

## ORIGINAL ARTICLE

# Predictors for lower urinary tract symptoms in patients underwent radical prostatectomy: implications for postoperative nursing care

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**Abstract**

**Aims and Objectives:** The aim of this study was to evaluate the risk factors for lower urinary tract symptoms in prostate cancer patients underwent radical prostatectomy, thus providing therapeutic evidence for post-operative nursing.

**Background:** Prostate cancer is one of the most commonly diagnosed male malignancy in recent years. With surgical treatments, patients with prostate cancer indeed have satisfying survival rate. However, the presence of postprostatectomy lower urinary tract symptoms which affect quality of life significantly is more worthy of attention.

**Design:** Patients underwent surgical therapies were followed up and the symptoms were recorded.

**Methods:** A total of 65 prostate cancer patients underwent radical prostatectomy from January 2019 to October 2020, and pathologically diagnosed with prostate cancer were enrolled in our study. These patients were followed up 3 months after surgery and their medical records were retrospectively collected and analysed. Results were reported according to the STROBE Statement.

**Results:** The incidence of post-operative lower urinary tract symptoms at 3 months after surgery is similar to that of pre-operation. Univariate and multivariate analyses revealed that the independent risk factor for postprostatectomy lower urinary tract symptoms is body mass index, whereas pelvic floor muscle exercise is a protective factor.

**Conclusions:** The incidence of postprostatectomy lower urinary tract symptoms is non-negligible, which significantly affects quality of life. Body mass index is found as an independent risk factor for postprostatectomy lower urinary tract symptoms, while pelvic floor muscle exercise is a strong protector.

**Relevance to clinical practice:** Patients with prostate cancer would benefit from post-operative pelvic floor muscle exercise. These findings contribute to tailor post-operative nursing strategy.

\*These authors have contributed equally to this work and share first authorship.

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## KEYWORDS

body mass index, laparoscopic radical prostatectomy, lower urinary tract symptoms, pelvic floor muscle exercise, post-operative nursing, prostate cancer, quality of life, risk factor, robot-assisted laparoscopic radical prostatectomy, urinary incontinence

## 1 | INTRODUCTION

Prostate cancer (PC), one of the most frequently diagnosed malignancy in men, was estimated to be responsible for nearly 192,000 new cases in America in 2020, accounting for more than one in five diagnosed carcinoma (Siegel et al., 2020). Moreover, the incidence rates of PC have seen 42% increase from 2007 to 2017, leading to 416,000 deaths globally in 2017 (Fitzmaurice et al., 2019). However, statistics showed that the survival rates for PC rank the highest, with 5-year survival rate of PC patients with local stage approaching 100% (Chen et al., 2019). Of those, 82% survivors are aged over 65 years, whereas only 1% are younger than 50 years. The average age at the time of diagnosis is 66 years old (Yang et al., 2020). Among various therapeutic options for PC, radical prostatectomy including open radical prostatectomy, laparoscopic radical prostatectomy (LRP) and robot-assisted laparoscopic radical prostatectomy (RARP) are most predominant (Basiri et al., 2018). Nevertheless, the short-term and long-term physical impairment after surgery is non-negligible. For instance, lower urinary tract symptoms (LUTS), mainly presented as dysuria, nocturia, frequency, urgency and incontinence, significantly affect the postprostatectomy quality of life, which deserves more attentions and better care (Shabataev et al., 2020).

Numerous researches have put effort into identifying factors affecting post-operative LUTS in patients with PC, which generally include radiation therapy, body mass index (BMI), age, prostate-specific antigen (PSA) level and post-operative physical therapy (Khoder et al., 2013; Matsukawa et al., 2020; Soto González et al., 2020). However, few have looked into the effect of nursing intervention, which in fact carries substantial weight for patient quality of life. Therefore, in our study, we aim to explore that whether nursing interventions including pelvic floor muscle exercise (PFME), intermittent clamping of urinary catheter and the duration of indwelling catheter have influence on the recovery of LUTS.

## 2 | METHODS

### 2.1 | Patient selection

Patients who were diagnosed with PC and underwent radical prostatectomy at the Urological Surgical Department of Guangdong Provincial People's Hospital, from January 2019 to October 2020, were consecutively enrolled in this study. Those patients were then screened with the following criteria for subsequent analyses. Inclusion criteria were listed as follows: (1) All patients had been pathologically diagnosed with prostatic cancer, which was confirmed with post-operative paraffin-embedded sections; (2)

### SUMMARY BOX

What does this paper contribute to the wider global clinical community?

- Body mass index (BMI) is found as an independent risk factor for postprostatectomy lower urinary tract symptoms (LUTS), while pelvic floor muscle exercise (PFME) is a strong protector.
- It raised the awareness of caregivers that nursing interventions should be closely implemented with patience.

Patients' complete medical records were available; (3) All patients had undergone laparoscopic radical prostatectomy and were followed up for 3 months. Exclusion criteria were listed as follows: (1) Patients who were loss to follow-up; (2) Patients with incomplete medical records; (3) Patients had previous history of urinary system diseases (including lithiasis, prostatomegaly, bladder carcinoma and the like) with or without surgical treatment. The study was approved by the hospital's medical ethics committee. The state of illness, research objective, specific measures and possible outcomes were informed by specialised nurses in detail, and the informed consent was obtained from each and every patient.

### 2.2 | Nursing interventions

Apart from standard nursing routine, perioperative training program, consisting of PFME and intermittent clamping of urinary catheter were applied in eligible patients. For PFME, patients were told to lie flat with their knees bent, the contractions of the pelvic floor muscles last 5–10 s each time, with at least 20 s interval. Each set of training include 10 times of muscle contractions, and 4–5 sets of training are required every day. The training regimen of PFME started after catheter removal. Moreover, intermittent clamping of urinary catheter was performed since the first day of surgery. The catheter was clamped until the patient had micturition desire, then the clip was removed for urine drainage and re-closed again. For those had no micturition desire, the clip was removed every 2 h. This procedure was performed only during daytime.

### 2.3 | Statistical analysis

Categorical variables were described as a frequency with a percentage while continuous variables as a mean with a standard deviation.

SPSS 23.0 software (SPSS, Inc) was employed for statistical analysis. Univariate logistic regression analysis was adopted to analyse the risk factors of LUTS, and multivariate logistic regression model was employed for further evaluation of independent risk factors. For univariate analysis,  $p < .1$  was considered statistically significant, while  $p < .05$  was adopted for multivariate analysis (two-sided). Guidelines for reporting observational research (Supplementary File 1) were applied.

### 3 | RESULTS

#### 3.1 | Baseline characteristics

A total of 65 patients underwent laparoscopic radical prostatectomy and pathologically diagnosed with prostatic cancer were enrolled in this study. Among those patients, 35 patients presented with post-operative LUTS, leading to an occurrence rate as high as 53.85%. As summarised in Table 1, the average age of LUTS group was  $70.26 \pm 7.32$  years, whereas that of the control group was  $68.57 \pm 5.72$  years ( $p > .05$ ). Similarly, the educational level, presence of preoperative LUTS, preoperative PSA level and endocrinotherapy have no significant effects on the occurrence of postprostatectomy LUTS. Of those, 11 patients had RARP (16.92%) while the other 54 patients underwent LRP (83.08%). The differences of operative approaches neither have impact on postprostatectomy LUTS as well ( $p > .05$ ). The mean catheterisation time of the LUTS group was  $34.2 \pm 12.93$  days, and that of the control group was  $33.2 \pm 10.54$  days, which has no obvious difference ( $p > .05$ ). Moreover, the mean BMI value of the LUTS group was  $26.76 \pm 3.22$ , while that of the control group was  $24.46 \pm 4.68$ , with statistically significant difference ( $p < .05$ ).

#### 3.2 | Univariate and multivariate analyses of risk factors for LUTS

To identify risk factors for LUTS after laparoscopic radical prostatectomy, univariate analysis was employed. Our results showed that increased risk of LUTS was associated with BMI (odds ratio [OR] = 3.510 [95% confidence interval (CI), 1.080–11.406]  $p = .037$ ). However, PFME was found as protective factor for LUTS (OR = 0.312 [95% CI, 0.091–1.062],  $p = .062$ ) (Table 2). Moreover, multivariate analyses confirmed that BMI was an independent risk factor for LUTS in patients underwent radical prostatectomy (OR = 3.906 [95% CI, 1.265–12.063],  $p = .018$ ), whereas PFME was a strong protector (OR = 0.254 [95% CI, 0.081–0.795],  $p = .019$ ) (Table 2).

### 4 | DISCUSSION

With the advancement of medical therapeutic approaches, patients diagnosed with PC experience prolonged survival time. As a result

TABLE 1 Baseline characteristics

Variables	Patients, N = 65			
	Presence with LUTS		$\chi^2$	p Value
	Yes	No		
Age (years)				
<70	14	16	1.156	.282
≥70	21	14		
Educational level				
Less-educated	13	14	0.603	.437
Well-educated	22	16		
Preoperative PSA level				
Increased	23	23	0.937	.333
Normal	12	7		
Preoperative LUTS symptoms				
Yes	20	19	0.258	.612
No	15	11		
Endocrinotherapy				
Yes	16	13	0.037	.847
No	19	17		
Operative approaches				
RARP	7	4	0.511	.475
LRP	28	26		
Catheterisation duration				
<1 month	9	9	0.148	.700
≥1 month	26	21		
BMI (kg/m <sup>2</sup> )				
<25	7	16	7.850	.005***
≥25	28	14		

†PSA, prostate-specific antigen; LUTS, lower urinary tract symptoms; RARP, robot-assisted laparoscopic radical prostatectomy; LRP, laparoscopic radical prostatectomy; PFME, pelvic floor muscle exercise; BMI, body mass index.

\*\*\* $p < .01$ .

of that, LUTS mainly including dysuria, nocturia, frequency, urgency and incontinence has become a major complication that significantly impairs quality of life (Shabataev et al., 2020).

Patients with increased BMI level are often associated with less physical activity and poorer health status. Substantial evidence has revealed the critical role of obesity in the aggressiveness of PC. Moreover, in PC patients undergoing surgical treatment, the obese individuals were more prone to develop LUTS, mostly urinary incontinence (Wolin et al., 2010). Kim and his colleagues demonstrated the predictive role of lower BMI for continence recovery 3 months after RARP (Kim et al., 2012). Similarly, Ahlering et al. (Ahlering et al., 2005) reported significantly decreased pad-free urinary continence in obese group at 6 months after surgery (47% of obese patients vs. 91.4% nonobese patients), whereas worse outcomes were observed at all-time points after RARP in

TABLE 2 Univariate and multivariate analyses of risk factors for LUTS

Variables	Univariate analyses		Multivariate analyses	
	Odds ratio (95% CI)	p Value	Odds ratio (95% CI)	p Value
Age $\geq 70$	1.263(0.420–3.795)	.678		
Catheterisation duration $\geq 1$ month	1.576(0.452–5.491)	.475		
Intermittent clamping of urinary catheter	0.368(0.104–1.305)	.122		
PFME	0.312(0.091–1.062)	.062*	0.254(0.081–0.795)	.019**
BMI $\geq 25$ kg/m <sup>2</sup>	3.510(1.080–11.406)	.037**	3.906(1.265–12.063)	.018**

†PFME, pelvic floor muscle exercise; BMI, body mass index.

\* $p < .1$ , \*\* $p < .05$ , \*\*\* $p < .01$ .

patients with obesity (Wiltz et al., 2009). However, several studies showed no correlation between BMI and the occurrence of LUTS. In the meta-analysis performed by Wei et al, increased risk of urinary incontinence was associated with obesity at 24 months in patients underwent RARP but not LRP (Wei et al., 2018). In our cohort, we showed that patients with elevated BMI levels ( $\geq 25$  kg/m<sup>2</sup>) experienced higher risk of LUTS at 3 months after radical prostatectomy.

First defined by Arnold Kegel, PFME dates back to 1948 when it was adopted as a therapeutic approach for urinary continence treatment, in an attempt to build muscle strength and increase muscle volume (Aydin et al., 2018). In a randomised controlled trial reported by Milios and his team, PFME was performed 5 weeks before surgery and lasted for 12 weeks after surgery. Their data showed that PFME intervention significantly enhanced pelvic floor muscle function, leading to shortened duration of postprostatectomy incontinence and better quality of life (Milios et al., 2019). The remarkable positive effect of preoperative PFME on post-operative incontinence was further confirmed by Chang et al (Chang et al., 2016). However, in another meta-analysis performed by Cheng et al, no correlation was found between preoperative PFME and post-operative incontinence rates at all-time points (Cheng et al., 2020). On one hand, such discrepancy could be explained by multifactorial mechanisms underlying post-operative incontinence. On the other hand, PFME regimens vary fairly across studies, which may be a potential cause. In our study, PFME was found as a strong protective factor for LUTS, suggesting non-negligible clinical importance of PFME.

Moreover, our results indicated that neither the duration of urinary catheterisation nor the intermittent clamping of urinary catheter would affect the incidence of LUTS. Another study suggested that patients who experienced catheterisation for over 15 days had higher risk of urinary incontinence as compared with those had one-week catheterisation (Palisaar et al., 2015). Additionally, Gacci et al. proved that smaller catheter and shorter catheterisation duration resulted in better continence recovery (Gacci et al., 2011). However, the mean catheterisation time of the above-mentioned researches was less than half a month and the observation time was no longer than 2 months, which differs greatly from our cohort. The clamping of urinary catheter is more of an old-fashion way to help

continence recovery. Our results are similar to that of Pannek et al. (Pannek et al., 2010), in which clamping of urinary catheter did not contribute to functional recovery in patients with neurogenic bladder dysfunction.

Nursing instructions including behavioural therapeutic methods always constitute the first step in the management for LUTS after radical prostatectomy. Therefore, it is of critical importance for nurses to be aware of the characteristics a patient who is more prone to have postprostatectomy LUTS possess and provide personalised health care. According to Li and his team, the post-operative LUTS of PC patients undergoing LRP did not improve until 3 months after surgery (Li et al., 2015). That could in part explain the unnoticeable improvement of LUTS observed at 3 months after surgery in our research. In addition, it also suggests that nursing interventions should be closely implemented with patience.

Furthermore, age is a well-established risk factor that related to increased risk of LUTS, given that the loss control of bladder is rather common in elderly adults. However, in our cohort, the average age of those with or without post-operative LUTS was close, and no correlation was found between age and LUTS. The limited sample size may account for this case.

The current study has some limitations. First, the sample size is relatively small as compared with that of other studies. It is sufficient for the analyses conducted in our research through the generalisability might be compromised. Additionally, with regard to the follow-up, our work only included the results at 3 months after operation but not at a series time points. Therefore, the effect of PFME or other factors on post-operative LUTS could not be observed in a consecutive manner. A longer-term follow-up is warranted in the subsequent analyses. Finally, as for the methodology, we did not provide specific data that measuring urinary dysfunction or even quality of life, which results in non-quantifiable LUTS degree.

## 5 | CONCLUSION

The incidence of postprostatectomy LUTS is non-negligible, resulting in significant impact on quality of life. BMI is found as an independent risk factor for postprostatectomy LUTS, while PFME is a

strong protector. These findings contribute to tailor post-operative nursing strategy for patients with PC.

## 6 | RELEVANCE TO CLINICAL PRACTICE

Identification of the risk factor and protector of postprostatectomy LUTS in PC patients could help clinical nurses better understand the occurrence of LUTS. These results could be applied to tailorship of post-operative nursing strategy. It also raised the awareness of caregivers that nursing interventions should be closely implemented with patience.

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## CONFLICT OF INTEREST

The authors declare no conflicts of interest, financial or otherwise.

## AUTHOR CONTRIBUTIONS

Conceptualization, study design and manuscript revision for important intellectual content: Liu Peizhen; performance of the literature search: Zeng Yilin; performance of the background research and generation of the tables: Wu Yuanling and Guo Chunye; manuscript draft: Zeng Yilin and Jiang Fenglian; manuscript edition: Liu Shuang; contribution equally to this work: Zeng Yilin and Jiang Fenglian; Read and approval the content of the manuscript: All authors.

## DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

## REFERENCES

- Ahlering, T., Eichel, L., Edwards, R., & Skarecky, D. (2005). Impact of obesity on clinical outcomes in robotic prostatectomy. *Urology*, 65(4), 740–744. <https://doi.org/10.1016/j.urology.2004.10.061>.
- Aydin Sayilan, A., & Özbaş, A. (2018). The effect of pelvic floor muscle training on incontinence problems after radical prostatectomy. *American Journal of Men's Health*, 12(4), 1007–1015. <https://doi.org/10.1177/1557988318757242>.
- Basiri, A., de la Rosette, J., Tabatabaei, S., Woo, H., Laguna, M., & Shemshaki, H. (2018). Comparison of retropubic, laparoscopic and robotic radical prostatectomy: Who is the winner? *World Journal of Urology*, 36(4), 609–621. <https://doi.org/10.1007/s00345-018-2174-1>.
- Chang, J., Lam, V., & Patel, M. (2016). Preoperative pelvic floor muscle exercise and postprostatectomy incontinence: A systematic review and meta-analysis. *European Urology*, 69(3), 460–467. <https://doi.org/10.1016/j.eururo.2015.11.004>.
- Chen, S., Cheng, T., Chiu, L., Tasi, L., Huang, S., & Tsay, S. (2019). Predictors for lower urinary tract symptoms and the urinary specific quality of life in prostate cancer patients: One-year follow-up. *Journal of the Chinese Medical Association: JCMS*, 82(6), 482–487. <https://doi.org/10.1097/jcms.0000000000000110>.
- Cheng, H., Wang, Y., Qi, F., Si, S., Li, X., & Chen, M. (2020). Preoperative pelvic floor muscle exercise does not reduce the rate of postprostatectomy incontinence: Evidence from a meta-analysis and a systematic review. *Translational Andrology and Urology*, 9(5), 2146–2156. <https://doi.org/10.21037/tau-20-684>.
- Fitzmaurice, C., Abate, D., Abbasi, N., Abbastabar, H., Abd-Allah, F., Abdel-Rahman, O., Abdelalim, A., Abdoli, A., Abdollahpour, I., Abdulle, A. S. M., Abebe, N. D., Abraha, H. N., Abu-Raddad, L. J., Abualhasan, A., Adedeji, I. A., Advani, S. M., Afarideh, M., Afshari, M., Aghaali, M., ... Murray, C. (2019). Global, regional, and national cancer incidence, mortality, years of life lost, years lived with disability, and disability-adjusted life-years for 29 cancer groups, 1990 to 2017: A systematic analysis for the global burden of disease study. *JAMA Oncology*, 5(12), 1749–1768. <https://doi.org/10.1001/jamaoncol.2019.2996>.
- Gacci, M., Carini, M., Simonato, A., Imbimbo, C., Gontero, P., Briganti, A., & Carmignani, G. (2011). Factors predicting continence recovery 1 month after radical prostatectomy: Results of a multicenter survey. *International Journal of Urology: Official Journal of the Japanese Urological Association*, 18(10), 700–708. <https://doi.org/10.1111/j.1442-2042.2011.02826.x>.
- Khoder, W., Trottmann, M., Stuber, A., Stief, C., & Becker, A. (2013). Early incontinence after radical prostatectomy: A community based retrospective analysis in 911 men and implications for preoperative counseling. *Urologic Oncology*, 31(7), 1006–1011. <https://doi.org/10.1016/j.urolonc.2011.10.003>.
- Kim, J., Ha, Y., Kim, J., Jeon, S., Lee, D., Kim, W., & Kim, I. (2012). Independent predictors of recovery of continence 3 months after robot-assisted laparoscopic radical prostatectomy. *Journal of Endourology*, 26(10), 1290–1295. <https://doi.org/10.1089/end.2012.0117>.
- Li, H. C., Chen, K. M., Lin, Y. H., & Chen, T. B. (2015). Lower urinary tract symptoms of prostate cancer patients undergoing treatments over eight-month follow-up. *Journal of Clinical Nursing*, 24(15–16), 2239–2246. <https://doi.org/10.1111/jocn.12861>.
- Matsukawa, Y., Yoshino, Y., Fujita, T., Funahashi, Y., Majima, T., Ishida, S., Kato, M., & Gotoh, M. (2021). Daily urine loss immediately after urethral catheter removal may be an effective predictor of long-term urinary incontinence following robot-assisted laparoscopic radical prostatectomy. *International Journal of Clinical Practice*, 75(4), <https://doi.org/10.1111/ijcp.13736>.
- Milios, J., Ackland, T., & Green, D. (2019). Pelvic floor muscle training in radical prostatectomy: A randomized controlled trial of the impacts on pelvic floor muscle function and urinary incontinence. *BMC Urology*, 19(1), 116. <https://doi.org/10.1186/s12894-019-0546-5>.
- Palisaar, J., Roghmann, F., Brock, M., Löppenberg, B., Noldus, J., & von Bodman, C. (2015). Predictors of short-term recovery of urinary continence after radical prostatectomy. *World Journal of Urology*, 33(6), 771–779. <https://doi.org/10.1007/s00345-014-1340-3>.
- Pannek, J., Göcking, K., & Bersch, U. (2010). To clamp or not to clamp? Bladder management by suprapubic catheterization in patients with neurogenic bladder dysfunction. *World Journal of Urology*, 28(5), 637–641. <https://doi.org/10.1007/s00345-009-0501-2>.
- Shabataev, V., Saadat, S., & Elterman, D. (2020). Management of erectile dysfunction and LUTS/incontinence: The two most common, long-term side effects of prostate cancer treatment. *The Canadian Journal of Urology*, 27, 17–24.
- Siegel, R. L., Miller, K. D., & Jemal, A. (2020). Cancer statistics, 2020. *CA: A Cancer Journal for Clinicians*, 70(1), 7–30. <https://doi.org/10.3322/caac.21590>.
- Soto González, M., Da Cuña Carrera, I., Gutiérrez Nieto, M., López García, S., Ojea Calvo, A., & Lantarón Caeiro, E. (2020). Early 3-month treatment with comprehensive physical therapy program restores continence in urinary incontinence patients after radical prostatectomy: A randomized controlled trial. *Neurourology and Urodynamics*, 39(5), 1529–1537. <https://doi.org/10.1002/nau.24389>.

- Wei, Y., Wu, Y., Lin, M., Chen, S., Lin, Y., Li, X., Zheng, Q.-S., Xue, X.-Y., & Xu, N. (2018). Impact of obesity on long-term urinary incontinence after radical prostatectomy: A meta-analysis. *BioMed Research International*, 2018, 8279523. <https://doi.org/10.1155/2018/8279523>.
- Wiltz, A., Shikanov, S., Eggener, S., Katz, M., Thong, A., Steinberg, G., Shalhav, A. L., Zagaja, G. P., & Zorn, K. (2009). Robotic radical prostatectomy in overweight and obese patients: Oncological and validated-functional outcomes. *Urology*, 73(2), 316–322. <https://doi.org/10.1016/j.urology.2008.08.493>.
- Wolin, K., Luly, J., Sutcliffe, S., Andriole, G., & Kibel, A. (2010). Risk of urinary incontinence following prostatectomy: The role of physical activity and obesity. *The Journal of Urology*, 183(2), 629–633. <https://doi.org/10.1016/j.juro.2009.09.082>.
- Yang, L., Ling, D., Ye, L., & Zeng, M. (2020). Psychological nursing intervention on anxiety and depression in patients with urinary incontinence after radical prostatectomy: A randomized controlled study protocol. *Medicine*, 99(48), e23127. <https://doi.org/10.1097/md.00000000000023127>.

## SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section.

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