

Prediction Models for Urinary Incontinence after Robotic-assisted Laparoscopic Radical Prostatectomy: A Systematic Review

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Author Affiliation:Affiliated Xiaoshan Hospital,
Hangzhou Normal University.**ADMINISTRATIVE INFORMATION****Support** - None.**Review Stage at time of this submission** - Data analysis.**Conflicts of interest** - None declared.**INPLASY registration number:** INPLASY202440062**Amendments** - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 15 April 2024 and was last updated on 15 April 2024.**INTRODUCTION**

Review question / Objective Robotic-assisted laparoscopic radical prostatectomy (RARP) is eclipsing open radical prostatectomy among patients with clinically localized prostate cancer. Nevertheless, there is still a high probability of urinary incontinence (UI) (6%~20%) after RARP, significantly reducing the patient's quality of life. This study aims to systematically review and critically evaluate the published prediction models of UI risk for patients after RARP.

Condition being studied

Prostate cancer represents the most frequently diagnosed malignancy in men and is one of the leading causes of cancer-related mortality and morbidity in the aging male population around the world. Radical prostatectomy (RP) is the treatment with the best evidence for reducing cancer-specific mortality among men with clinically localized prostate cancer.

It is common for patients to experience urinary incontinence (UI) after RP. Robotic-assisted laparoscopic radical prostatectomy (RARP) is eclipsing open radical prostatectomy among patients with clinically localized prostate cancer. Nevertheless, there is still a high probability of UI (6%~20%) after RARP, significantly reducing the patient's quality of life. Therefore, it is crucial to study the factors related to UI after RARP. Preoperative prediction of UI after RARP in patients is beneficial and important for medical teams to prevent and manage potential UI. Many researchers have established prediction models for the occurrence of UI after RARP, but the quality and applicability of these models have not been systematically reviewed. This study aims to systematically review and critically evaluate the published prediction models of UI risk for patients after RARP. The results from this work will provide a solid theoretical basis for future clinical practice in preventing UI after RARP.

METHODS

Search strategy In order to collect the studies that reported the UI risk prediction models for patients after RARP, we searched in PubMed, Cochrane Library, Web of Science, and Embase, for the literature published from inception to March 20, 2024, with no language limitations. The search terms included combinations of the suggested words by Medical Subject Heading (MeSH) and other related words. Search query in PubMed was performed as follows for the indicated discipline: ((Radical prostatectomy[Title/Abstract]) AND (Urinary Incontinence[MeSH Terms])) AND (((((Prediction model*[Title/Abstract]) OR (Risk factor*[Title/Abstract])) OR (Predictor*[Title/Abstract])) OR (Risk score*[Title/Abstract])) OR (Predictive model*[Title/Abstract])). In addition, the references cited in the captured articles were manually examined to identify any additional relevant research.

Participant or population Patients were diagnosed with prostate cancer and underwent primary treatment with RARP.

Intervention Robotic-assisted laparoscopic radical prostatectomy.

Comparator Not applicable.

Study designs to be included The studies that reported the UI risk prediction models for patients after RARP.

Eligibility criteria Studies should satisfy the following requirements: (1) Patients were diagnosed with prostate cancer and underwent primary treatment with RARP; (2) The primary outcome was UI; (3) Studies on constructing or validating a UI risk prediction model for patients after RARP; (4) Detailed description of the modeling process and required statistical methods; (5) Repetitive data of articles published by the same research team in different journals, the largest sample size, or the latest published articles were included. The exclusion criteria consisted of the following: (1) Studies with insufficient information on standard definition of UI; (2) Research that did not describe the process and method of model establishment, only analyzed risk factors but did not establish a risk prediction model; (3) Case reports, conference abstracts, editorials, reviews, and letters to the editor; (4) Full text not being available; and (5) Articles with no extractable data on the main outcomes.

Information sources PubMed, Cochrane Library, Web of Science, and Embase.

Main outcome(s) Urinary incontinence.

Quality assessment / Risk of bias analysis Based on descriptive analysis methods, we summarized the basic characteristics of the included studies and models, the development methods, the verification methods, and the prediction factors.

Strategy of data synthesis Not applicable.

Subgroup analysis Not applicable.

Sensitivity analysis Not applicable.

Country(ies) involved China.

Keywords Robotic-assisted laparoscopic radical prostatectomy; Urinary incontinence; Prediction models; Systematic review.prevalence; sexual dysfunction; rheumatoid arthritisdiabetes; systematic review; meta-analysis.

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