 2006; 8:69-74.

Correspondence

Carlo Pavone, MD, Professor (Corresponding Author)

carlo.pavone@unipa.it

Daniela Abbadessa, MD

Giovanna Scaduto, MD

Giovanni Caruana, MD

Cristina Scalici Gesolfo, MD

Dario Fontana, MD, Professor

dariofontana1987@yahoo.it

Luigi Vaccarella, MD

Section of Urology, Department of Surgical, Oncological and Stomatological Sciences, University of Palermo, Palermo, Italy