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HOW TO IMPROVE PATIENT SATISFACTION AND SEXUAL QUALITY OF LIFE AFTER PENILE PROSTHESIS IMPLANTATION

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Abstract

Although the long-term patient satisfaction rate after implantation of penile prosthesis (IPP) is high, there is still a large number of patients who are not satisfied. This review analyzes factors influencing areas that affect final patient and partner satisfaction and their sexual quality of life (SQoL). The PubMed database was searched between 01.2000 and 11.2021 for papers concerning penile implant surgery and its outcomes. There are multiple pre-, intra- and post-operative factors that influence patient satisfaction and couples' SQoL. The pre-operative factors are proper patient and prosthesis selection. If the procedure is performed by a high-volume surgeon in a high-volume center according to the GIRFT model, then the risk of serious complications is diminished. A psychosexual therapist should collaborate with the surgeon in patient selection, the sexual education of the couple, reassuring them and recognizing that there are causes of sexual life dissatisfaction other than erectile dysfunction (ED). After IPP a therapist is closely involved in educating the couple about coping with the new situation. Patient satisfaction after IPP is attainable if patients are properly selected, the surgery proceeds without complications and there is close cooperation between the surgeon and psychosexual therapist.
Key words: penile prosthesis implantation, sexual quality of life, surgery improvement

Introduction

Erectile dysfunction (ED) is a contemporary condition which affects more and more men every day. In China alone the last meta-analysis revealed that in a group of a total of 48,254 participants the occurrence rates of ED in age groups younger than 30, 30 to 39, 40 to 49, 50 to 59, 60 to 69, and at least 70 years were 20.86%, 25.30%, 40.48%, 60.12%, 79.10%, and 93.72%, respectively, while the severity-specific prevalence rates of mild, moderate, and severe ED were 32.54%, 9.86%, and 13.97%, respectively [1]. Severe ED is treated by implantation of a penile prosthesis (IPP), if all less invasive methods e.g., oral phosphodiesterase type-5 inhibitor (iPDE5), vacuum erection device (VED) and intraurethral and intracavernosal injections of alprostadil fail or the patient refuses to use them [2]. In the USA alone, 25,000 penile implants are inserted every year. Most of the patients who undergo penile prosthesis implantation have ED caused by diabetes mellitus (DM) and radical prostatectomy (RP) or other pelvic surgery [3]. Patients' sexual quality of life (SQoL) after IPP is improved, and patient and partner satisfaction rates, as well as overall patient satisfaction rates with a penile prosthesis (PP), are over 85%. What can be done if some of the patients who have undergone IPP are still not satisfied? This paper reviews possible areas of improvement before, during and after implantation of PP which will result in higher patient satisfaction and SQoL for both the patient and partner.

A PubMed search between 01.2000 and 11.2021 was used to identify all articles related to patient satisfaction and SQoL after PP implantation. The keyword "penile prosthesis / implant satisfaction" resulted in 533 articles, "penile prosthesis / implant quality of sexual life" – 82 articles, "penile prosthesis / implant

surgical technique" – 1,069 articles and "penile prosthesis / implant complication" yielded 862 texts respectively. After reviewing the results and excluding duplicates or papers of little importance, 24 articles were analyzed in detail in order to obtain the most reliable data about the subject of the publication.

Key factors for patient satisfaction

There are a few areas which could be identified as crucial if the patient and partner are ultimately to be satisfied with their SQoL. The first one is surgical, the other is psychosexual. In each area the surgeon (urologist) and psychosexual therapist are responsible for the ultimate success. Depending on the time of intervention one can distinguish four periods, namely pre-operative, intra-operative, post-operative and follow-up. Each area in each time period was checked for potential risks and analyzed for possible interventions to prevent patient dissatisfaction.

Patient satisfaction after IPP does not only arise from sufficient surgical results, but is associated with many more, intra- and post-operative complications, perceived penile length loss and glans engorgement, appropriate pain management, how satisfied the patient and partner were with the pre-operative sexual life, whether the partner is satisfied, and the extent to which the pre-operative expectations are met [4].

Some of these factors depend on proper patient selection, surgical technique and post-operative management, while the rest of them depend on proper patient and partner counseling before IPP and during the follow-up period at least twelve months after surgery (Table 1).

Pre-operative factors – patient preparation

Ideally, surgery aims to offer an appropriate patient an appropriate procedure. Patients are typically selected through clinical patient counseling and examination. In the case of patients with end-stage refractory ED who are resistant to first and second-line treatments, the cause of ED should be diagnosed, and they should also be interviewed using IIEF and EDITS questionnaires to establish the severity of the ED [5]. Past ED treatment is important to exclude patients who have responded sufficiently to iPDE5, VED or PGE1 usage. Past medical and surgical history, including lower urinary tract symptoms (LUTS), abdominal scars, hernias and BMI, should be assessed. The surgeon should discuss the most frequent risks, e.g infection, erosion, bleeding, auto-inflation, glans droop, urethral injury and altered glans sensitivity. Prosthesis selection is crucial for patient satisfaction. The immanent features of each implant should exceed the patient and partner's expectations in terms of penile rigidity, time of

implant preparation before having sexual intercourse and penis flaccidity when not used [6]. Usually, patients who have ED secondary to surgery (e.g. radical prostatectomy) appear to ask for erection restoration sometime after surgery [7]. If this patient did not go through post-operative penile and erection rehabilitation, he is at high risk of losing the primary length of the erect penis. If the use of PDE5 inhibitors on a daily basis begins shortly after RP, or even before with the addition of daily training with VED, then the penile length should be preserved and consequently patient dissatisfaction caused by this issue should be avoided. The ideal way not to miss any crucial issues in patient selection for PP is to use a special penile implant checklist [8].

Table 1. Key factors for improving patients' satisfaction and SQoL after IPP

	Surgical	Psychosexual	References
Pre-operative	1. patient selection 2. prosthesis selection 3. previous ED treatment 4. ED and penile rehabilitation	a. patient selection b. couple counselling and reassurance c. realistic expectations d. sexual education e. recognize causes of sexual life dissatisfaction other than ED	Surgical: [1,5,9,10] Psychosexual: [2,10,23]
Intra-operative	1. high-volume center 2. high-volume surgeon 3. GIRFT 4. measurements and length selection 5. pump and reservoir placement 6. meticulous hemostasis 7. wound closure and drainage 8. infection prevention 9. increase the perceived or actual penile length postimplant		Surgical: [8,12,14–16, 19,20,24]
Post-operative Follow-up	1. complications prevention and early recognition 2. wound care 3. pain management 4. device inflation training 5. glans engorgement 6. proper inflation and deflation check 7. check position of each part of implant	a. patient and partner reassurance b. partner involvement in new situation c. couple sexual education with new device d. recognize causes of sexual life dissatisfaction other than IPP	Surgical: [4,6,13,15, 20–22] Psychosexual: [3,18,23]

Pre-operative psychosexual factors

Appropriate psychosexual pre-operative counselling for the patient and his partner helps the surgeon a lot in making decisions about patient selection. Provided the patient agrees to include his partner in the whole process, it is

much more fruitful and beneficial for a SQoL couple to counsel both of them. Patients and partners who have unrealistic expectations, are not convinced and committed to IPP, or who do not agree to irreversible destruction of the corpora cavernosa might be less happy with the final result [6]. This group of patients and partners are not completely disqualified from IPP, but require more counseling and education to be able to give conscious consent for the procedure. The treatment of patients who are suffering from serious mental disorders, especially related to sexual health, should rather be canceled or postponed to another time because insertion of the PP will not solve their psychological issues, even with a well-functioning penile implant [9]. The psychosexual therapist may suggest a few sources of information that will improve the couple's sexual education so that they understand the idea and anatomical placement of a penile implant. The surgeon should be prepared to recognize causes of sexual life dissatisfaction other than ED or to take a complex clinical history, including social and emotional factors. When in doubt about sexual dissatisfaction, the involvement of a psychosexual therapist can be very helpful. A psychosexual therapist is also able to recognize causes of sexual life dissatisfaction other than ED, which allows psychosexual treatment to be begun even before the PP is implanted, and in exceptional cases it even means that surgery can be avoided [10].

Intra-operative surgical factors

It is commonly known that a procedure performed in a high-volume center and by a high-volume surgeon reduces the complication rate, length of surgery and patient dissatisfaction. The learning curve for a single surgeon and the learning curve for a center as a whole team always takes time, and never begins after only a few procedures, but if the surgery is performed in a referral center by a urologist who specializes in andrological surgery, it is highly possible to avoid basic mistakes during implantation [11]. The system implemented in the United Kingdom health system – GIRFT (or "get it right first time") helps to minimize patient dissatisfaction rate, maximize patient care and avoid major complications and revisions. The program focuses on minimizing variation and mistakes and on performing procedures correctly from the moment they are introduced for the first time. Following evidence-based surgical techniques strictly and, in the case of complications, following commonly-accepted management procedures step-by-step is crucial in improving the positive final result ratio [12].

Proper measurements of the corpora cavernosa and selection in certain cases of the best length of cylinders or semi-rigid prosthesis and appropriate rear tip extender (RTE) are correlated with a low chance of the cylinder being loose and moveable and of cylinder erosion. Most implanters choose cylinder length plus RTE the same as the measured length of corpora, but some surgeons slightly

oversized the length of the implanted cylinders to restore penile length and elongate the penis. Oversizing usually elevates the risk of erosion, but the experience of the surgeon in this field is a deciding factor.

Pump and reservoir placement is another key step in the IPP procedure which could cause complications that influence final patient satisfaction. The position of the pump is implicated by the length of tubing and cylinders, but proper tissue compartment selection, position and access to the release button are also very important for quick and unproblematic implant inflation and deflation in the future. Depending on the position, either retropubic in the Retzius space or ectopic in the abdominal wall, different possible complications can be expected [13]. Retropubic placement may be associated with bladder, bowel or external iliac vessel injury, while ectopic may be associated with abdominal pain, a palpable reservoir or misplacement of the reservoir [7,14]. The ideal location is superficial to the transversalis fascia and below the abdominal wall muscles, but cadaveric studies prove that the real positioning of the reservoir is not in the position mentioned above but intraperitoneal (5%), retroperitoneal (10%), and preperitoneal (5%) [15]. Meticulous hemostasis during the whole procedure and shortly before wound closure is the best way to prevent scrotal hematoma and long drainage time [16].

Multilayer wound closure and the use of Dermabond® help to separate the implant from the skin, outside environment and protect tubing from erosion. The use of close-suction drainage reduces the risk of hematoma and post-operative pain, but it is not necessary in every case. Leaving a drain in the scrotum does not alter the risk of implant infection, which should encourage less experienced implanters to use it more frequently [17].

Post-operative surgical factors

Complications which come to light after surgery result from either a surgical fault during implantation or post-operative care [18]. A proper compressive dressing over the whole phallus and scrotum prevents hematoma formation [16]. Removal of the catheter and drain (if either of them is used) as soon as possible may reduce urinary tract infection (UTI) and post-operative pain [19]. Post-operative analgesia reduces pain and increases the likelihood of early patient recovery. The model of multi-modal anesthesia (oral medications plus local anesthetic) lowers pain measured on the visual analogue scale (VAS) and requires fewer narcotics [20]. Wound cleaning and redressing appropriate to the needs of the specific situation encourages the wound to heal properly and reduces scarring. If the patient reports diminished glans engorgement, the use of iPDE5 or intraurethral alprostadil may help in improving this sensation [21].

Follow-up visits (e.g. two, four and six weeks after IPP) are important for supervising the healing process and checking the positioning of each part of the PP. After four to six weeks, when the patient is ready for training, the surgeon educates the patient (and preferably his partner) in layman's terms about how to use the device. The most common problems at the beginning are the location of the pump in the scrotum, squeezing it, the location of the release button and pressing it effectively. Scrotal edema should be completely cured when the training starts, so the thickness of the scrotal wall is minimized and the device is easy to palpate. Check-up visits (e.g. three, six and twelve months after surgery) after the first training session at the clinic and the first intercourse attempts are strongly advised to ensure the patient handles the device properly and to correct mistakes. This also allows the surgeon to interview the couple about their initial impressions following the resumption of sexual activity, initial satisfaction and to perform a SQoL assessment [22].

Post-operative psychosexual factors

The first few months after IPP are revolutionary in a couple's sexual life. At the beginning the penis and scrotum may look swollen, bruised and unpleasant. Later the couple have to learn how to operate a new device and how to include implant activation in their sexual rituals [23]. During this time it is very important to reassure the patient and partner that they should not lose faith that implantation of a PP was the right decision. Provided it is possible, involving the partner in the whole process usually results in a patient having higher self-confidence, a feeling of acceptance and support from his partner, and reduces the stress caused by having sexual intercourse with a penile implant inside the penis [24].

The psychosexual therapist should not only focus on all the issues associated with penile implantation, but also recognize causes of sexual life dissatisfaction other than IPP, which can still be present from the couple's past sexual history and could appear as a new problem, regardless of IPP. This attitude allows one to diagnose and treat all other factors important for final satisfaction following IPP and the couple's SQoL [10].

Conclusions

Patient satisfaction after IPP is easily attainable if the patient is properly selected, surgery is performed with no intra- or post-operative complications, and there is close cooperation between the surgeon and psychosexual therapist throughout the whole process of penile implant placement. As a result of this, both the percentage of satisfied patients and partners increases and the SQoL is improved.

References

1. Wang W, Fan J, Huang G, Zhu X, Tian Y, Tan H, Su L. *Meta-Analysis of Prevalence of Erectile Dysfunction in Mainland China: Evidence Based on Epidemiological Surveys.* Sex Med. 2017; 5(1): e19-e30. doi: 10.1016/j.esxm.2016.10.001.
2. Yafi FA, Jenkins L, Albersen M, Corona G, Isidori AM, Goldfarb S, Maggi M, Nelson CJ, Parish S, Salonia A, Tan R, Mulhall JP, Hellstrom WJ. *Erectile dysfunction.* Nat Rev Dis Primers. 2016; 2: 16003. doi: 10.1038/nrdp.2016.3.
3. Bajic P, Mahon J, Faraday M, Sadeghi-Nejad H, Hakim L, McVary KT. *Etiology of Erectile Dysfunction and Duration of Symptoms in Patients Undergoing Penile Prosthesis: A Systematic Review.* Sex Med Rev. 2020; 8(2): 333–337. doi: 10.1016/j.sxmr.2019.05.003.
4. Welliver C. *Optimizing Outcomes in the Virgin Penile Implant Patient*. Curr Urol Rep. 2019; 20(3): 14. doi: 10.1007/s11934-019-0876-6.
5. Manfredi C, Fortier É, Faix A, Martínez-Salamanca JI. *Penile Implant Surgery Satisfaction Assessment*. J Sex Med. 2021; 18(5): 868–874. doi: 10.1016/j.jsxm.2021.03.007.
6. Narang GL, Figler BD, Coward RM. *Preoperative counseling and expectation management for inflatable penile prosthesis implantation*. Transl Androl Urol. 2017; 6(Suppl 5): S869–S880. doi: 10.21037/tau.2017.07.04.
7. Barton GJ, Carlos EC, Lentz AC. *Sexual Quality of Life and Satisfaction With Penile Prostheses*. Sex Med Rev. 2019; 7(1): 178–188. doi: 10.1016/j.sxmr.2018.10.003.
8. Bennett N, Huang IS. I*nflatable penile prosthesis in the radical prostatectomy patient: a review*. F1000Res. 2018; 7: 770. doi: 10.12688/f1000research.15241.1.
9. Masterson TA, Palmer J, Dubin J, Ramasamy R. *Medical pre-operative considerations for patients undergoing penile implantation.* Transl Androl Urol. 2017; 6(Suppl 5): S824–S829. doi: 10.21037/tau.2017.03.85.
10. Dos Reis MMF, Barros EAC, Pollone M, Molina MBG, Westin CPV, Glina S. *Preoperative Psychological Evaluation for Patients Referred for Penile Prosthesis Implantation*. Sex Med. 2021; 9(2): 100311. doi: 10.1016/j.esxm.2020.100311.
11. Carvalheira A, Santana R, Pereira NM. *Why Are Men Satisfied or Dissatisfied with Penile Implants? A Mixed Method Study on Satisfaction with Penile Prosthesis Implantation*. J Sex Med. 2015; 12(12): 2474–2480. doi: 10.1111/jsm.13054.
12. Capogrosso P, Pescatori E, Caraceni E, Mondaini N, Utizi L, Cai T, Salonia A, Palmieri A, Deho' F. *Satisfaction rate at 1-year follow-up in patients treated with penile implants: data from the multicentre prospective registry INSIST-ED*. BJU Int. 2019; 123(2): 360–366. doi: 10.1111/bju.14462.
13. Fernandez-Crespo RE, Buscaino K, Carrion R. *Optimizing Outcomes in Penile Implant Surgery*. Urol Clin North Am. 2021; 48(4): 527–542. doi: 10.1016/j.ucl.2021.06.010.
14. Cui T, Terlecki R, Mirzazadeh M. *Infrequent Reservoir-Related Complications of Urologic Prosthetics: A Case Series and Literature Review*. Sex Med. 2015; 3(4): 334–338. doi: 10.1002/sm2.85.
15. Natali A, Grisanti Caroassai S, Tasso G, Cito G, Gemma L, Cocci A, Sessa F, Verrienti P, Serni S, Carini M, Delle Rose A. *Intra-peritoneal versus*

retropubic implantation of three-piece inflatable penile prosthesis: Patient-reported outcomes and complications. Urologia. 2021; 88(4): 326–331. doi: 10.1177/0391560320967876.

16. Ziegelmann MJ, Viers BR, Lomas DJ, Westerman ME, Trost LW. *Ectopic Penile Prosthesis Reservoir Placement: An Anatomic Cadaver Model of the High Submuscular Technique.* J Sex Med. 2016; 13(9): 1425–1431. doi: 10.1016/j.jsxm.2016.06.012.
17. O'Rourke TK Jr, Erbella A, Zhang Y, Wosnitzer MS. *Prevention, identification, and management of post-operative penile implant complications of infection, hematoma, and device malfunction.* Transl Androl Urol. 2017; 6(Suppl 5): S832–S848. doi: 10.21037/tau.2017.06.07.
18. Sadeghi-Nejad H, Ilbeigi P, Wilson SK, Delk JR, Siegel A, Seftel AD, Shannon L, Jung H. *Multi-institutional outcome study on the efficacy of closed-suction drainage of the scrotum in three-piece inflatable penile prosthesis surgery.* Int J Impot Res. 2005; 17(6): 535–538. doi: 10.1038/sj.ijir.3901354.
19. Habous M, Tal R, Tealab A, Aziz M, Sherif H, Mahmoud S, Abdelwahab O, Nassar M, Kamil U, Abdelrahman Z, Binsaleh S, Giona S, Ralph D, Bettocchi C, Mulhall JP. *Predictors of Satisfaction in Men After Penile Implant Surgery*. J Sex Med. 2018; 15(8): 1180–1186. doi: 10.1016/j.jsxm.2018.05.011.
20. Jorissen C, De Bruyna H, Baten E, Van Renterghem K. *Clinical Outcome: Patient and Partner Satisfaction after Penile Implant Surgery.* Curr Urol. 2019; 13(2): 94–100. doi: 10.1159/000499286.
21. Tong CMC, Lucas J, Shah A, Foote C, Simhan J. *Novel Multi-Modal Analgesia Protocol Significantly Decreases Opioid Requirements in Inflatable Penile Prosthesis Patients*. J Sex Med. 2018; 15(8): 1187–1194. doi: 10.1016/j.jsxm.2018.05.017.
22. Mulhall JP, Jahoda A, Aviv N, Valenzuela R, Parker M. *The impact of sildenafil citrate on sexual satisfaction profiles in men with a penile prosthesis in situ*. BJU Int. 2004; 93(1): 97–99. doi: 10.1111/j.1464-410x.2004.04564.x.
23. Chierigo F, Capogrosso P, Dehò F, Pozzi E, Schifano N, Belladelli F, Montorsi F, Salonia A. *Long-Term Follow-Up After Penile Prosthesis Implantation-Survival and Quality of Life Outcomes.* J Sex Med. 2019; 16(11): 1827–1833. doi: 10.1016/j.jsxm.2019.08.001.
24. Carlos EC, Nosé BD, Barton GJ, Davis L, Lentz AC. *The Absence of a Validated English-Language Survey to Assess Prosthesis Satisfaction: A Prospective Cohort Using the Sexual Quality of Life After Penile Prosthesis*. J Sex Med. 2020; 17(11): 2307–2310. doi: 10.1016/j.jsxm.2020.07.012.
25. Pisano F, Falcone M, Abbona A, Oderda M, Soria F, Peraldo F, Marson F, Barale M, Fiorito C, Gurioli A, Frea B, Gontero P. *The importance of psychosexual counselling in the re-establishment of organic and erotic functions after penile prosthesis implantation.* Int J Impot Res. 2015; 27(5): 197–200. doi: 10.1038/ijir.2015.17.

Jak poprawić satysfakcję pacjenta i jakość życia seksualnego po implantacji protezy prącia

Streszczenie

Pomimo że długookresowy poziom satysfakcji pacjenta po implantacji protezy prącia (IPP) jest wysoki, wciąż istnieje szeroka grupa pacjentów niezadowolonych z implantu. Praca analizuje czynniki wpływające na końcową satysfakcję pacjenta i jego partnerki/partnera oraz ich jakość życia seksualnego (JŻS). Przeszukano bazę PubMed za okres styczeń 2000 – listopad 2021 w poszukiwaniu publikacji dotyczących implantacji protez prącia i ich wyników. Istnieje wiele przed-, śród- i pooperacyjnych czynników wpływających na satysfakcję pacjenta i JŻS pary. Czynnikami przedoperacyjnymi są właściwa selekcja pacjentów i wybór implantu. Wykonanie zabiegu przez doświadczonego chirurga w ośrodku referencyjnym z zastosowaniem modelu GIRFT zmniejsza ryzyko poważnych powikłań. Psychoseksuolog powinien współpracować z chirurgiem w wyborze pacjentów, uspokojeniu i edukacji seksualnej par oraz rozpoznaniu innych niż zaburzenia erekcji przyczyn niezadowolenia z życia seksualnego. Po implantacji terapeuta powinien być zaangażowany w edukację pary odnośnie tego, jak sobie poradzić w nowej sytuacji. Satysfakcja pacjentów po IPP jest osiągalna poprzez odpowiednią kwalifikację pacjentów, niepowikłane zabiegi oraz bliską współpracę chirurga i psychoseksuologa.

Słowa kluczowe: implantacja protezy prącia, jakość życia seksualnego, udoskonalenie operacji chirurgicznych