INPLASY

INPLASY202570038

doi: 10.37766/inplasy2025.7.0038

Received: 9 July 2025

Published: 9 July 2025

Corresponding author:
Carlos Alberto García Becerra

agbcarlos94@gmail.com

Author Affiliation:
Urovallarta medical center.

Latin American Incidence of Incidental Prostate Cancer Following Endoscopic Prostatic Enucleation: A Systematic Review and Single-Arm Meta-Analysis

Garcia Becerra, CA; Arias Gallardo, MI; Juarez Garcia, JE; Rivera Rocha, MI; Parra Camaño, LF; Soltero Molinar, V; Garcia Becerra, N; Garcia Gutierrez, CM.

ADMINISTRATIVE INFORMATION

Support - None.

Review Stage at time of this submission - Preliminary searches.

Conflicts of interest - None declared.

INPLASY registration number: INPLASY202570038

Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 9 July 2025 and was last updated on 9 July 2025.

INTRODUCTION

Review question / Objective What is the incidence of incidental prostate cancer detected on postoperative histopathological analysis in patients undergoing endoscopic prostatic enucleation for benign prostatic hyperplasia in Latin America?what is the incidence of incidental prostate cancer detected on postoperative histopathological analysis of patients undergoing endoscopic prostatic enucleation for benign prostatic hyperplasia?

Rationale Benign prostatic hyperplasia (BPH) is a highly prevalent condition in aging men. It is characterized by obstructive urinary symptoms caused by prostate enlargement. In some patients, when symptoms are severe and medical therapy fails, surgical intervention becomes necessary. Endoscopic prostatic enucleation techniques, such as Holmium Laser Enucleation of the Prostate (HoLEP), Thulium Laser Enucleation of the Prostate (ThuLEP), and Bipolar Enucleation of the Prostate, have become increasingly popular due to their efficacy and safety profiles.

A well-documented phenomenon in patients undergoing surgical treatment for BPH is the incidental detection of prostate cancer on postoperative histopathological analysis. While several international studies have reported varying rates of incidental prostate cancer in this context, data from Latin America remain limited and fragmented.

Understanding the regional incidence of incidental prostate cancer is crucial for clinical decision-making, patient counseling, and potential adjustments in preoperative assessment protocols. Latin America has distinct demographic, healthcare, and pathological reporting characteristics that may influence the incidence and detection rates of prostate cancer. A systematic review and meta-analysis focused on Latin American populations can provide valuable insights into the true incidence of incidental prostate cancer in this setting and help guide future research and health policy.

Garcia Becerra et al. INPLASY protocol 202570038. doi:10.37766/inplasy2025.7.0038 Downloaded from https://inplasy.com/inplasy-2025-7-0038/

Condition being studied Incidental Prostate Cancer.

METHODS

Search strategy Four databases will be searched, including PubMed, Cochrane Central Register of Controlled Trials, LILACS, and Latindex, using the following Boolean operators or combinations of keywords, depending on the search system of each database:

-("prostate enucleation"[Title/Abstract] OR "enucleation of the prostate"[Title/Abstract]) AND ("HoLEP"[Title/Abstract] OR "holmium laser enucleation of the prostate"[Title/Abstract]) AND ("prostate cancer"[Title/Abstract] OR "incidental prostate cancer"[Title/Abstract])

-("prostate enucleation"[Title/Abstract] OR "enucleation of the prostate"[Title/Abstract]) AND ("HoLEP"[Title/Abstract] OR "Holmium laser enucleation of the prostate"[Title/Abstract])

-("prostate enucleation"[Title/Abstract] OR "enucleation of the prostate"[Title/Abstract]) AND ("THuLEP"[Title/Abstract] OR "Thulium laser enucleation of the prostate"[Title/Abstract])

-("prostate enucleation"[Title/Abstract] OR "enucleation of the prostate"[Title/Abstract]) AND "Bipolar enucleation of the prostate"[Title/Abstract]) AND ("prostate cancer"[Title/Abstract] OR "incidental prostate cancer"[Title/Abstract])

-("Enucleación Prostática"[Title/Abstract] OR "Enucleación de la Próstata"[Title/Abstract])

-Enucleación Prostática

-Enucleación de la Próstata

Previous systematic reviews will also be examined to identify additional articles that may meet the inclusion criteria.Previous records (Systematic reviews) will be also evaluated for articles that could be included.

Participant or population Patients with benign prostatic hyperplasia who have undergone endoscopic prostatic enucleation and subsequently received histopathological evaluation of the resected tissue will be included.

Intervention Endoscopic enucleation of the Prostate.

Comparator Not applicable (this is an incidence study, not a comparative one).

Study designs to be included Observational and Experimental studies will be included.

Eligibility criteria Peer-reviewed journal articles published in Spanish, Portuguese, or English between 2000 and 2025 will be included. Eligible studies must be primary research conducted in Latin America with either an observational or experimental design, include a sample size of at least 10 patients, involve patients who underwent prostatic enucleation for benign prostatic hyperplasia either as a single arm study or in comparison with other therapies, and clearly report postoperative histopathological assessment.

Studies will be excluded if they consist solely of brief comments, abstracts, letters to the editor, or narrative reviews, or if they do not report or clearly describe postoperative histopathological assessment.

Information sources Peer-reviewed journal articles published in Spanish, Portuguese, or English between 2000 and 2025 will be included. Eligible studies must be primary research conducted in Latin America with either an observational or experimental design, include a sample size of at least 10 patients, involve patients who underwent prostatic enucleation for benign prostatic hyperplasia either as a single arm study or in comparison with other therapies, and clearly report postoperative histopathological assessment.

Studies will be excluded if they consist solely of brief comments, abstracts, letters to the editor, or narrative reviews, or if they do not report or clearly describe postoperative histopathological assessment.

Main outcome(s) Primary outcomes assessed will be the reported incidence of incidental prostate cancer in the histopathological follow up after the surgical intervention.

Additional outcome(s) Additional outcomes to be extracted will include any data potentially related to oncological risk (e.g., Prostate-Specific Antigen levels), demographic characteristics of the study populations, and study-level information.

Data management After completing the database search, all identified records will be imported into Microsoft Excel 365 (Microsoft Corporation, Redmond, WA, USA). Duplicate entries will be detected and eliminated prior to initiating the

Garcia Becerra et al. INPLASY protocol 202570038. doi:10.37766/inplasy2025.7.0038 Downloaded from https://inplasy.com/inplasy-2025-7-0038/

screening phase. The remaining articles will initially be screened by title and abstract using pre-established inclusion and exclusion criteria. Studies considered potentially eligible will then undergo full-text review, during which the same criteria will be reapplied. Those that meet the eligibility requirements will be included in the data extraction phase. To maintain reliability, two independent reviewers will extract the relevant data and input it into a database developed using the same software. Any disagreements will be addressed through discussion and consensus among the review team. Furthermore, all reviewers will independently verify the process to ensure data accuracy and completeness.

Quality assessment / Risk of bias analysis The risk of bias in randomized controlled trials will be assessed using the revised Cochrane Risk of Bias tool (RoB 2), while non-randomized observational studies will be evaluated using the Methodological Index for Non-Randomized Studies (MINORS). This process will be evaluated by two independent researchers, and any disagreement will be solved with a consensus with the rest of the authors.

Strategy of data synthesis A univariate meta-analysis will be performed using a random-effects model, with study weights estimated using the inverse variance method, and between-study variance (τ^2) estimated using the Restricted Maximum Likelihood (REML) method. Depending on the incidence proportions reported in the included studies, either a Freeman-Tukey double arcsine transformation (FTt) will be applied—particularly when studies report zero events—or a logit transformation, which will be used when incidence proportions are greater than 0 but generally below 0.20.

Heterogeneity will be assessed using Cochran's Q test and Higgins' I^2 statistic. I^2 values greater than 50% will be considered indicative of substantial heterogeneity.

To explore potential sources of heterogeneity and identify possible effect modifiers, a meta-regression will be conducted. Covariates for the meta-regression will be selected post hoc, based on data availability and clinical relevance.

Subgroup analysis A sub-group analysis will be used to evaluate the incidence in different countries if the amount of studies allows it (3 or more).

Sensitivity analysis A Leave-One-Out sensitivity analysis will be conducted to assess the influence of individual studies on the overall pooled incidence estimate.

Additionally, a transformation-based sensitivity analysis will be performed by applying the alternative transformation method to that used in the primary analysis. Specifically, if the Freeman-Tukey double arcsine transformation is used in the main analysis, the logit transformation will be applied in the sensitivity analysis. This will help evaluate the robustness of the results to the choice of transformation.

Language restriction Will be included studies in spanish, portuguese and english.

Country(ies) involved México.

Other relevant information None

Keywords Prostatic Neoplasms; Holmium; Prostatic Hyperplasia; prostate; prostatectomy; Incidence.

Dissemination plans The dissemination plan includes abstract for congress presentation and/or peer review journal article.

Contributions of each author

Author 1 - Carlos Alberto García Becerra - Study design, methodological assessment, drafting of the protocol.
Email: agbcarlos94@gmail.com
Author 2 - Maria I. Arias-Gallardo - drafting of the protocol.
Email: ariasgallardomariaisabel@gmail.com
Author 3 - jesus E. Juarez-Garcia - drafting of the protocol.
Email: jejuarezgarcia@gmail.com
Author 4 - Mariabelen I. Rivera-Rocha - drafting of the protocol.
Email: mariabelenriverarocha@gmail.com
Author 5 - Luis F. Parra-Camaño - drafting of the protocol.
Author 6 - veronica Soltero-Molinar - drafting of the protocol.
Email: verosoltero97@gmail.com
Author 7 - Natalia Garcia-Gutierrez - drafting of the protocol.
Email: natgarciab96@gmail.com
Author 8 - Carlos M. Garcia-Gutierrez - Study design, methodological assessment, protocol draft.
Email: drcgarcia@hotmail.com

Garcia Becerra et al. INPLASY protocol 202570038. doi:10.37766/inplasy2025.7.0038 Downloaded from https://inplasy.com/inplasy-2025-7-0038/