

IMPROVING THE QUALITY OF LIFE OF ERECTILE DYSFUNCTION (ED) PATIENTS THROUGH PENILE IMPLANTS

Erectile dysfunction (ED) is defined as an inability to obtain an erection sufficient for sexual intercourse, a condition which can cause emotional distress. ED can be constant or intermittent, and most men experience ED to some degree after the age of 40. Recurrent ED can cause emotional distress for the individual, as well as the couple, leading to diminished self-esteem. One form of treatment involves insertion of penile implants in which malleable or inflatable rods are inserted into the penis. Once inserted, the implant provides the rigidity necessary for intercourse. The advantage of the penile implant as opposed to other forms of treatments for ED is the permanent resolution of ED vs the lack of reliability of the other forms of ED treatment (eg, oral therapy).

Study Purpose: To determine if placement of penile implants for the treatment of ED can not only allow patients to achieve and maintain erections but also improve the adverse psychological impact ED has on patients and their partners.

Materials and Methods: From a cohort of patients treated with penile implants for ED, we administered a validated quality-of-life questionnaire to study the physical and emotional impact of the surgery on patients and their partners. We also conducted personal interviews with urologists who perform the penile implant procedure to determine the perceived effects on their patients.

Conclusion: The survey clearly illustrated that the benefit of penile implants on ED patients extends well beyond the physical erection, easing marital tension associated with sexual dysfunction and increasing self-confidence.

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INTRODUCTION

A psychogenic stimulus, visual, tactile or other, causes the central nervous system (CNS), or more specifically, the hypothalamic and limbic systems, to send neurotransmitters to the pelvic area, increasing arterial blood flow to the penis. Blood reaches the penis via helicine arteries, which branch off from two cavernosal arteries, originating from the internal pudendal artery and the internal iliac artery. Traberculae smooth muscle, which support the corpora cavernosa, are contracted in the flaccid state to permit only a small amount of arterial blood flow. The key to obtaining tumescence is relaxation of the traberculae smooth muscle.

It is thought that sexual stimulus makes certain nerves, specifically non-adrenergic and noncholinergic nerves (NANC) and endothelial cells of the penis, release nitric oxide. The subsequent formation of the second messenger, cGMP, is ultimately responsible for corporal smooth-muscle relaxation. Gap junctions in the membranes of smooth muscle cells allow for K⁺ ions and cGMP movement. Pressure in the Lacunar spaces increases due to additional arterial blood flow to the penis, overcoming pressure in the subtunical space, which contains veins responsible for blood outflow from the penis. The traberculae smooth muscle expands and compresses the subtunical space against the tunica albuginae, which is the rough outer layer of the corpora cavernosa and is made of elastic tissue with embedded collagen fiber that offers expandable capability and rigidity. Thus, the tissues of the penis become rigid as blood flow increases, erectile tissue expands, and blood outflow decreases.

Erectile dysfunction can be treated in several ways. Certain drugs aid some ED patients by reducing the effect of nitric oxide and facilitating tumescence for 6–10 hours. However, such drugs can be costly, require stimulation, and can have side effects such as disturbed vision, hypotension, headache, and diarrhea. Injections of papavarine, alprostadil, or phentolamine into cavernosal tissue 20 minutes before sexual intercourse allows ED patients to maintain an erection for less than an hour by relaxing smooth muscle traberculae. Injections may be very painful and are not for daily use or for people with certain allergies or Peyronie's disease. Muses, another form of ED treatment, are applicators inserted into the urethra 5–10 minutes before sex at most twice a day. Muses provide only partial erections and are not to be used with pregnant partners. Pumps yield an erection by negative pressure, and last until the ring is removed. However, this method of treatment may lead to bruising and makes ejaculation difficult. Penile implants, vs other treatment, have a 100% effectiveness rate because they do not rely on the body's biochemical or vascular processes. They are natural and allow for orgasm and ejaculation (if the prostate is intact); although, as with any surgical procedure, there is risk of infection, bleeding, and a potential need follow-up surgeries.

There are three forms of inflatable penile implants: rods, two-piece inflatable penile implants, and three-piece inflatable penile implants, used in 5%, 15%, and 75% of penile implant cases, respectively. A catheter is first inserted into the urethra, and a small opening is made on the dorsal side of the penis. The rods are inserted with a suture

through the head of the penis. The pump is placed in the midline in between the two testicles. A reservoir that holds at least 25cc of fluid is placed in a hernia, a hole in the abdominal wall, made by the surgeon. About three sutures are required to close the incision. The implant operates in a hydraulic fashion: the pump draws water from the reservoir to the rods.

METHODS

Utilizing secondary survey techniques from the study by Tefilli et al,¹ we examined the psychosexual and emotional improvement in penile implant recipients. This study of 35 penile implant recipients included 60% married, 8.6% with a long-term sexual partner, and 31.4% without a long-term partner. Participants were surveyed three months prior to penile implantation and 3, 6, and 12 months postoperatively. Survey

questions, based on a Likert scale, asked questions about satisfaction of the implants as well as questions to assess psychological and emotional well being. The study was conducted in 1998.

RESULTS

Self-reported change in psychosexual and emotional wellbeing in penile implant recipients was found to be statistically significant ($P=.0005$). A general linear model (GLM) and repeated measures analysis of variance (ANOVA) were used to investigate within-subject effects and contrasts. Score improved from 11 to 18 in a year, with standard deviation improving from 11.18 ± 4.12 to 18.44 ± 3.46 .

CONCLUSION

There seems to be significant improvement in the psychosexual well be-

ing of penile implant recipients up to one year after surgery. Results from the 1998 survey can be utilized to make ED patients considering penile implant more comfortable with the overall psychosexual and emotional benefits of the implant. Future studies should survey a larger population of penile implant recipients over a longer period of time and should also include the spouse (if applicable) to arrive at results that are not solely self-reported.

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REFERENCE

1. Tefilli MV, Dubocq F, Rajpurkar A, et al. Assessment of psychosexual adjustment after insertion of inflatable penile prosthesis. *Urology*. 1998;52(6):1106-1112.