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Meta-analysis of postoperative urinary incontinence incidence and risk factors in HoLEP

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Abstract

Objective: To systematically identify and quantify the incidence and risk factors of postoperative urinary incontinence (UI) in holmium laser enucleation of the prostate (HoLEP), aiming to provide a basis for intervention strategies.

Methods: Relevant studies on postoperative UI in HoLEP were searched in databases including PubMed, Web of Science, EMBase, CNKI, Wanfang Data Knowledge Service Platform, VIP and CBMdisc, with the search period up to April 2024. Titles, abstracts and full texts were screened using the Endnote application. Studies meeting the inclusion and exclusion criteria underwent quality assessment and data extraction. The incidence of postoperative UI and/or adjusted or unadjusted odds ratios (OR), relative risks or ratios were recorded, and analysis was conducted using Stata 15.0 software.

Results: A total of 17 studies encompassing 7939 patients were included. The pooled incidence of UI after HoLEP was 1.12, 95% CI (1.11–1.13); the 3-month postoperative incidence was 1.06, 95% CI (1.05–1.06); the 6-month postoperative incidence was 1.04, 95% CI (1.03–1.05); the 12-month postoperative incidence was 1.05, 95% CI (1.03–1.06); and the incidence of permanent UI after HoLEP was 1.01, 95% CI (1.00–1.01). The occurrence of UI after HoLEP exhibited a time-dependent variation. The risk factors for UI after HoLEP included the following: age (OR = 1.03, 95% CI: 1.01–1.06); body mass index (BMI; OR = 1.10, 95% CI: 1.01–1.20); prostate volume (OR = 1.77, 95% CI: 1.39–2.27); prostate-specific antigen (PSA) (OR = 0.98, 95% CI: 0.87–0.92); International Prostate Symptom Score (IPSS) (OR = 0.94, 95% CI: 0.83–1.07).

Conclusion: The results of this study indicate a decreasing trend in the incidence of postoperative UI after HoLEP over time, with a time-dependent change. Age, BMI, prostate volume, PSA and IPSS are risk factors for postoperative UI after HoLEP. Age and prostate volume have a significant impact on UI. Therefore, preoperative assessment and intervention for these factors are crucial in reducing the occurrence of postoperative UI in HoLEP.

Plain language summary

Postoperative urinary incontinence incidence and risk factors in HoLEP

The results of this study indicate a decreasing trend in the incidence of postoperative urinary incontinence after HoLEP over time, with a time-dependent change. Age, body mass index, prostate volume, diabetes and preoperative urinary retention are risk factors for postoperative urinary incontinence after HoLEP. Age and prostate volume have a significant impact on urinary incontinence. Therefore, preoperative assessment and intervention for these factors are crucial in reducing the occurrence of postoperative urinary incontinence in HoLEP.

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Introduction

Benign prostatic hyperplasia (BPH) is a common disease in middle-aged and elderly men, and its incidence is increasing year by year with the aging of the population.[1] BPH can cause a series of lower urinary tract symptoms, which seriously affects the quality of life of patients.[2] With the advancement of medical technology, transurethral holmium laser enucleation of the prostate (HoLEP), as an effective surgical method for the treatment of BPH, has been widely used due to its advantages of less trauma and faster recovery.[3] Despite the manifold advantages of HoLEP, postoperative complications are still a problem that cannot be ignored, among which urinary incontinence (UI) is a common complication that may have a significant impact on the psychological and social functioning of patients.[4] The occurrence of UI not only increases the economic burden of patients but may also reduce postoperative satisfaction. Although studies have examined the incidence of UI after HoLEP, there is some variation in the results and fewer systematic evaluations of the risk factors affecting the occurrence of UI.[5] Therefore, it is particularly important to conduct a meta-analysis on the incidence of UI and its risk factors after HoLEP. This will not only provide a more accurate clinical risk assessment but also provide a scientific basis for the selection of surgical strategies and postoperative management. This study aimed to assess the overall incidence of postoperative UI after HoLEP by systematically reviewing and analysing the existing literature and exploring the possible risk factors, to provide a more comprehensive reference and guidance for clinical practice.

Methods

Search strategy

Computer searches of PubMed, Web of Science, EMBase, CNKI, Wanfang Data Knowledge Service Platform, VIP and CBMdisc were carried out, and joint searches of subject terms and free words were performed according to the characteristics of the databases. Search formula: "Benign Prostatic Hyperplasia" or "BPH," "Urinary Incontinence" or "UI," "Surgery" or "HoLEP." The search was conducted from the time of the library's construction until April 2024. This systematic review has been performed and written in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines.

Inclusion exclusion criteria

The inclusion criteria were as follows:

① The research subjects are patients with benign prostate cancer who underwent HoLEP surgery;
② the research type is a retrospective analysis of HoLEP cases;
③ the outcome indicators are the incidence rate and risk factors of postoperative UI in prostate cancer patients after HoLEP; and
④ both Chinese and English literature are included.

Exclusion criteria:

① Reviews, comments, conference abstracts, case reports and other non-original studies; studies with incomplete data or where relevant information cannot be extracted;
② duplicated data, retaining only the most complete and up-to-date studies;
③ research subjects that do not meet the inclusion criteria, such as patients who did not undergo HoLEP surgery;
④ studies that did not report the incidence rate of postoperative UI or did not analyse related risk factors; and
⑤ studies with insufficient follow-up time to assess the long-term effects of postoperative UI.

Abstracts were screened by two authors and disagreements were resolved by a third author. Full-text article screening was performed by the same two authors and disagreements were resolved in the same way. Title, abstract and full-text screening were performed using the EndnoteX9 application. Extracted information mainly included the following: authors, region, age, study sample size, incidence and risk factors.

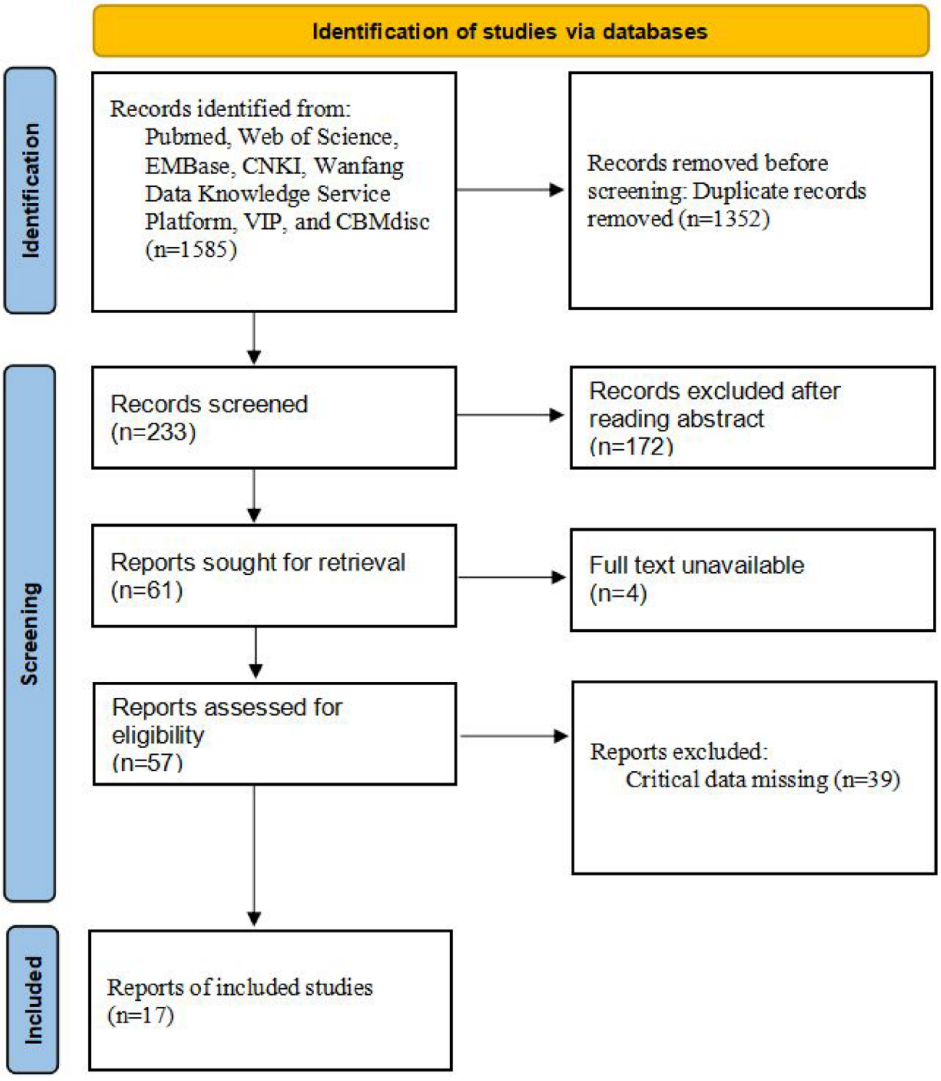

Figure 1. Flowchart for screening of included literature.

Risk of bias assessment

The NOS scale (Newcastle–Ottawa Scale) can be used as both a checklist and a scale. The NOS was developed using the Delphi method and has since been tested and further refined in systematic evaluations. Separate NOS scales were developed for cohort and case–control studies. The NOS consists of eight items categorized into three dimensions including selection, comparability and (depending on the type of study) outcome (cohort studies) or exposure (case-control studies). For each item, a range of response options are provided. The star system is used to provide a semi-quantitative assessment of study quality so that the highest quality studies receive a maximum of one star per item, except for items related to comparability, which allows for the allocation of two stars. The NOS ranges from zero to nine stars.

Statistical analyses

Results of individual studies were combined using Stata 15.0 software (Stat Corp., College Station, TX, USA). Meta-analysis was performed using the inverse variance method. We used the I^2 statistical test to assess heterogeneity between studies. When I^2 was $<50\%$, there was no significant heterogeneity between studies. To draw relatively valid conclusions, a random effects model will be applied. p-value <0.05 was considered statistically significant.

Table 1. Basic characteristics of the included literature.

Number	Author	Year	Country	Study design	Year of study	Sample size	NOS score
1	Das[6]	2020	USA	A retrospective study	2012–2018	589	7
2	Cho[7]	2011	South Korea	A retrospective study	—	204	7
3	Lerner[8]	2010	USA	A retrospective study	2002–2007	77	7
4	Das[9]	2019	USA	A retrospective study	2012–2017	515	8
5	Elsaqa[10]	2023	USA	A retrospective study	2016–2021	666	8
6	Shigemura[11]	2016	Japan	A retrospective study	2006–2014	224	6
7	Montorsi[12]	2004	USA	A retrospective study	2002–2003	52	7
8	Houssin[13]	2020	France	A retrospective study	2012–2017	2346	8
9	Nam[14]	2015	South Korea	A retrospective study	2009–2012	399	7
10	Elmansy[15]	2011	Canada	A retrospective study	1998–2010	949	7
11	Bozzini[16]	2020	Italy	A retrospective study	—	121	6
12	Shishido[17]	2024	Japan	A retrospective study	2014–2021	288	7
13	Jia[18]	2023	China	A retrospective study	2019–2021	263	6
14	Jia[19]	2023	China	A retrospective study	2019–2021	258	6
15	Xie[20]	2020	China	A retrospective study	2015–2018	458	7
16	Zheng[21]	2022	China	A retrospective study	2020–2021	140	6
17	Yang[22]	2022	China	A retrospective study	2021	120	7

NOS, Newcastle–Ottawa Scale.

Results

Basic characteristics of included literature and quality assessment

A total of 1585 papers were searched, 1352 papers were excluded after screening for duplicates, 233 studies were excluded based on the reading of title combined abstracts, 57 papers were included in the full-text screening, and finally, a total of 17 papers were included that were available for meta-analysis, as shown in Figure 1. The basic characteristics and quality assessment of the included papers: the 17 included studies included a total of 7939 sample sizes, all of them were retrospective studies, among which 13 were in English and 5 were in Chinese; 5 were from China; 5 were from the United States; 2 were from Japan; 2 were from Korea; and 1 each from France, Canada, and Italy; their mean NOS scores were 6.8, and the results are shown in Table 1.

Meta-analysis of the incidence of UI after HoLEP

A total of 11 studies reported the incidence of UI following HoLEP, with a pooled effect rate of 1.12 (95% CI: 1.11–1.13), demonstrating significant heterogeneity ($p = 0.000$, $I^2 = 98.3\%$), as illustrated in Figure 2. In all, 15 studies reported the incidence of UI within 3 months postoperatively, yielding a pooled effect rate of 1.06 (95% CI: 1.05–1.06), also exhibiting substantial heterogeneity ($p = 0.000$, $I^2 = 97.7\%$), as shown in Figure 3. Five studies addressed the incidence of UI within 6 months post-HoLEP, with a pooled effect rate of 1.04 (95% CI: 1.03–1.05),

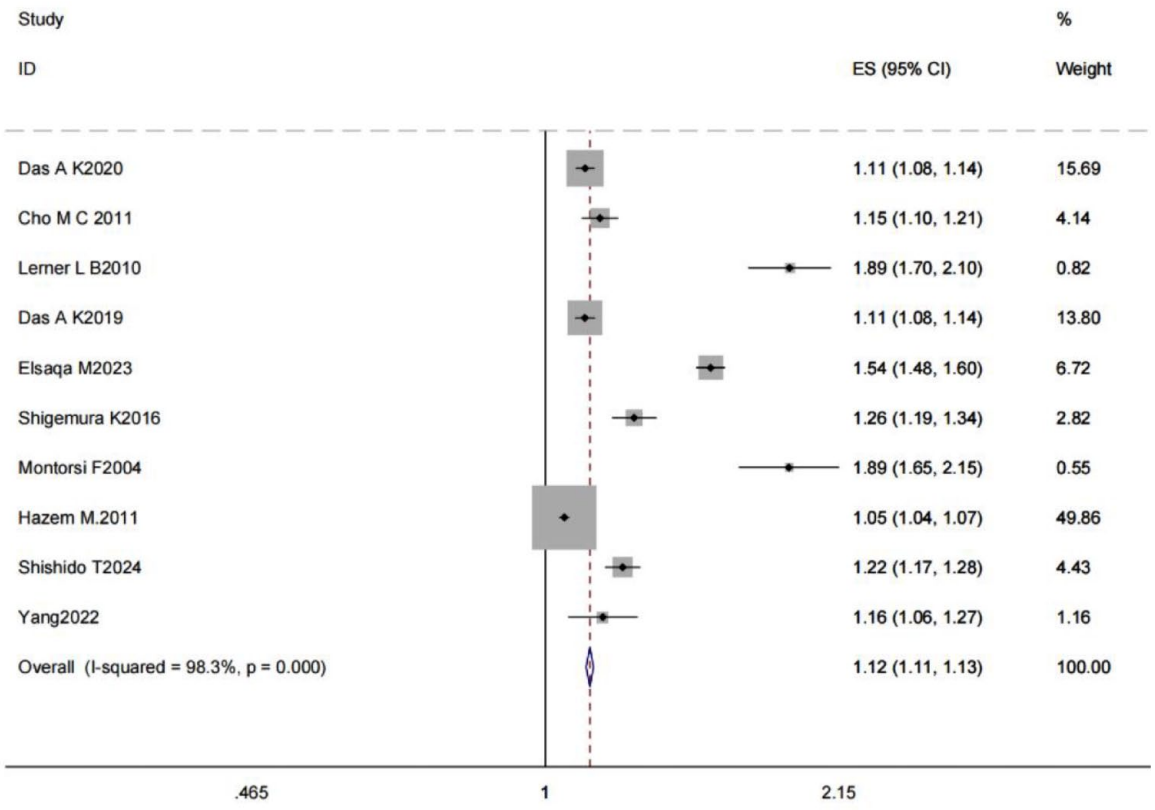

Figure 2. Forest plot of the incidence of UI after HoLEP.
HoLEP, holmium laser enucleation of the prostate; UI, urinary incontinence.

observing moderate heterogeneity ($p = 0.083$, $I^2 = 51.5\%$), depicted in Figure 4. Three studies reported the incidence of UI within 12 months postoperatively, revealing a pooled effect rate of 1.05 (95% CI: 1.03–1.06), accompanied by significant heterogeneity ($p = 0.000$, $I^2 = 88.2\%$), as presented in Figure 5. Regarding the incidence of permanent UI, three studies reported a pooled effect rate of 1.01 (95% CI: 1.00–1.01), with notable heterogeneity ($p = 0.080$, $I^2 = 60.4\%$), visualized in Figure 6. These findings indicate significant variability among the studies.

Meta-analysis of risk factors for developing UI after HoLEP surgery

Preoperative characteristics

Age and the occurrence of UI after HoLEP. A total of 10 studies reported the association between age and the development of UI after HoLEP. The results of the heterogeneity test are as follows: $p = 0.000$, $I^2 = 92.4\%$. There was significant heterogeneity between the groups, so the random effect model was used to analyse the results. The combined OR was 1.03, 95% CI (1.01–1.06), and the difference was statistically significant ($p = 0.000$), as shown in Figure 7.

BMI and the occurrence of UI after HoLEP surgery

A total of six studies reported the association between body mass index (BMI) and the occurrence of UI after HoLEP. The results of the heterogeneity test are as follows: $p = 0.001$, $I^2 = 76.0\%$. There was significant heterogeneity between the groups, so the random effect model was used to analyse the results. The combined OR was 1.10, 95% CI (1.01–1.20), and the difference was statistically significant ($p = 0.001$), as shown in Figure 8.

Prostate volume and the occurrence of UI after HoLEP

A total of 10 studies reported the relationship between prostate volume and the occurrence of UI after HoLEP. The results of the heterogeneity test are as follows: $p = 0.000$, $I^2 = 100.0\%$. There was significant heterogeneity between the groups, so the random effect model was used to analyse

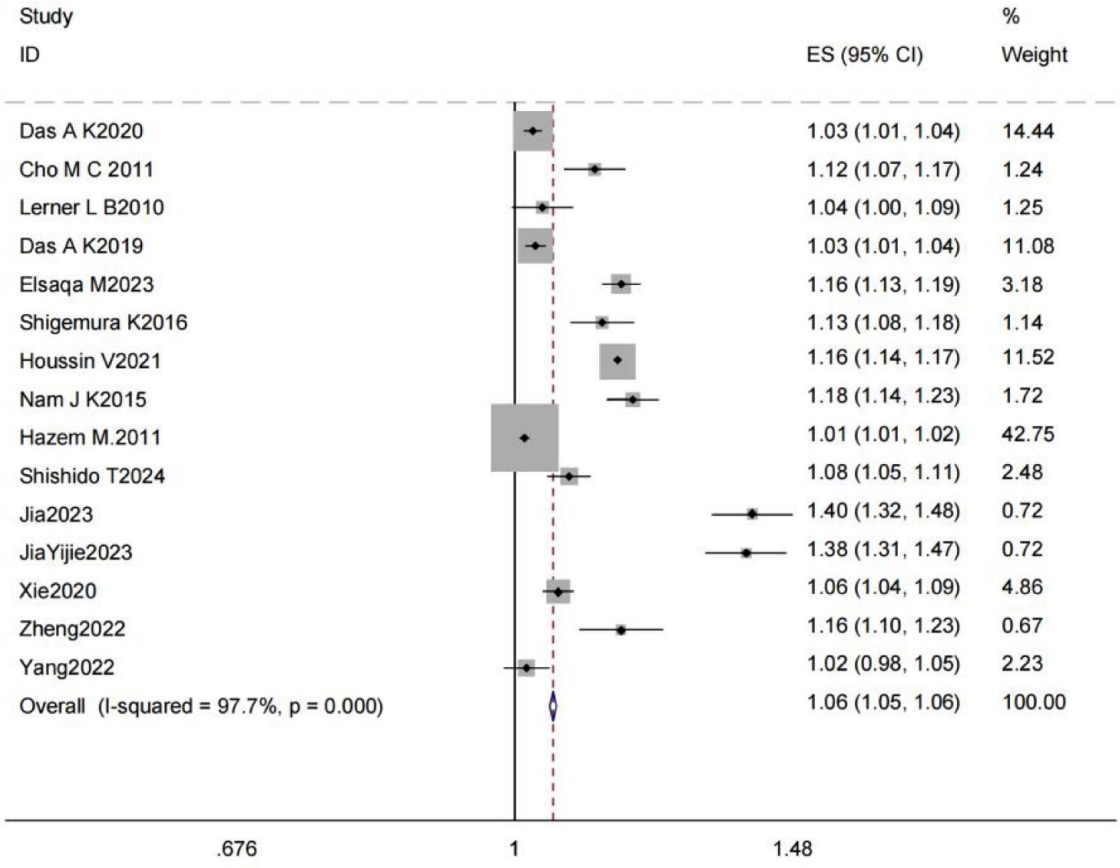

Figure 3. Forest plot of the incidence of UI within 3 months after HoLEP.
HoLEP, holmium laser enucleation of the prostate; UI, urinary incontinence.

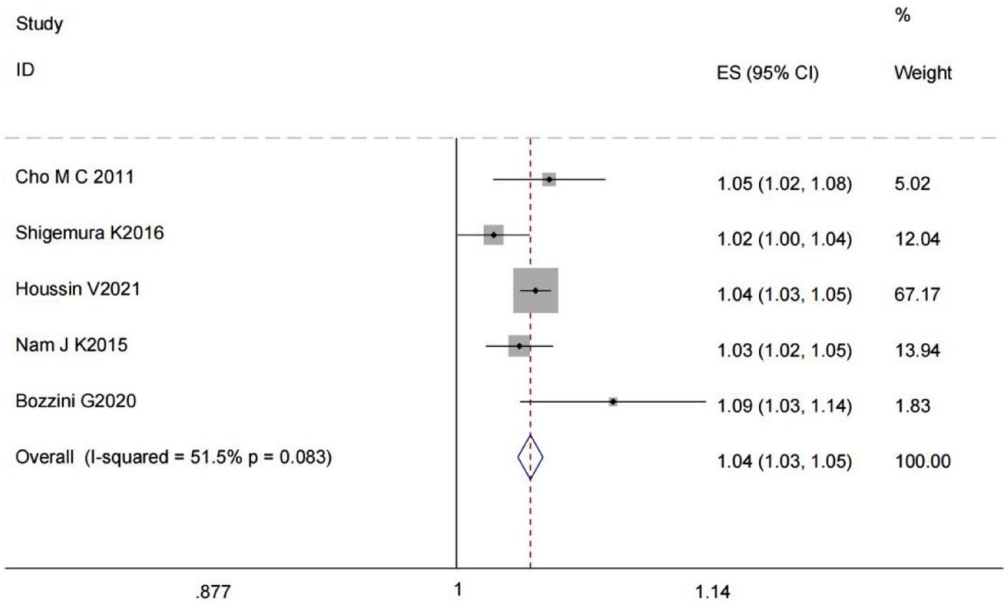

Figure 4. Forest plot of the incidence of UI at 6 months after HoLEP.
HoLEP, holmium laser enucleation of the prostate; UI, urinary incontinence.

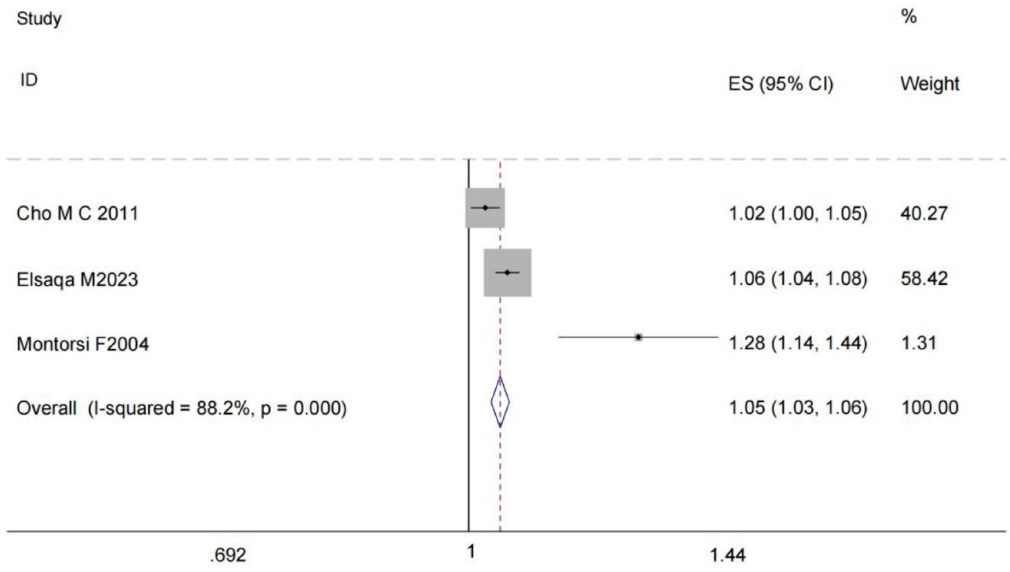

Figure 5. Forest plot of the incidence of UI within 12 months after HoLEP.
HoLEP, holmium laser enucleation of the prostate; UI, urinary incontinence.

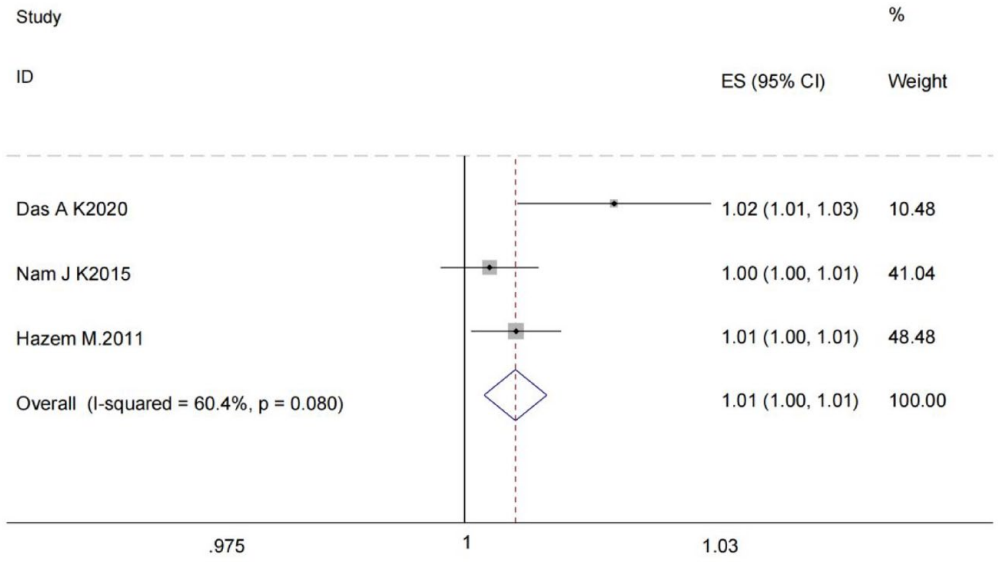

Figure 6. Forest plot of the incidence of permanent UI after HoLEP.
HoLEP, holmium laser enucleation of the prostate; UI, urinary incontinence.

the results. The combined OR was 1.77, 95% CI (1.39–2.27), and the difference was statistically significant ($p = 0.000$), as shown in Figure 9.

PSA and the occurrence of UI after HoLEP surgery

A total of five studies reported the relationship between PSA and the occurrence of UI after HoLEP. The results of the heterogeneity test are as follows: $p = 0.000$, $I^2 = 81.4\%$. There was significant heterogeneity between the groups, so the random effect model was used to analyse the results. The combined OR was 0.98, 95% CI (0.87–0.92), and the difference was statistically significant ($p = 0.000$), as shown in Figure 10.

Preoperative IPSS and the development of UI after HoLEP

A total of four studies reported the relationship between preoperative IPSS and the occurrence of

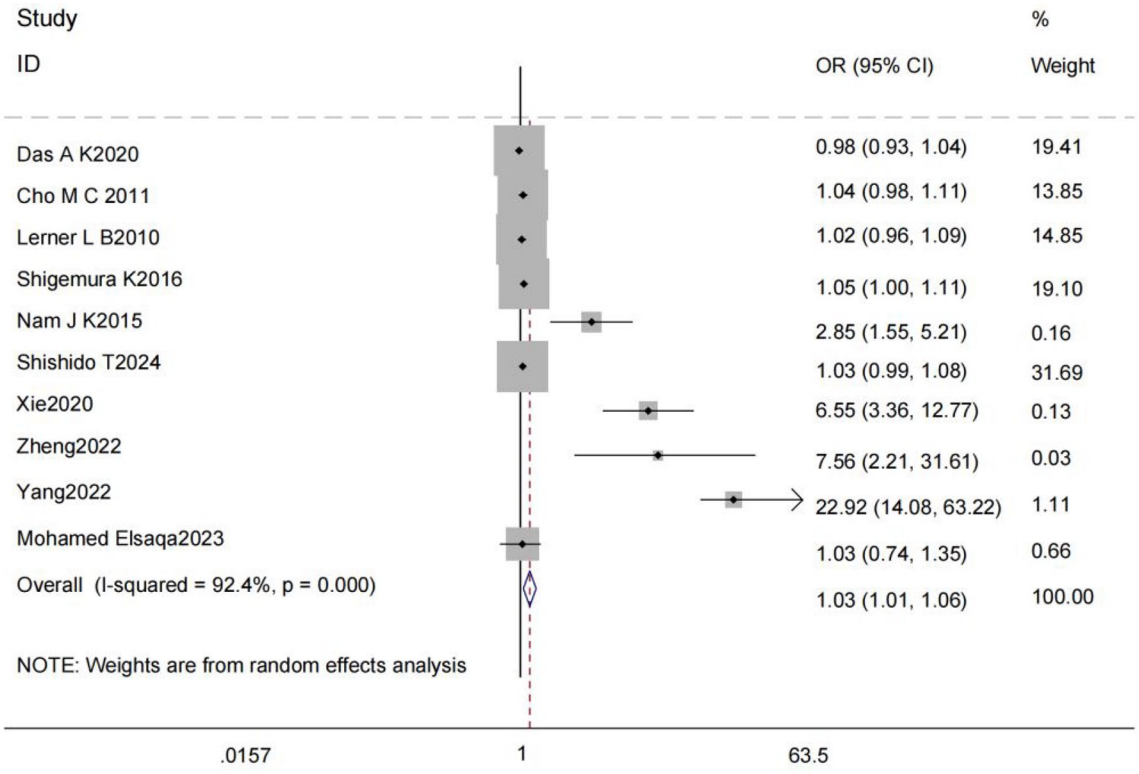

Figure 7. Forest plot of age and occurrence of UI after HoLEP surgery.
HoLEP, holmium laser enucleation of the prostate; UI, urinary incontinence.

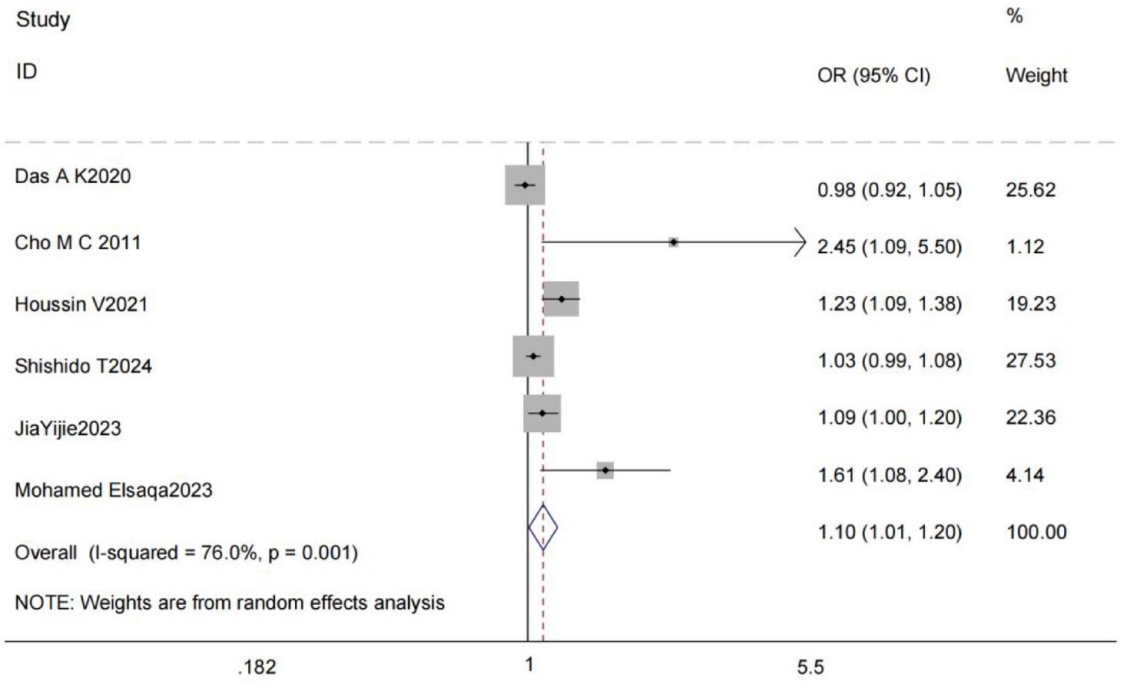

Figure 8. Forest plot of body mass index and the occurrence of UI after HoLEP surgery.
HoLEP, holmium laser enucleation of the prostate; UI, urinary incontinence.

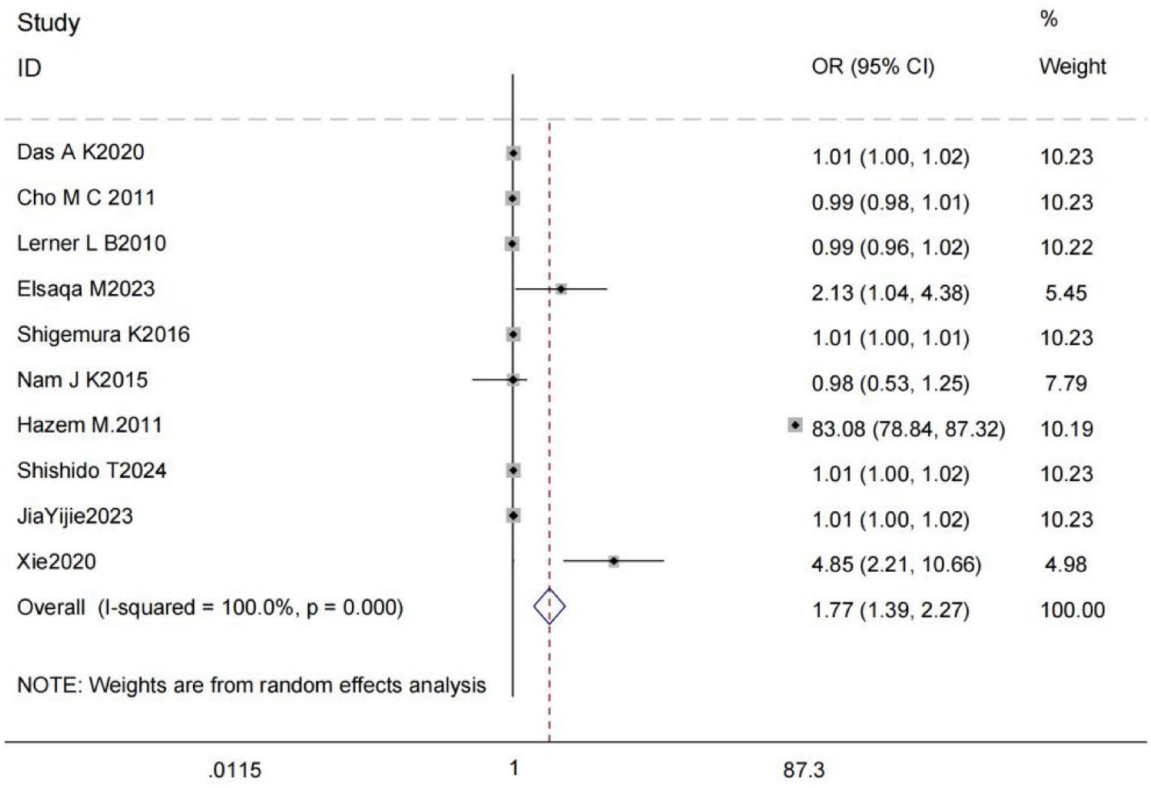

Figure 9. Forest plot of prostate volume and the occurrence of UI after HoLEP.
HoLEP, holmium laser enucleation of the prostate; UI, urinary incontinence.

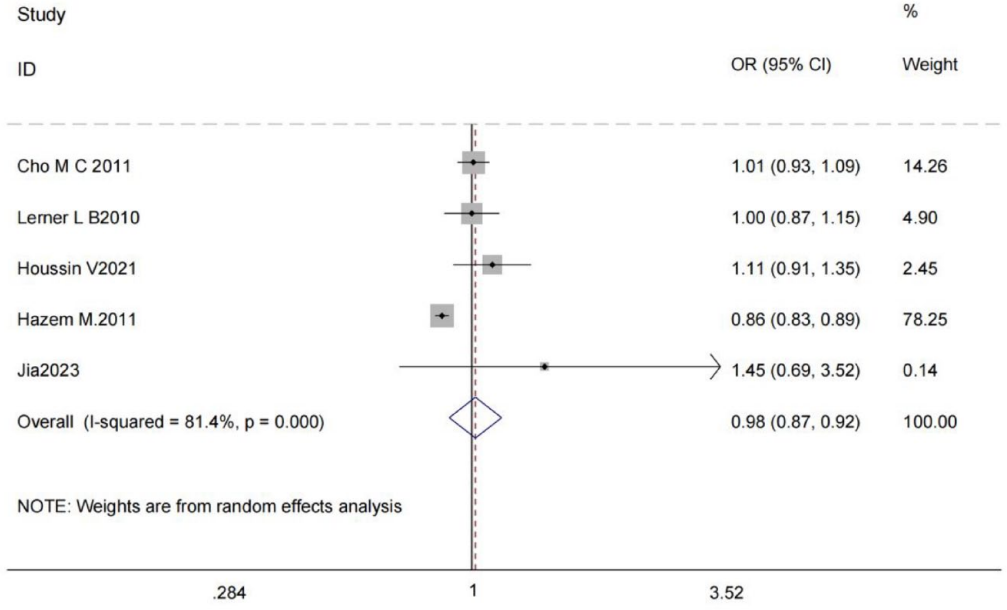

Figure 10. Forest plot of PSA and HoLEP postoperative occurrence of UI.
HoLEP, holmium laser enucleation of the prostate; UI, urinary incontinence.

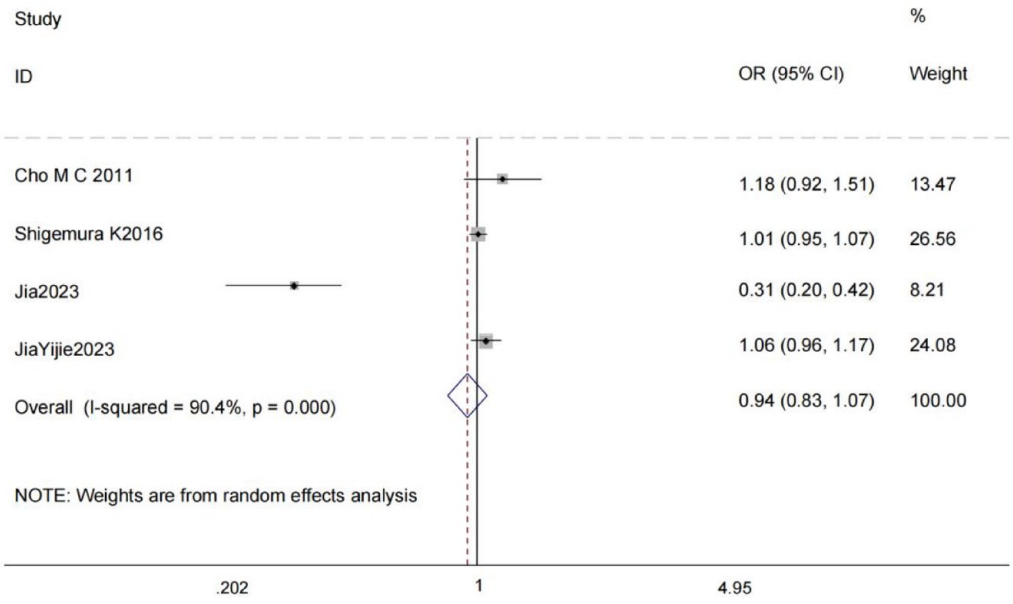

Figure 11. Forest plot of preoperative IPSS versus postoperative occurrence of UI in HoLEP.
HoLEP, holmium laser enucleation of the prostate; UI, urinary incontinence.

UI after HoLEP. The results of the heterogeneity test are as follows: $p = 0.000$, $I^2 = 90.4\%$. There was significant heterogeneity between the groups, so the random effect model was used to analyse the results. The combined OR was 0.94, 95% CI (0.83–1.07), and the difference was statistically significant ($p = 0.000$), as shown in Figure 11.

Discussion

Urinary catheter dependence refers to the necessity for patients to use a urinary catheter following the HoLEP procedure due to an inability to void spontaneously. This can occur immediately postoperatively or develop over time if there are complications such as bladder outlet obstruction or sphincter dysfunction. The development of UI after HoLEP means that patients experience involuntary leakage of urine after the procedure. This can manifest as stress incontinence (leakage during physical activity or coughing), urge incontinence (leakage when feeling a sudden need to urinate) or mixed incontinence (a combination of both). Involuntary loss of urine due to hygiene or social problems significantly reduces the patient's quality of life, and complaints of UI symptoms can be very stressful for the clinician. In addition, Holmium laser-induced thermal damage and long-term BPH-induced urethral instability are also contributing factors. Residual postoperative macrofossa may lead to urine retention behind the sphincter, increasing the risk of UI.[23] This study aimed to assess the incidence of postoperative UI after HoLEP and to explore the risk factors associated with it to provide more effective prevention and management strategies for clinical practice.

Data from this study showed that the incidence of UI after HoLEP had significant variability at different time points, decreasing over time to 12% postoperatively, 6% at 3 months, 4% at 6 months, 5% at 12 months and 1% permanently. This suggests that UI has a time-dependent tendency to improve and requires further study.

According to the results of this study, among the preoperative factors: age ($p < 0.000$), BMI ($p < 0.001$), prostate volume ($p < 0.000$), PSA ($p < 0.000$) and IPSS ($p < 0.000$), and these results indicate a statistically significant association between these factors and UI after HoLEP. Age was identified as a predictor of UI after HoLEP, which may be due to urethral sphincter insufficiency in the elderly.[24] Obesity increases abdominal pressure and storage symptoms, possibly due to oxidative stress and fibrosis secondary to inflammation.[25] Patients aged 70 years or older and those with a BMI of 30 or higher are at a markedly increased risk of developing UI following HoLEP. These thresholds underscore the importance of careful preoperative assessment and targeted intervention for older and more obese patients to mitigate the risk of postoperative UI. For prostate

volume, the incidence of UI was found to be higher with increasing prostate size in this study. This may be due to the fact that a large prostate size is associated with a longer operative time and a longer operation time of the sheath across the external sphincter.[26] The presence of elevated PSA and high IPSS scores are statistically significant predictors of the occurrence of UI following HoLEP. Elevated PSA levels may indicate larger prostate volume or more aggressive disease, which can impact urinary function postoperatively. High IPSS scores reflect more severe urinary symptoms and bladder outlet obstruction, which may contribute to postoperative UI. Therefore, elevated PSA and high IPSS scores may serve as important indicators of increased risk for postoperative UI. Investigating the relationship between PSA levels, IPSS scores and UI will be the subject of our future research. The results of this study suggest that preoperative factors such as age and BMI status may play a more critical role in the prevention and management of postoperative UI in HoLEP. These findings highlight the importance of performing individualized assessment and preparation. Regarding the age of the studies, we included them because they met our inclusion criteria and provided valuable historical context. However, we recognize that newer studies may offer additional insights. Limitations of this study include potential selection bias and information bias, and future studies need to validate these findings using more rigorous designs and large-sample multicentre studies. In addition, exploring new surgical techniques and postoperative rehabilitation strategies to reduce the risk of postoperative UI in HoLEP will be the focus of future studies.

Declarations

Ethics approval and consent to participate

As this study involves the summary and analysis of other studies, it does not involve medical ethics approval or patient-informed consent.

Consent for publication

Not applicable.

Author contributions

Mei Yang: Conceptualization; Data curation; Writing – original draft; Writing – review & editing.

Yasheng Huang: Conceptualization; Data curation; Writing – original draft; Writing – review & editing.

Feng Gao: Data curation; Supervision; Writing – original draft; Writing – review & editing.

Liping He: Data curation; Supervision; Writing – original draft; Writing – review & editing.

Xueyao Yu: Data curation; Supervision; Writing – original draft; Writing – review & editing.

Qiqi Yu: Data curation; Formal analysis; Writing – original draft; Writing – review & editing.

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Competing interests

The authors declare that there is no conflict of interest.

Availability of data and materials

The datasets used in the analysis were collected by online search, and the datasets analysed in the current study are available from the corresponding author upon reasonable request.

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Supplemental material

Supplemental material for this article is available online.

References

1. Sandhu JS, Bixler BR, Dahm P, et al. Management of lower urinary tract symptoms attributed to benign prostatic hyperplasia (BPH): AUA Guideline Amendment 2023. *J Urol* 2024; 211(1): 11–19.
2. Franco JV, Jung JH, Imamura M, et al. Minimally invasive treatments for lower urinary tract symptoms in men with benign prostatic hyperplasia: a network meta-analysis. *Cochrane Database Syst Rev* 2021; 7(7): D13656.
3. Di Maida F, Grosso AA, Tellini R, et al. Holmium laser enucleation of the prostate (HoLEP) is safe and effective in patients with high comorbidity burden. *Int Braz J Urol* 2023; 49(3): 341–350.

4. Kollermann J, Hoeh B, Ruppel D, et al. The significance of the extent of tissue embedding for the detection of incidental prostate carcinoma on transurethral prostate resection material: the more, the better? *Virchows Arch* 2022; 481(3): 387–396.
5. Assmus MA, Lee MS, Large T, et al. Understanding holmium laser enucleation of the prostate (HoLEP) recovery: assessing patient expectations and understanding. *Can Urol Assoc J* 2022; 16(1): E25–E31.
6. Das AK, Teplitsky S, Chandrasekar T, et al. Stress urinary incontinence post-holmium laser enucleation of the prostate: a single-surgeon experience. *Int Braz J Urol* 2020; 46(4): 624–631.
7. Cho MC, Park JH, Jeong MS, et al. Predictor of de novo urinary incontinence following holmium laser enucleation of the prostate. *Neurourol Urodyn* 2011; 30(7): 1343–1349.
8. Lerner LB, Tyson MD and Mendoza PJ. Stress incontinence during the learning curve of holmium laser enucleation of the prostate. *J Endourol* 2010; 24(10): 1655–1658.
9. Das AK, Teplitsky S and Humphreys MR. Holmium laser enucleation of the prostate (HoLEP): a review and update. *Can J Urol* 2019; 26(4 Suppl 1): 13–19.
10. Elsaqa M, Zhang Y, Papaconstantinou H, et al. Incidence and predictors of urinary incontinence rates post-holmium laser enucleation of prostate. *Low Urin Tract Symptoms* 2023; 15(5): 185–190.
11. Shigemura K, Tanaka K, Yamamichi F, et al. Comparison of predictive factors for postoperative incontinence of holmium laser enucleation of the prostate by the surgeons' experience during learning curve. *Int Neurourol J* 2016; 20(1): 59–68.
12. Montorsi F, Naspro R, Salonia A, et al. Holmium laser enucleation versus transurethral resection of the prostate: results from a 2-center, prospective, randomized trial in patients with obstructive benign prostatic hyperplasia. *J Urol* 2004; 172(5 Pt 1): 1926–1929.
13. Houssin V, Olivier J, Brenier M, et al. Predictive factors of urinary incontinence after holmium laser enucleation of the prostate: a multicentric evaluation. *World J Urol* 2021; 39(1): 143–148.
14. Nam JK, Kim HW, Lee DH, et al. Risk factors for transient urinary incontinence after holmium laser enucleation of the prostate. *World J Mens Health* 2015; 33(2): 88–94.
15. Elmansy HM, Kotb A and Elhilali MM. Is there a way to predict stress urinary incontinence after holmium laser enucleation of the prostate? *J Urol* 2011; 186(5): 1977–1981.
16. Bozzini G, Berti L, Aydogan TB, et al. A prospective multicenter randomized comparison between holmium laser enucleation of the prostate (HoLEP) and thulium laser enucleation of the prostate (ThuLEP). *World J Urol* 2021; 39(7): 2375–2382.
17. Shishido T, Hirasawa Y, Kashima T, et al. Comparison of postoperative stress urinary incontinence between anteroposterior dissection and modified gilling method in holmium laser enucleation of the prostate. *Urol J* 2024; 21(2): 133–139.
18. Jia YJ and Zhou GC. Analysis of influencing factors on the severity of urinary incontinence in patients with prostatic hyperplasia after holmium laser prostatectomy. *Chongqing Med J* 2023; 52(10): 1510–1514.
19. Jia YJ and Zhou GC. Establishment and internal validation of a risk prediction model for urinary inconti-nence after transurethral holmium laser enucleation of the prostate. *J Modern Urol* 2023; 28(3): 222–226, 253.
20. Xie XX, Jiang XJ, Yang FL, et al. Analysis of risk factors influencing occurrence of stress urinary incontinence in patients after holmium laser enucleation of prostate. *Pract J Clin Med* 2020; 17(1): 135–138.
21. Zheng JW, Cheng HH, Xing CC, et al. Development and validation of a nomogram for predicting transient urinary incontinence following holmium laser enucleation of the prostate. *Zhejiang J Trauma Surg* 2022; 27(4): 618–622.
22. Yang HW, Tang HL, Long L, et al. Multifactor analysis of urinary incontinence after turning holmium laser enucleation of the prostate. *Chin J Modern Oper Surg* 2022; 26(3): 222–227.
23. Kleinguetl C, Virani S, Bird ET, et al. Safety and efficacy of male urethral slings for management of persistent stress urinary incontinence after holmium laser enucleation of the prostate. *Proc (Bayl Univ Med Cent)* 2020; 33(4): 554–556.
24. Olagundoye O, Odusanya B, Kung JY, et al. A scoping review of risk factors for urinary incontinence in older men. *BMC Geriatr* 2023; 23(1): 534.
25. Chen X, Jiang S and Yao Y. Association between obesity and urinary incontinence in older adults from multiple nationwide longitudinal cohorts. *Commun Med (Lond)* 2023; 3(1): 142.
26. Prebay ZJ, Foss HE, Wang KR, et al. A narrative review on surgical treatment options for male stress urinary incontinence. *Transl Androl Urol* 2023; 12(5): 874–886.