INPLASY PROTOCOL

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None declared.

Transcutaneous electrical acupoint stimulation for the prevention of postoperative urinary retention: A systematic review and meta-analysis

Huang, KY[1]; Liang, S[2]; Du, HG[3]; Xu, YY[4]; Chen, L[5]; Zhang, Y[6]; Feng, XX[7].

Review question / Objective: **Until now, no meta-analysis has systematically evaluated the preventive effect of transcutaneous electrical acupoint stimulation (TEAS) on postoperative urinary retention (POUR) based on the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. The purpose of this systematic review and meta-analysis is to investigate the effect of TEAS on POUR, which might provide evidence for clinical practice.**
Eligibility criteria: **Studies were considered to be included if they met the following criteria: (1) population: patients undergoing any type of surgery; (2) intervention: TEAS; (3) comparison: blank control or sham TEAS; (4) outcome: POUR; and (5) study design: RCTs published in journals. The primary outcome was the incidence of POUR, and the secondary outcome was the post-void residual urine volume. For duplicate studies, only the most recent publication was included. Studies that failed to offer accurate data of POUR were excluded.**

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 21 February 2023 and was last updated on 21 February 2023 (registration number INPLASY202320095).

INTRODUCTION

Review question / Objective: **Until now, no meta-analysis has systematically evaluated the preventive effect of transcutaneous electrical acupoint stimulation (TEAS) on postoperative urinary retention (POUR) based on the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. The purpose of this systematic review and meta-analysis is to investigate the effect of TEAS on POUR, which might provide evidence for clinical practice.**

Condition being studied: POUR is manifested as the inability to void with a full bladder and is a common complication after surgery. Despite POUR is often solved by catheterization, such intervention is invasive and distressing, and can increase the risk of urinary infection and urethral trauma. If left untreated, POUR can lead to bladder over distension, prolong hospital stay, and increase hospitalization costs. Therefore, surgeons have recognized the importance of preventive interventions which can reduce the incidence of POUR and the requirements for catheterization.
TEAS, which imposes surface electrical stimulation to target acupoints instead of needles, has been used widely for preventing common postoperative complications. Moreover, TEAS has demonstrated benefits in preventing the incidence and severity of catheter-related bladder discomfort. This suggests that TEAS may regulate bladder and urethral sphincter function by stimulating pelvic nerves and muscles. Thus, TEAS has been proposed to be used for the treatment of urination disorders including POUR. In recent years, an increasing number of trials have been published to support the effectiveness of TEAS for the prevention of POUR in terms of reducing the incidence of POUR and post-void residual urine volume. In view of this, we will conduct a systematic review and meta-analysis to investigate the effect of TEAS on POUR.

METHODS

Participant or population: Patients undergoing any type of surgery.

Intervention: TEAS.

Comparator: Blank control or sham TEAS.

Study designs to be included: Randomized controlled trials (RCTs) published in journals.

Eligibility criteria: Studies were considered to be included if they met the following criteria: (1) population: patients undergoing any type of surgery; (2) intervention: TEAS; (3) comparison: blank control or sham TEAS; (4) outcome: POUR; and (5) study design: RCTs published in journals. The primary outcome was the incidence of POUR, and the secondary outcome was the post-void residual urine volume. For duplicate studies, only the most recent publication was included. Studies that failed to offer accurate data of POUR were excluded.

Information sources: RCTs evaluating TEAS for the prevention of POUR in surgical patients are searched in Pubmed, CENTRAL, the China National Knowledge Infrastructure (CNKI), and Wanfang Database. The range of publication time is from the inception of each database to February 6, 2023.

Main outcome(s): The primary outcome is the incidence of POUR, and the secondary outcome is the post-void residual urine volume.

Quality assessment / Risk of bias analysis: The Cochrane Collaboration tool is used to assess the risk of bias. Two reviewers independently assesse the following aspects: random sequence generation, allocation concealment, blinding of participants and personnel, blinding of outcome assessment, incomplete outcome data, selective reporting, and other bias. Disagreement is analyzed by the third reviewer.

Strategy of data synthesis: Analyses are performed using RevMan 5.3 and Stata 13.0. Risk ratio (RR) with 95% confidence interval (CI) is used for dichotomous outcomes. Mean difference (MD) with 95% CI is adopted for continuous outcomes. Heterogeneity is examined using the I2 test. A random-effects model is used to conduct meta-analysis regardless of heterogeneity. Two-tailed $P<0.05$ are considered statistically significant. If sufficient trials (≥10 trials) are included, publication bias is assessed using a funnel plot and Egger's test.

Subgroup analysis: Subgroup analyses based on different types of surgery, TEAS

waveform and control methods were performed.

Sensitivity analysis: N/A.

Country(ies) involved: China.

Keywords: transcutaneous electrical acupoint stimulation; postoperative urinary retention; systematic review, meta-analysis.

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