

Clinical outcomes and patient satisfaction rates among elderly male aged ≥ 75 years with inflatable penile prosthesis implant for medically refractory erectile dysfunction

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Received: 15 February 2013 / Accepted: 20 May 2013 / Published online: 26 May 2013
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Abstract

Purpose The purpose of the study is to assess the clinical outcomes and patient satisfaction rate between men aged under and over 75 years who underwent inflatable penile prosthesis (IPP) implantation.

Methods and materials A retrospective review of clinical database and follow-up independent telephone survey was undertaken in all men who underwent first-time IPP implantation between January 2006 and November 2010. Patient demographics, surgical outcomes, and patient satisfaction rate using Erectile Dysfunction Inventory of Treatment Satisfaction (EDITS) scores were recorded.

Results A total of 216 first-time IPP were implanted. Of these, 30 patients were aged ≥ 75 years. In men aged ≥ 75 years, 3 patients had IPP revision surgery for mechanical malfunction (average 18.6 months; 12–24 months). While the 2-year Kaplan–Meier estimates of mechanical survival showed better outcome in men aged ≥ 75 years than men aged < 75 years (95 vs. 92 %; $p = 0.38$), there was no difference in the IPP mechanical survival between the 2 groups at 3 years follow-up. There were no statistically significant differences in the ease of IPP use, and EDITS scores among the two groups. The majority of men were satisfied and would recommend the IPP surgery to other men.

Conclusions Men aged ≥ 75 years reported satisfactory outcome with IPP surgery with no statistical significant

difference identified across device survival and satisfaction rates compared to men aged < 75 years.

Keywords Erectile dysfunction · Penile prosthesis · Men older than 75 years · Elderly male · Clinical outcome · Patient satisfaction

Introduction

The United Nation reported a steady increase in the ageing population and demand for health care services [1]. Many large-scale population studies on global presence of erectile dysfunction (ED) showed a close relationship with ageing [2–4]. Many older men become unresponsive to medical therapy due to the development and/or progression of their medical co-morbidities, and therefore require penile prosthesis implantation to remain sexually active [5–7].

However, in spite of this, many surgeons may be reluctant to offer prosthesis implantation to older men due to various concerns such as misperception and prejudices of an “asexual” old age with diminished and lack of sexual intercourse, and those regarding impaired dexterity and manual handling of an inflatable penile prosthesis (IPP). The increasing longevity of men and women, increasing awareness of sexual health function as part of general health and improved medical care in conditions such as hypogonadism, has resulted in increasing health care demands to meet the sexual expectations in the ageing population. In men aged 70 and older, it has been shown that ED, and not loss of sexual desire, was the commonest factor cited for being sexually inactive and that the low sexual function scores were found in the domains of erectile function, orgasm, and overall satisfaction [7].

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At present, there is limited published literature in men aged ≥ 75 years who underwent penile prosthesis implant. The following study examines the clinical outcomes and patient satisfaction rates in men aged ≥ 75 years who have medical refractory ED and undergone IPP implantation. We compare the clinical outcomes, IPP mechanical malfunction, and satisfaction rates between men aged ≥ 75 and < 75 years.

Methods and materials

Following institutional ethics review board approval, all men who received first-time IPP between January 2006 and November 2010 were identified. A retrospective chart review of patient demographics was carried out. The IPP implantation was performed using standard penoscrotal approach and surgical care as described in the literature [8].

A survey instrument was developed by the one of the authors (EC) based on the comprehensive review of pertinent literature and sexuality-related measures [9, 10]. The validity of this survey was reviewed and revised by the senior author (GBB) to ensure that the questions were appropriate and clear. An independent third-party telephone interview was conducted to complete the questionnaire survey. Patients were surveyed on the frequency of and ease of IPP use, and patient satisfaction with IPP for sexual activity with Erectile Dysfunction Inventory of Treatment Satisfaction (EDITS) scores. If the patient refused to respond to the entire survey, he was asked if he was satisfied with the IPP and whether he is currently using the IPP.

Categorical variables were tested using a chi-squared and non-paired Student's *t* test. All statistical analyses were conducted using STATA[®]10 (StataCorp, College Station, TX, USA), and a significance level of $p < 0.05$ was utilized and all tests were two-sided.

Results

Patient characteristics

A total of 216 first-time IPP were implanted during the 5-year period. We identified 30 men aged ≥ 75 years (average 77.1; 75–84 years old) at IPP implantation. The average length of follow-up for men aged < 75 years was 39.0 (1–72) months and in men aged ≥ 75 years was 38.8 (8–72) months.

Complete information was obtained in 180 patients (including 30 men aged ≥ 75 years). The remaining 36 patients replied either by not having a sexual partner, refused to reply, or were not sexually active, and/or were

not contactable, resulting in a non-response rate of 17 %. Only 5 patients who are sexually active and were contacted on the telephone interview declined participation. All 5 men reported that they were happy with the IPP implantation.

The assessment of the questionnaire developed by the authors showed that the majority of men (83 %) reported sexual intercourse rate at least twice per month. Among men aged ≥ 75 years, 21 out of 30 men have sex more than twice per month (Table 1).

Surgical outcomes

At the time of review, 18 (8 %) patients had additional operations for either IPP revision or removal. Twelve (6 %) patients underwent IPP revisions for mechanical malfunction (11 patients) and personal dissatisfaction (1 patient). The average time to IPP revision was 31.2 (6–48) months. The IPP cylinder wear and subsequent fluid loss were the predominant reason for mechanical failure. In men aged ≥ 75 years, 3 patients had IPP revision surgery for mechanical malfunction (average 18.6 months;

Table 1 Selected variables on IPP use and satisfaction rates between men aged $<$ and ≥ 75 years

	< 75 years	≥ 75 years
Numbers (complete information)	150	30
<i>Frequency of IPP use</i>		
At least weekly	25 (17 %)	3 (10 %)
≥ 2 monthly	95 (63 %)	21 (70 %)
Once a month	25 (17 %)	3 (10 %)
Infrequently	5 (3 %)	3 (10 %)
<i>Ease of IPP use scores</i>		
1–3	7 (5 %)	1 (3 %)
4–5	143 (95 %)	29 (97 %)
<i>Overall satisfaction scores</i>		
1–3	15 (10 %)	2 (7 %)
4–5	135 (90 %)	28 (93 %)
<i>EDITS scores</i>		
0–2	29 (19 %)	5 (17 %)
3–4	121 (81 %)	25 (83 %)
<i>Undergo surgery again</i>		
Yes	145 (97 %)	29 (97 %)
No	5 (3 %)	1 (3 %)
<i>Would recommend surgery</i>		
Yes	145 (97 %)	29 (97 %)
No	5 (3 %)	1 (3 %)

Ease of IPP use—on a scale from 1 to 5, with 5 meaning very easy to use; Overall satisfaction—on a scale from 1 to 5, with 5 meaning very satisfied; EDITS questionnaires on “Overall, how satisfied are you with this treatment”—on a scale of 0 (no satisfaction or dissatisfaction) to 4 (high satisfaction)

12–24 months). All IPP infection occurred in men aged <75 years, and 6 (3 %) IPPs were removed during the 5-year period.

While the 2-year Kaplan–Meier estimates of mechanical survival showed better outcome in men aged ≥ 75 years than men aged <75 years (95 vs. 92 %; $p = 0.38$), there was no difference in the IPP mechanical survival between the 2 groups at 3 years follow-up (Fig. 1).

Patient satisfaction

Selected characteristics of full survey responders between men under and over 75 years of age are summarized in the Table 1.

The majority of patients rated the IPP use at an average of 4.1 (out of 5), and there was no statistical significant difference between the 2 groups including the types of IPP devices ($p = 0.76$). The overall satisfaction was 4.2 (out of 5) with 160 of 180 patients (89 %) rated their overall satisfaction as either 4 or 5. On question one of the EDITS questionnaires on “Overall, how satisfied are you with this treatment” on a scale of 0 (no satisfaction or dissatisfaction) to 4 (high satisfaction) [11], more than two-thirds scored at least 3 on the ratings. The most common complaint was dissatisfaction with the erect penile length on inflation of the IPP. There was no difference between the 2 groups ($p = 0.60$).

More than 90 % reported that they would undergo the operation again (higher in men aged ≥ 75 years; 29 out of 30 men) and that they would recommend the surgery for other men (no difference found between men aged < and ≥ 75 years). Those declining the offer reported poor IPP rigidity and partner dissatisfaction.

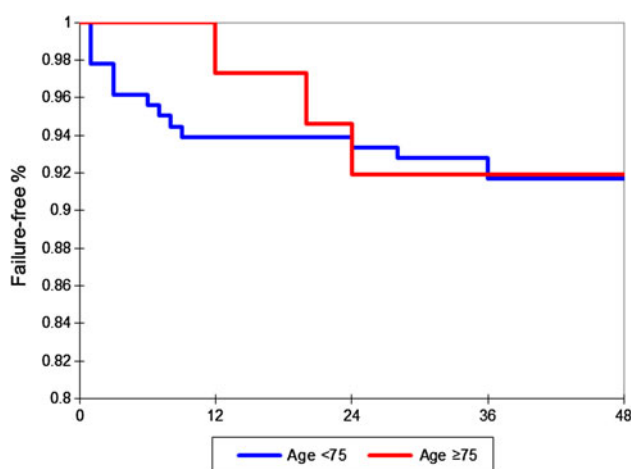


Fig. 1 The Kaplan–Meier estimates of mechanical survival showed better outcome in men aged ≥ 75 years than men aged <75 years at 2-year (95 vs. 92 %; $p = 0.38$), but no significant difference in the IPP mechanical survival was found by 3 years of follow-up. Y-axis does not start at 0.0

Discussion

A survey of sexuality and health in the ageing population showed older men remain sexually active even into the eight decades of life [12]. However, the progression and/or development of new medical co-morbidities increase the risk of ED and diminish the efficacy of medical therapy [13]. As a result, it is likely that there is considerable increase in the number of elderly men seeking IPP implantation in the very near future.

Current literature on IPP in elderly male is limited especially in men aged ≥ 75 years. Older publications such as Levine et al. [14] reported that decrease dexterity of elderly patients and/or presence of other medical conditions such as arthritis and neuropathy pose concern when choosing an IPP in the older patients. Akin-Olugbade et al. [15] found lower satisfaction rate in men aged ≥ 70 years than the general population, while Villarreal et al. [8] and Al-Najar et al. [16] showed that IPP was well tolerated with high satisfaction rate and ease of use among elderly men. Similarly, in our cohort, the overall satisfaction rate showed high satisfaction rate among elderly men, and more importantly, there was no significant difference in the satisfaction rates between men aged < and ≥ 75 years ($p = 0.60$).

Several reasons for patient dissatisfaction include reduced penile length, post-operative appearance of the penis, insufficient firmness, altered penile and erection sensation, decreased sensation during ejaculation, and difficulty with using the prosthetic devices. In our study, patient dissatisfaction with erect penile length on inflated IPP was the most common complaint and accounted for the majority of patient dissatisfaction with the outcome of surgery. The decrease in penile length following surgery compared with recalled preoperative penile dimensions highlighted that the patient's expectation in terms of penile size was not met often even when the outcome of penile prosthesis implantation was excellent according to the surgeon [17]. Among elderly men, increasing truncal obesity and lack of glans tumescence in a prosthetic erection may also play a role in the overall decrease in penile length.

While long-term safety and efficacy of the IPP are well-documented [18], the data on IPP mechanical failure among elderly men are limited. With a median follow-up period of 68.5 months, Al-Najar et al. [16] showed that 17 of the 18 penile prostheses remained functioning and did not require surgical repair, while Villarreal et al. [8] reported that one IPP was removed for infection 8 months after implantation. In our study, 3 men aged ≥ 75 years had IPP revision surgery for mechanical malfunction at a mean follow-up of 38.8 months. None of the men aged ≥ 75 years had prosthesis infection and/or erosion. While

surgical complications relating to IPP implantation cannot be neglected in an older patient, our study did not find any significant increase in the rate of intra- and post-operative IPP complications among men aged ≥ 75 years compared to men aged < 75 years. At 3 years follow-up, there was no significant difference in the IPP mechanical survival between the 2 groups.

Brinkman et al. [10] reported that only 66 % among 248 patients used the IPP on regular basis, and recent update from the group [19] found that more than 60 % of patients reported using their IPP at least once a week. In contrast, Al-Najar et al. [16] reported that of the 18 men aged ≥ 70 years, more than two-thirds used their penile prostheses at least once every 2 weeks; three men (20 %) used the penile prosthesis more than twice every 2 weeks, and eight men (53 %) used it at least once every 2 weeks. Our study also found that 21 out of 30 men aged ≥ 75 years (70 %) had sex more than twice per month.

The direct comparison in the surgical outcomes and patient satisfaction rate between men aged $<$ and ≥ 75 years can be biased, and observation may be limited for several reasons. The significantly higher proportion of men aged < 75 years potentially biased some of the observation. However, in a relatively matched 1:4 ratio with no statistical significant difference in patient demographics apart from a higher percentage of pure ED causes in men aged ≥ 75 years, we found that men aged ≥ 75 years have similar clinical outcomes and patient satisfaction rate to men aged < 75 years. Furthermore, this study demonstrated that men aged ≥ 75 years reported similar frequency of IPP use to men aged < 75 years and that the IPP mechanical survival was similar at 3 year follow-up. We acknowledged that the relatively short-term follow-up and absence of other sexual performance information such as duration of sexual intercourse may affect the IPP mechanical survival. The introduction of recall bias and retrospective review of clinical database also present limitation to our study. While EDITS questionnaire is a validated instrument to evaluate erectile treatment satisfaction, it has not been validated in the context of IPP implant satisfaction [20]. Despite these limitations, the excellent patient response rate and complete data collection (83 %) with independent interviewer and the use of standardized questionnaire, we believe our study has shown that the surgical outcomes and patient satisfaction rate were not dissimilar between men aged $<$ and ≥ 75 years.

There are several determinant factors in deciding whether men aged ≥ 75 years should be consented for penile prosthesis implantation. We identified in our cohort that adequate preoperative counselling on patient expectation of penile prosthesis and critical evaluation of his current sexual health are two very important key aspects. True interest and motivation in being sexual, having a willing partner, generally good health, and reasonable life

expectancy play critical roles in ensuring the best candidates for penile prosthesis in elderly men. In an ageing population with increasing awareness and high demands to remain sexually active, the implantation of penile prosthesis in men with medically refractory ED should not be biased by patient age. In fact, elderly patients with ED are often grateful and reported high satisfaction rate with IPP use. Indeed, we did not find any substantial differences in the surgical outcomes and patient satisfaction rate between men aged $<$ and ≥ 75 years.

Conclusions

Older age should not be a limiting factor for IPP implantation in the current ageing population. Our study demonstrates that men aged ≥ 75 years have similar IPP clinical outcomes and excellent satisfaction rate compared to men aged < 75 years.

Conflict of interest None.

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