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REVIEW

Measuring Quality of Life Following Robot-Assisted Radical Prostatectomy

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Background: Prostate cancer (PCa) represents the most common solid organ malignancy in men. Fortunately, at the time of diagnosis, the majority of cases are staged as localized or regional disease, conferring excellent 5- and 10-year cure rates. There are several first line treatment options including surgical approaches such as robot-assisted radical prostatectomy (RARP) and radiation therapy (RT) available to patients with localized disease that offer similar PCa oncologic outcomes but are associated with potentially significant side effects which may impact health-related quality of life (HRQOL) domains. Recently, clinicians and investigators have sought to better understand these changes in HRQOL metrics with the utilization of patient-reported outcomes (PRO). Given that RARP represents the most common surgical treatment for PCa in the United States, there has been a particular interest in assessing these outcomes derived by patient perspectives to more fully appreciate treatment-related impact on quality of life following RARP.

Objective: This narrative review sought to explore the instruments available to measure quality of life after RARP, a review of the PRO data after RARP, and future directions for assessing and improving quality of life outcomes following this surgery.

Clinical Use: There are several treatment options for men diagnosed with local and regional prostate cancer with similar oncologic outcomes but differing patterns of side effects affecting post-treatment quality of life. Understanding data reported directly by patients following RARP about their side effects and quality of life gives providers additional information for appropriate pre-operative counseling for patients choosing between treatment options for their prostate cancer.

Keywords: prostatic neoplasms, minimally invasive surgical procedures, prostatectomy, patient-reported outcomes measures, robotic surgery

Introduction

Prostate cancer (PCa) represents the most common solid organ malignancy in men, with an estimated 191,930 new cases and 33,330 deaths in 2020.[1] At the time of diagnosis, 76% and 13% of patients will be diagnosed with localized and regional disease, respectively - both with a 100% 5-year relative survival indicating excellent cure rates.[1] There are several first line treatment options available to patients with localized disease which offer similar PCa specific survival rates.[2–4] Additionally, there have been significant changes in treatment paradigms in the last two decades with the advent of active surveillance, modifying radiation dosing schedules, and transition from open radical retropubic prostatectomy (RRP) to robotic assisted laparoscopic radical prostatectomy (RARP) in the United States.[2–8] By 2013, over 85% of all prostatectomies performed in the United States were performed utilizing robotic technology.[9] Despite achieving excellent

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oncologic outcomes, PCa treatment may result in significant side effects such as urinary incontinence (UI) and erectile dysfunction (ED) that may negatively affect multiple health-related quality-of-life (HRQOL) domains. Understanding and measuring these side effects gives patients and providers additional data with which to compare the available treatment options. In this review, we sought to evaluate the background and rationale for using quality of life metrics and patient-reported outcomes (PRO), the current available literature regarding the use of these instruments by urologists following RARP as well as future directions for assessing and improving quality-of-life outcomes following this surgery.

Methods

A comprehensive literature search and review was performed using the PubMed, Scopus and Google Scholar databases from the time period 1990 to 2021 with a particular emphasis following the introduction of the da Vinci surgical platform (Intuitive Surgical Inc., Sunnyvale, CA, USA) in 2000. Search terms included: prostate cancer, robotic assisted laparoscopic radical prostatectomy, radical retropubic prostatectomy, patient-reported outcomes, patient-reported outcome measures, and health-related quality of life. Primary weighting was applied to general reviews, meta-analyses, randomized controlled trials, and validated and heavily used patient-reported outcome measures. Secondary attention was given to retrospective studies and descriptive studies.

Findings

Assessing Quality of Life & Patient-Reported Outcomes

In 1946, the World Health Organization's (WHO) constitution redefined health as a "state of complete physical, mental, and social well-being" and not "merely the absence of disease."[10] This definition helped break the concept of health into component parts, or domains, that required new methods to measure and report patient reported data despite the associated challenges. This helped propel the development of psychometric testing, or creating instruments designed to provide objective measurements of difficult to quantify phenomena, like Patient-Reported Outcomes (PRO). PRO are those that come directly from patients' without interpretation by anyone else, and patient-reported outcome measures (PROM) are the instruments used to measure and report them.[11] A validated PROM is one that undergoes rigorous testing and is proven to display three psychometric properties within its testing population: reliability, will produce a similar result every time; validity, measures what it is intended to measure; and responsiveness, ability of the instrument to detect changes over time when they occur.[12] Validated PROM have been proven to be effective tools in quantifying subjective symptoms and have received increased attention recently in part from the emphasis on patient centered care from the Affordable Care Act.[13,14]

Current Quality of Life Instruments

There are an incredible number of PROM within the medical literature, each covering domains specific to their aims and with varying degrees of quality leading to challenges with cross-study comparisons. Several large-scale efforts have been launched to address this problem. The National Institutes of Health (NIH) Patient-Reported Outcomes Measurement Information System (PROMIS) was created in 2004 and tasked to "develop, validate, and standardize" tools used to measure and report PRO.[15,16] Currently, there are 587 English language PROMIS instruments available for research use, some of which may measure domains relevant to urologists.[17] In 2011, the National Cancer Institute's (NCI) Symptom Management and Health-Related Quality of Life Steering Committee arranged a Clinical Trials Planning Meeting that provided a recommended core set of patient reported symptoms to include in oncology trials, with an expert panel that focused on PCa as one of the three specific diseases addressed during this meeting.[18,19] While not endorsing specific PROM, the panel did provide a list of recommended PRO and five HRQOL domains to be measured in localized cancer clinical trials: urinary incontinence, urinary obstruction and irritation, bowel-related symptoms, sexual dysfunction, and hormonal symptoms.[18,19] Founded in 2010 as part of the Affordable Care Act, the Patient-Centered Outcomes Research Institute funds research that provides evidence-based information to patients and providers they can "use to make decisions that reflect their desired health outcomes" and has generated several contemporary studies reporting on urologic diseases, their treatments, and side effects.[20,21]

Utilization of Quality-of-Life Metrics in Urology

Urologists have developed and validated different disease specific PROM in an effort to provide more targeted assessments and information for patients and providers.[22]

Prior to the robotic surgery era, there were many efforts to use PROM to measure HRQOL and effects from treating localized PCa and even compare PRO from the various treatment modalities.[23–28] As the development of PROM continued to produce better instruments, there were some efforts to retrospectively apply these, although this proved inaccurate as patients tended to remember their pre-intervention health to be better than it was.[29] Despite the longevity of these efforts, there is still not a consensus on the PROM, or collection of PROMs, used to study localized PCa. However, the NCI's Clinical Trials Planning Meeting recommended all localized PCa clinical trials assess a core set of PRO and HLQOL domains: urinary incontinence, urinary obstruction and irradiation, bowel-related symptoms, sexual dysfunction, and hormonal symptoms.[18] As such, several high-quality PROM are commonly used in the study of localized PCa, both clinically and in research. Table 1 provides an overview of the commonly used PROM in localized PCa, the domains captured, the population demographics in which they were validated, and their basic arrangement, when this information is available (Table 1).[30–37] Furthermore, some of the more ubiquitous instruments have undergone additional validation for "bi-directional crosswalks", allowing for domain scores from one instrument to be converted into those of another, facilitating easier cross study comparison between certain instruments.[38] This information may aid in selecting the most appropriate instrument for studies and ensure that they are being used, and thus interpreted, as designed.

Quality of Life Following Robotic Radical Prostatectomy

Since the first RARP was performed in 2001, the treatment paradigm for PCa from traditional open surgery rapidly shifted towards RARP as the preferred surgical approach, by 2013, over 85% of all prostatectomies were being performed with robotic technology.[5–9] The rapid adoption of RARP was driven

Table 1 Validated QOL Questionnaires

Name	Purpose	Year Published	Domains	Measurement	# Items
PROMIS-SexFS v2[31]	Male and Female cancer patient sexual function and satisfaction.	2015	Interest, Satisfaction, Orgasm, Erectile Function	5 Point Likert Scale, 30-day period	131
IIEF[32]	To detect treatment-related changes in males with ED	1997	Erectile Function, Orgasm Function, Interest, Intercourse Satisfaction, Overall Satisfaction	5 Point Likert Scale, 30-day period	15
SHIM[30]	Screening and dx ED and severity, derivative of IIEF	2000	Erectile Function, Orgasm Function, Sexual Satisfaction	5 Point Likert Scale, 6-month period	5
EPIC[34]	PCa HRQOL in contemporary treatment modalities, expansion of UCLA-PCI	2000	Urinary, Bowel, Sexual and Hormonal Symptoms and Function	5 Point Likert Scale, 4-week period	25
EORTC, Prostate	Multidimensional self-administered QOL instrument for PCa	1996	Urinary, Bowel, and Hormonal treatment-related sx, sexual function	4 Point Likert Scale	25
FACT-P[33]	Measure QOL in patient PCa	1997	Well being, weight, appetite, voiding bother, bowel fx, erections, pain, overall satisfaction	5 Point Likert Scale, past 7 days	39
SF-36[36]	Health Status and Function across 8 concepts	1992	Limitations of activities, social, usual roles. Pain, mental health, vitality, general health	Multi item scale: yes/no, 3 and 5 Point Likert Scale, last year	36
UCLA Prostate Cancer Index[37]	HRQOL from early stage PCa specific symptoms across treatment modalities	1998	Urinary Function/bother, Sex function/bother, Bowel function/bother	Multi item scale: 3 to 6 Point Likert, last 4 weeks	15

Table 2 RRP vs RARP PROM Comparison Studies Summary

Study	Study Design	Outcome Measures	Urinary Domain	Sexual Domain	Bowel Domain	Other
Coughlin et al[46]	Randomized prospective trial measuring PRO at 6, 12 and 24 months between RRP & RARP	EPIC, IIEF, HADS	No difference in EPIC urinary domain scores at 6, 12 and 24 months	No difference in EPIC sexual domain scores at 6, 12 and 24 months	No difference in EPIC bowel domain scores at 6, 12 and 24 months	No differences in physical and mental QOL, cancer specific distress, psychological distress or vitality at 6, 12 and 24 months
Alemozaffar et al[43]	Prospectively collected data with biennial questionnaires. Compare RRP and RARP between low, intermediate and high-risk patients. HRQOL collected as a secondary endpoint.	EPIC 26	No difference in urinary incontinence or obstruction in any group	No difference in sexual function in any group	No difference in bowel function in any group	No difference in hormonal/ vitality or outcome satisfaction in any group
O'Neil et al[45]	Prospectively collected data with biennial questionnaires. Compare RRP and RARP between low, intermediate and high-risk patients. HRQOL collected as a secondary endpoint.	PCOS used UCLA PCI, CEASAR used EPIC	RARP function better than RRP at 6 months, same at 12 months	RARP function better than RRP at 6 and 12 months	Not assessed	

by a multitude of perceived and reported benefits.[39] The reported benefits of RARP compared to RRP include lower estimated blood loss, lower transfusion rates, lower intraoperative adverse events, less postoperative pain, and shorter hospital stay than RRP.[40–43] Furthermore, RARP offers anecdotal benefits to the surgeon including a more ergonomic seated position for the surgeon, reduced surgeon fatigue, three-dimensional visualization, improved degrees of freedom of the endoscopic instruments, and improved nerve sparing.[44]

The follow-up duration, assessment intervals, specific instruments, and postoperative outcome definitions are not standardized when comparing the functional PRO between RRP and RARP. Furthermore, despite the existence of validated PROM many PRO are still collected during open interviews or with non-validated questionnaires, severely hampering inter-study comparisons. However, recent studies have tried to overcome this problem in using validated PROM to directly compare functional outcomes between RRP and RARP.[43,45,46] Coughlin et al performed a prospective study that randomized 396 men with clinically localized PCa to RRP or RARP: primary outcomes consisted of the urinary domain of Expanded Prostate Cancer Index Composite (EPIC) instrument and the sexual domain of EPIC and International Index of Erectile Function Questionnaire (IIEF) instruments, and secondary outcomes consisted of the EPIC bowel domain, physical and mental functioning and fatigue of Short Form-36 (SF-36), cancer specific distress using Revised Impact and Events (RIES), and psychological distress using Hospital Anxiety and Depression Scale (HADS).[46] O'Neil et al compared PROM data from two prospective cohort studies (Prostate Cancer Outcomes Study [PCOS] and Comparative Effectiveness Analysis of Surgery and Radiation [CEASAR]), 2438 men meeting study criteria, using the EPIC and UCLA Prostate Cancer Index (PCI) instruments.[45] Lastly, Alemozaffar et al reported HRQOL outcomes in 600 men using the EPIC-26 questionnaire.[43] Basic study design and outcomes are shown in Table 2.

Urinary Symptoms

Early studies suffer from using different definitions of urinary incontinence, not routine use of PROM, and poor follow-up, complicating direct comparisons.[47] Urinary domain results are summarized in Table 3. A meta-analysis by De Carlo et al defined continence as "the use of no absorbent pads or no leakage at all", reporting continence rates between RRP and RARP, with RARP achieving superior continence rates at 6 months (73.71% vs 89.12%), 12 months (83.22% vs 92.78%), and 24 months (82% vs 95.2), respectively.[47] A meta-analysis

Table 3 RRP vs RARP Urinary Domain Outcomes

Coughlin et al[46]	**EPIC: RRP vs RARP (95% CI)***	
6 months	88.68 (86.79–90.58) vs 88.45 (86.54–90.36)	P1<0.0001, P2<0.0001
12 months	90.76 (88.89–92.62) vs 91.53 (90.01–92.98)	P1<0.0001, P2<0.0001
24 months	91.33 (89.64–93.03) vs 90.86 (89.01–92.70)	P1<0.0001, P2<0.0001
Pads per day (PPD) for incontinence RRP vs RARP (None, 1PPD, 2PPD, 3+PPD) in % respondents		
6 months	85% vs 84%, 13% vs 13%, 2% vs 2%, 0% vs 1%	
12 months	91% vs 90%, 7% vs 10%, 1% vs 0%, 0% vs 1%	
24 months	95% vs 91%, 5% vs 7%, 0% vs 2%, 0% vs 0%	
Alemozaffar et al[43]	EPIC-26, Incontinence: RRP vs RARP	EPIC-26, Obstruction: RRP vs RARP
All	74.4 ± 25.3 vs 74.4 ± 23.0, *p*=0.93	93.9±9.6 vs 94.5 ± 7.5, *p*=0.94
Low risk (D'amico)	75.1±26.0 vs 69.5±24.5, *p*=0.42	93.8±9.7 vs 95.4 ± 7.6, *p*=0.72
Intermediate or High Risk	73.2 ± 24.8 vs 81.7 ± 18.0, *p*=0.12	93.5±9.9 vs 94.4 ± 7.4, *p*=0.86
De Carlo et al[47]	Continence Rates: use of no pads or leakage at all, RRP vs RALP	
6 months	73.71% vs 89.12%	
12 months	83.22% vs 92.78%	
24 months	82% vs 95.2%	

Note: *Results are equivalent when both p-values significant.

by Ficarra et al also report that RARP patients may recover urinary continence faster than RRP at 12 months (OR:1.53, p=0.03), but suggests that patient related factors may also play a large role in achieving early continence.[48] Additionally, there are studies showing less incidence of bladder neck contracture after RARP compared to RRP, 0–3% vs 5–32%, respectively.[49,50] Alemozaffar et al used the EPIC instrument to compare RRP vs RARP, failing to find any difference in the urinary domain scores (74.4 ± 25.3 vs 74.4 ± 23.0).[43] Coughlin et al compared urinary function scores in RRP vs RARP using the urinary domain of the EPIC instrument, reporting no difference at 6 months (88.68 vs 88.45), 12 months (90.76 vs 91.53), or 24 months (91.33 vs 90.86), respectively.[46] Therefore, while several earlier studies report RARP may be superior to RRP in terms of urinary continence rates, both studies using PROM, including the only known randomized trial, failed to find any difference in urinary domain scores.

Sexual Symptoms

The comparison of sexual function suffers from similar challenges experienced when assessing urinary function in regard to study heterogeneity and validated metrics. For example, in one meta-analysis by De Carlo et al, postoperative erectile function was analyzed in 44 studies. Of these, only 8 provided accurate erectile function data, and only two used a validated PROM.[47] Nevertheless, when defining potency as "erection sufficient for intercourse", De Carlo et al indicated lower rates of potency in RRP compared to RARP at 6 (22.34% vs 32.53%), 12 (55.85% vs 60.93%), and 24 months (54.53% vs 61%).[47] Another meta-analysis by Ficarra et al report a similar trend, that RARP may have better potency rates at 12 months than RRP (OR: 2.84, 95% CI 1.46–5.43, p=0.002). These results were further supported by one study using PROM. When comparing RARP to RRP, O'Neil et al report superior sexual function in RARP at 6 and 12 months. However, Alemozaffar et al used the EPIC instrument to compare RRP vs RARP, failing to find any difference in the sexual domain scores overall (36.3 ± 29.7 vs 36.8 ± 29.5), or when stratified between low, intermediate, and high-risk disease.[43] Furthermore, in the only randomized study with PROM as primary endpoints, Coughlin et al found no difference in sexual function domain scores when comparing RRP to RARP using two instruments at 6, 12 and 24 months (EPIC 37.40 vs 38.63, 42.28

Table 4 RRP vs RARP Sexual Domain Outcomes

Coughlin et al[46]	**EPIC: RRP vs RARP (95% CI)***	
6 months	37.40 (33.60–41.19) vs 38.63 (34.76–42.49)	P1<0.0001, P2<0.0001
12 months	42.28 (38.05–46.51) vs 42.51 (38.29–46.72)	P1=0.0002, P2<0.0001
24 months	45.70 (41.17–50.23) vs 46.90 (42.20–51.60)	P1=0.0003, P2=0.0004
IIEF: RRP vs RARP (95% CI)*		
6 months	29.75 (26.66–32.84) vs 29.78 (26.41–33.16)	P1=0.0055, P2<0.0001
12 months	33.10 (29.59–36.61) vs 33.50 (29.87–37.13)	P1=0.0101, P2<0.0001
24 months	33.95 (30.11–37.78) vs 33.89 (29.82–37.96)	P1=0.0012, P2<0.0001
Erections Firm enough for intercourse more than half the time: RRP vs RARP		
6 months	22%	22%
12 months	30%	35%
24 months	36%	38%
Alemozaffar et al[43]	EPIC-26: RRP vs RARP	
All	36.3 ± 29.7 vs 36.8 ± 29.5	P=0.66
Low risk (D'amico)	39.7 ± 30.0 vs 39.4 ± 28.7	P=0.58
Intermediate or High Risk	30.7 ± 28.1 vs 34.2 ± 30.3	P=0.84
De Carlo et al[47]	Potency Rates - Erections firm enough for intercourse: RRP vs RARP	
6 months	22.34%	32.53%
12 months	55.85%	60.93%
24 months	54.53%	61.0%

Note: *Results are equivalent when both p-values significant.

vs 42.51, 45.70 vs 46.90; IIEF 29.75 vs 29.78, 33.10 vs 33.50, 33.95 vs 33.89).[46] Therefore, while several earlier studies report RARP may be superior to RRP in terms of potency rates including one using PROM, two stronger studies using PROM, including the only known randomized trial, failed to find any difference in sexual domain scores. Sexual domain outcomes are summarized in Table 4.

Bowel Symptoms

Most meta-analyses reporting on the functional outcomes only in prostate surgery cohorts have not focused much attention on bowel domains. In one meta-analysis that does examine the impact of RARP on bowel domains, Alemozaffar et al used the EPIC instrument to compare RRP vs RARP, they did not notice any difference in the bowel domain scores and both remained very high overall (96.3 ± 7.8 vs 96.3 ± 9.2).[43] Similarly, Coughlin et al also did not report any difference in EPIC bowel domain scores between RRP and RARP at 6 (94.04 vs 94.81), 12 (93.83 vs 95.08), and 24 months (94.49 vs 95.38).[46] Therefore, both RRP and RARP have reported low negative consequences on bowel function.

Financial and Anxiety Effects

Another major consideration when measuring quality of life after intervention are the associated financial harms. Radical prostatectomy has demonstrated its cost effectiveness compared to active surveillance (AS), and RT.[51] One common concern among critics of RARP over RRP are the inherited increased costs, which stem mostly from purchase of a robotics platform, service contracts, and maintenance.[52] In general, RARP is known to be more costly than RRP or laparoscopic radical prostatectomy in the perioperative period.[51,53–55] However, when accounting for the early postoperative cost, RARP may offer cost savings in providing decreased hospital stay, lower complication rates, and faster return to work.[56,57] When comparing anxiety between RRP and RARP cohorts,

Coughlin et al found no difference in HADS scores at 6 (6.13 vs 5.73), 12 (6.27 vs 6.05), and 24 months (6.08 vs 6.03)[46]

Overall, the evidence is mixed when comparing PROM between RRP and RARP: studies report faster return and slightly better erectile function and urinary continence in RARP than RRP, however studies comparing PROM domain scores find no difference. A potential explanation may be that RARP does offer better rates of urinary continence and erectile function, but that these are not clinically significant. The paucity of data available to attempt to answer this question, compounded by data collection issues, short follow up, and study heterogeneity, prevent a convincing answer as to which surgical technique produces better functional outcomes.[47,48,58,59] While these issues with the data available to answer this question are concerning, this problem is hardly new.[60]

PROMs Comparing Treatment Modalities

Perhaps the most consistent use of PROM reporting on RARP can be found when comparing different treatment modalities for localized disease; radiation, surgery, or active surveillance.[4,61–63] These studies indicate that each treatment modality has a unique set of adverse side effects but also suggest that surgery may have the largest impact on sexual and urinary function out of the three aforementioned treatment modalities.[4,61–63] It is worth noting that making these comparisons can be problematic as many studies lack long term follow up. In these cases, the side effects stemming from surgery are usually encountered up front, and thus maximally reported, while other modalities may be inadequately assessed due to time frame, for example patients who progress to metastatic disease while on active surveillance.[4] Additionally, surgery is the most common initial treatment in more aggressive disease prior to planned multimodal treatment strategy.[64] In at least one study comparing the EPIC domain scores of 2,550 men, prostatectomy was reported to have a larger decline in the urinary and sexual domain scores (77% RARP) at 3 years, although no difference in global quality of life.[61] van Stam et al compared 434 patients choosing RARP (only 5 open), external beam radiation therapy (EBRT), and brachytherapy (BT) to active surveillance reporting worse urinary continence rates for RARP, but worse urinary obstruction/irritation, bowel related symptom, and pain in either EBRT or BT cohorts.[65] In another study using the EPIC and UCLA-PCI instruments, radiotherapy was reported to have a larger proportion of patients experiencing treatment regret at 15 year follow up (8.2% vs 15% vs 16.6% - conservative, RARP, radiotherapy, respectively).[66] Data comparing decision regret after RRP vs RARP is limited but suggests that there is no difference, and both appear low.[67] Intuitively, treatment regret in RARP patients was associated with worse disease-specific quality of life secondary to side effects, although additional counseling may help overcome part of this.[66,68]

Future Directions

PROM have proven to be effective tools in quantifying subjective symptoms and will likely continue to play an increasingly important role in patient counseling and decision making.[13,14] To facilitate reaching a larger audience, the validation of existing PROM is occurring in different languages and populations[32,69–76] as well as incorporating patient perspectives into the design and execution of research studies.[77] These advances promise to broaden our understanding of the patient experience and increase patient engagement in research endeavors. Furthermore, the validation of "bi-directional crosswalks" allows domain scores from one instrument to be converted into those of another, facilitating easier cross study comparison between common PROM.[38] Additionally, electronic and digital instruments are being used and developed, which will allow for the remote collection of PRO data in various forms.[78]

Lastly, with the release of newer robotics surgery platforms such as the da Vinci Single Port (SP) or Senhance robotic platform (TransEnterix Surgical Inc., Morrisville, NC, USA), surgeons may have additional options outside of the multi-port DaVinci platform currently dominating the market, but the potential benefits and costs will need to be explored prior to widespread implementation.[5,6,79–82] These new directions promise to expand the utilization, reliability and widespread applicability of PRO as a critical tool for preoperative counseling and assessing postoperative outcomes following RARP.

Conclusions

The use of patient-reported outcome measures is playing an increasingly large role in urology by providing urologists with additional information with which to counsel patients when choosing between several treatment options with similar clinical outcomes and differing side effects. Urologists have developed and validated many condition specific PROM in an effort to provide more targeted assessments and information for patients and providers. This review reported on the tools available to urologists for measuring and reporting quality of life after RARP. We found that RARP offers many benefits compared to RRP in the perioperative period, with some evidence it may provide better functional outcomes in urinary continence

and potency rates at two-year follow-up but found no significant difference in patient-reported outcome measure domain scores during the same time period. The literature in this specific area is scarce, and there is ample opportunity to continue to study PRO following RARP in future investigations. Ultimately, the use and reporting of PROM in urology will continue to expand, helping urologists to deliver higher quality care by better understanding patient needs and responding appropriately.

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