

## Erectile Function Post Robotic Radical Prostatectomy: What are the Technical Tips and Tricks?

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### Introduction

Robotic surgery, is becoming more and more commonplace. At the same time, so are complications, most especially related to erectile function. The population being diagnosed with cancer are becoming younger, with more aggressive cancers and higher expectations for good erectile function post operatively. Erectile dysfunction is a multifactorial condition that affects approximately 40% of men [1,2].

About 70% of adult men are sexually active [3]. Decreased sexual desire was reported by 18-37% of men aged 40 years and older [3]. ED regardless of severity was reported by 25.1% of men aged 20-80+ years, and 8.5% reported severe ED [3]. Of men with ED, 30% had sought treatment, an increasing number [3]. Despite the great majority of the affected participants having experienced ED for >1 year, only 14.1% reported having ever received any treatment for ED [4]. Given the reported success and benefits of post-prostatectomy treatments for erectile dysfunction, how do we improve management of erectile dysfunction outcomes post robotic radical prostatectomy?

Pre-operatively all urological patients should be thoroughly assessed including age at surgery, comorbidities, preoperative erectile dysfunction are associated with improved erectile function after surgery-markers of pelvic vascular status [5]. This is supported by pre-treatment SHIM score, age and nerve-sparing characteristics which are independent predictors of erectile function two years post op [6].

A range of lifestyle factors, more often associated with chronic disease, were significantly associated with erectile dysfunction [7]. Studies also support a strong relationships between ED and cardiovascular disease [8]. The adverse effects of age and cardiovascular risk factors and disease on erectile function compound each other [8]. Education strategies directed to improving general health may also confer benefits to male reproductive health [7].

With current surgical techniques, trifecta (oncological control, continence and erectile function outcomes) and pentafecta rates were 38% and 26%, respectively [9], even in high risk cancer patients. Whilst some papers have shown not all patients undergoing robot-assisted procedures with complete excision of the neurovascular bundle will become impotent (20% had an erection sufficient for penetration), this is a rarity [10].

One method for improving potency is incremental or interfascial nerve sparing. This is a safe and effective procedure, which provides good oncological outcomes and adequate nerve preservation [11]. Retrograde nerve spare allows for improved overall potency rates as well as earlier return of sexual function [11]. This demonstrates how much the precision of the robotic system has contributed to improved

erectile function. If performed by an experienced surgeon, good results in terms of erection recovery can occur even in a limited caseload centre [12].

The "Landmark Artery" has been shown to be a valuable landmark during nerve sparing radical prostatectomy in improving the quality of the neurovascular bundle (NVB) preservation [13]. The use of Indocyanine green and Firefly technology during nerve spare and radical prostatectomy has the potential to more accurately and more frequently identify the landmark prostatic artery [13]. Additionally, athermal traction can be used to improve erectile function intraoperatively [13].

Whilst trying to limit harm to neurovascular bundles often prevents impotence, very often medical management and penile rehabilitation is the mainstay of treatment. Yet, there is a limitation within randomised evidence for penile rehabilitation. In ED patients after a nerve sparing prostatectomy, a once daily dosage of tadalafil 5 mg was significantly improved erectile function compared with the non-tadalafil group [14]. This has been shown to be beneficial if started pre-operatively [2]. Penile rehabilitation can be taken one step further, with combination therapy, vacuum pump device plus PDE5 inhibitor. This gives enhanced benefit and improved outcomes. However, the potential rehabilitative and protective effect of phosphodiesterase type 5 inhibitors on penile function after nerve-sparing radical prostatectomy remains unclear [15].

Subjects aged >18 years, with ED for at least 6 months, were randomised to receive 12 weeks of on-demand treatment with either 10 mg vardenafil ODT or placebo [16]. Each treatment group was stratified such that approximately half of the subjects were aged >65 years [16]. Treatment with 10 mg vardenafil ODT, taken on demand, significantly improved erectile function and was effective and well tolerated in a broad population of men with ED [16]. Tadalafil once daily was most effective on drug-assisted erectile function in men with erectile dysfunction following none nerve sparing prostatectomy, however, data was similar to placebo [15].

While the majority of men will find phosphodiesterase-5 (PDE-5) inhibitors effective, there is a subgroup of men who require second and third line therapies [1]. The incidence of ED is age related however, it shares common risk factors with cardiovascular disease and metabolic disorders [1]. The management of ED should begin with an assessment of cardiovascular risk factors, advice on lifestyle modification, and a trial of PDE-5 inhibitors [1]. Second line therapies include intracavernosal injections and vacuum erection devices, while third line therapy entails penile implants [1]. Factors that influence

treatment success include partner inclusion, good patient selection, as well as ongoing support and education [1].

Chung et al evaluated the efficacy, safety and patient satisfaction rate with low-intensity extracorporeal shockwave therapy (LiESWT) in Australian men with ED [17]. The underlying basis is to improve penile vascularisation. All patients had tried and failed oral phosphodiesterase type 5 inhibitors and most of the patients had had ED for >18 months [17]. No side-effects to LiESWT were reported. Most patients reported an improvement in IIEF-5 score by 5 points (60%) and EDITS Index score by >50% (70%). Most patients were satisfied (scoring 4 out of 5; 67%) and would recommend the therapy to their friends (80%).

Despite numerous biopsychosocial factors being reported as influencing treatment adoption and compliance, physicians were found to apply a biomedical model of treatment with behavioural, social and psychological factors being generally overlooked or ignored [18]. Impotence is a major source of emotional tension [19]. The men expressed great regret over the lack of information accessible to them [19].

A three arm randomised control trial with 189 heterosexual couples in which the man had been previously diagnosed with prostate cancer compared the efficacy of peer-delivered telephone support Vs nurse-delivered telephone counselling Vs usual care in improving both men's sexual and psychosocial adjustment [20]. Although peer and nurse couples based interventions may increase use of sexual aids this may not translate into better sexual outcomes [20]. Timing within the treatment trajectory may be crucial for sexuality intervention studies after prostate cancer treatment [20]. Interventions in combination with access to a moderated forum provides an effective intervention in reducing psychological distress and improving sexual satisfaction [21].

## Conclusion

In conclusion, there is much we can do to help prevent patients getting postoperative erectile dysfunction post radical surgery. However, part of this is management of realistic patient expectations. Patients should be followed at least 18-24 months after their treatment, to monitor their ED [22]. This allows time for the ED to reach maximum and remain stable for accurate assessment.

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