INPLASY

Is mesh non-fixation safe in transabdominal preperitoneal (TAPP) inguinal hernia repair? A meta-analysis of randomized controlled trials

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ADMINISTRATIVE INFORMATION

Support - None.

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

Conflicts of interest - None declared.

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Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 21 January 2024 and was last updated on 21 January 2024.

INTRODUCTION

Review question / Objective To assess and compare the clinical efficacy of mesh non-fixation versus mesh fixation in laparoscopic transabdominal preperitoneal (TAPP) inguinal hernia repair through a meta-analysis, with the goal of systematically evaluating the application value of the mesh non-fixation technique in clinical settings.

Condition being studied The clinical efficacy of mesh non-fixation and fixation in laparoscopic transabdominal preperitoneal (TAPP) inguinal hernia repair.

METHODS

Participant or population Patients with inguinal hernia.

Intervention The intervention group with mesh non-fixation.

Comparator The control group with mesh fixation.

Study designs to be included Randomized controlled trials (RCTs).

Eligibility criteria Patients with inguinal hernia.

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

Main outcome(s) Intraoperative complication rate, seroma occurrence rate, overall infection event rate (encompassing both wound and mesh infection rates), 6-month postoperative Visual Analog Scale (VAS) pain score, cost, and recurrence rate.

Quality assessment / Risk of bias analysis Two independent researchers collaboratively assessed bias risk in the included studies, cross-verifying

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results. Utilizing the Cochrane Handbook 5.1.0 recommended RCT bias risk tool, seven aspects were considered: random sequence generation, allocation concealment, blinding of participants and personnel, blinding of outcome assessors, completeness of outcome data, selective reporting, and other sources of bias. Criteria were judged as high, low, or unclear risk following Cochrane Handbook guidelines.

Strategy of data synthesis Statistical analyses used RevMan 5.3 software. Mean difference (MD) for continuous data and relative risk (RR) for binary variables, both with 95% confidence intervals (CI). Heterogeneity assessed via chi-square test and I2 statistic. If no heterogeneity ($P \geq 0.1$, $I2 < 50\%$), a fixed-effects model was used; otherwise, sources explored. After excluding clinical heterogeneity, a random-effects model was applied. Significance level set at $\alpha=0.05$. Clinical heterogeneity addressed through subgroup, sensitivity, or descriptive analysis. Funnel plots generated for indicators with >10 studies to assess publication bias.

Subgroup analysis Subgroup analysis was conducted for studies exhibiting substantial heterogeneity.

Sensitivity analysis Sensitivity analysis was performed by systematically excluding individual studies to evaluate their impact on the overall results for each outcome indicator.

Country(ies) involved China.

Keywords Inguinal hernia; TAPP; Mesh; Meta-analysis.

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