INPLASY

mpact of Preventive Nursing Interventions on the Incidence of Lower Limb Lymphedema after Endometrial Cancer Surgery: A Systematic Review and Meta-Analysis

INPLASY2025110047

doi: 10.37766/inplasy2025.11.0047

Received: 17 November 2025

Published: 17 November 2025

Xu, YX; Yan, J; Le, XL.

Corresponding author:
Yaxian Xu

xu_wvdr@163.com

Author Affiliation:
The Fourth Affiliated Hospital of Zhejiang University School of Medicine.

ADMINISTRATIVE INFORMATION

Support - No.

Review Stage at time of this submission - Completed but not published.

Conflicts of interest - None declared.

INPLASY registration number: INPLASY2025110047

Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 17 November 2025 and was last updated on 17 November

INTRODUCTION

Review question / Objective Population (P): Adult female patients with endometrial cancer undergoing surgical treatment. Intervention (I): Preventive nursing intervention, defined as initiating active nursing measures to reduce the risk of LLL after or before endometrial cancer surgery. This includes graded compression stockings, decongestive physical therapy, exercise education, and modified surgical techniques. Comparator (C): Routine nursing care, defined as basic nursing after the operation, excluding preventive nursing measures. Outcomes (O): Primary: Incidence of postoperative lower limb lymphedema (LLL). Secondary: Time to onset of LLL, severity of LLL, and quality of life of patients. Study Design (S): Randomized controlled trials (RCTs) and cohort studies.

Condition being studied Endometrial cancer is one of the three major malignant tumors affecting the female reproductive tract, with a rising incidence worldwide.

According to data from the Cancer Center in 2022, the incidence rate of endometrial cancer is 7.03 per 100,000 women, with a mortality rate of 1.06 per 100,000.

The age of onset is trending younger, and in economically developed regions, its incidence has surpassed that of cervical cancer, ranking first among malignant tumors of the female reproductive system.

Surgery, primarily total hysterectomy with bilateral salpingo-oophorectomy and pelvic/para-aortic lymphadenectomy, is the mainstay of treatment for endometrial cancer.

However, lymph node dissection, while helpful in defining tumor stage and guiding adjuvant therapy, can damage the lymphatic circulation system, leading to long-term complications such as lower limb lymphedema (LLL).

METHODS

Participant or population The participants to be addressed in this review are adult female patients

with endometrial cancer undergoing surgical treatment.
There will be no restrictions on race or region.
Patients who have severe liver, kidney, cognitive impairment, or mental illness before surgery, and those who have received treatment for other malignant tumors concurrently, will be excluded.

Intervention The intervention to be evaluated in this review is preventive nursing intervention (PNI), defined as initiating active nursing measures to reduce the risk of lower limb lymphedema (LLL) after or before endometrial cancer surgery.
These measures may include, but are not limited to, graded compression stockings, decongestive physical therapy, exercise education, and modified surgical techniques aimed at preserving lymphatic pathways.

Comparator The comparative intervention applied to the target population will be routine nursing care, defined as basic nursing provided after the operation, excluding any preventive nursing measures specifically aimed at reducing the risk of LLL.

Study designs to be included To address the objective of the review, the study designs to be included will be randomized controlled trials (RCTs) and cohort studies. These designs are suitable for evaluating the effectiveness of interventions and comparing outcomes between different care strategies.

Eligibility criteria In addition to the criteria defined in the PICOS sections, the following eligibility criteria will apply:

Inclusion Criteria: Studies must be published in English and provide sufficient data to extract information on incidence, onset time, severity, and quality of life related to LLL.
Exclusion Criteria: Studies with incomplete data or inability to obtain original data by contacting the author will be excluded.
Repeated publications of literature will be excluded, retaining only the most complete or latest version of data.
Non-English literature will also be excluded.

Information sources The intended information sources for this review will include electronic databases such as PubMed, Embase, Cochrane Library, and Web of Science.
Manual searches of reference lists from included literature will also be conducted to trace relevant studies.
Additionally, efforts will be made to contact authors for clarification or additional data when necessary.

Main outcome(s) The main outcomes of the review will include:

Primary Outcome: Incidence of postoperative lower limb lymphedema (LLL) in patients with endometrial cancer.
Secondary Outcomes:
Time to onset of LLL, measured in months post-surgery.
Severity of LLL, categorized based on clinical assessment.
Quality of life of patients, assessed using validated scales.

Quality assessment / Risk of bias analysis The quality assessment of primary studies included in this review will be conducted using established tools tailored to the study designs.
For randomized controlled trials (RCTs), the Cochrane Risk of Bias tool (ROB 2.0) will be employed.
This tool evaluates seven domains: random sequence generation, allocation concealment, blinding of participants and personnel, blinding of outcome assessment, incomplete outcome data, selective reporting, and other biases.
Each domain will be categorized as "Low risk," "High risk," or "Some concerns" based on the study's adherence to best practices.

For non-RCT studies, such as cohort and case-control studies, the Newcastle-Ottawa Scale (NOS) will be utilized.
The NOS rates studies based on three dimensions: selection of the study population, comparability between groups, and outcome measurement.
Studies can receive a maximum of nine points, with those scoring six or more considered high quality.
This systematic approach ensures a rigorous evaluation of the methodological quality and risk of bias across diverse study types.

Strategy of data synthesis Data synthesis will involve both qualitative and quantitative analyses.
For quantitative synthesis, meta-analysis will be conducted using RevMan 5.4 and Stata 17.0 software.
Effect sizes for binary outcomes (e.g., incidence of LLL) will be expressed as odds ratios (OR) with 95% confidence intervals (CI), while continuous outcomes (e.g., quality of life scores) will be analyzed using mean differences (MD) or

standardized mean differences (SMD) when different measurement scales are used.

Heterogeneity among studies will be assessed using the I^2 statistic and Cochran's Q test.
A fixed-effects model will be applied if heterogeneity is low ($I^2 \leq 50\%$ and $P \geq 0.10$ for the Q test), while a random-effects model will be used for substantial heterogeneity.
Subgroup and sensitivity analyses will be conducted to explore potential sources of heterogeneity. Qualitative synthesis will summarize findings from studies not suitable for meta-analysis due to high heterogeneity or insufficient data.

Subgroup analysis Subgroup analyses will be performed to investigate the impact of various factors on the effectiveness of preventive nursing interventions.
Key subgroups will include:

Type of Intervention: Single versus combined preventive measures.
Surgical Scope: Patients undergoing pelvic lymph node dissection versus those with less extensive surgery.
Patient Characteristics: Age groups, body mass index (BMI) categories, and presence of comorbidities (e.g., diabetes).
Timing of Intervention: Preoperative, intraoperative, and postoperative initiation of preventive measures.

Sensitivity analysis Sensitivity analyses will be conducted to assess the robustness of the meta-analysis results.
Key strategies will include:

Exclusion of Individual Studies: One study at a time will be excluded to evaluate the impact on the overall effect size.
Inclusion Criteria Restriction: Re-analyzing data after excluding non-RCT studies to assess the influence of study design on results.
Effect Model Comparison: Comparing results obtained from fixed-effects and random-effects models to determine if the choice of model affects conclusions.

Country(ies) involved China.

Keywords Endometrial Cancer; Lower Limb Lymphedema; Preventive Nursing; Meta-Analysis; Systematic Review.

Contributions of each author
Author 1 - Yaxian Xu.
Author 2 - Jiaonan Yan.
Author 3 - Xiaoli Le.