INPLASY PROTOCOL

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No conflicts of interest.

Predictive value of preoperative urine white blood cell and nitrite in postoperative infections following percutaneous nephrolithotomy: a meta-analysis

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Review question / Objective: P: Patients undergoing percutaneous nephrolithotomy; E: Positive preoperative urine test; C: Negative preoperative urine test; O: Postoperative infections; S: Case control studies.

Condition being studied: With the development of radiology, ultrasonography, endoscopy and lithotripsy equipment, the safety and efficacy of PCNL has been improved obviously in the past decades, but surgical complications haven't been wiped out, especially various infections. Urinary nitrite (NIT) paired with urine white blood cell (WBC) was reported to be used in diagnosis of UTIs with high accuracy. Although there have been several relevant individual studies, no meta-analysis has been conducted to summarize the existing materials. Therefore, we pooled and analyzed current relevant studies to evaluate the value of preoperative urine WBC and NIT in predicting postoperative infections following PCNL.

INTRODUCTION

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METHODS

Participant or population: Patients undergoing percutaneous nephrolithotomy in China.

Intervention: Positive preoperative urine testNegative preoperative urine test.

Comparator: Negative preoperative urine test.

Study designs to be included: Case control studies.

Eligibility criteria: (1) the full-text article was written in English or Chinese; (2) Case-control studies (CCS); (3) Data included preoperative urine WBC or NIT.

Information sources: The online databases of PubMed, Embase, Cochrane Library, Wanfang Data, National Knowledge Infrastructure (CNKI) and China Science and Technology Journal Database (CSTJ or VIP).

Main outcome(s): The primary outcome data were postoperative sepsis, urosepsis or systemic inflammatory response syndrome, and the secondary outcome data were postoperative fever or septic shock.

Quality assessment / Risk of bias analysis: The Cochrane Collaboration Risk of Bias tool was used to assess the quality of included randomized controlled studies (RCTs), and the Newcastle–Ottawa scale

(NOS) to assess the quality of non-randomized controlled studies (non-RCTs).

Strategy of data synthesis: In this meta-analysis, the Review Manager software (RevMan Version 5.3, Cochrane Collaboration, Oxford, UK) and the STATA software (Stata version 16.0, Stata Corp LP, College Station, TX), were used to complete the statistical analysis of data.

Subgroup analysis: WBC+ vs WBC- ; NIT+ vs NIT- .

Sensibility analysis: If statistical heterogeneity existed significantly, sensitivity analyses was used to evaluate the reliability of the result, by omitting each study individually.

Country(ies) involved: China.

Keywords: Percutaneous nephrolithotomy ; Postoperative infections; Urine WBC; Urine nitrite.

Contributions of each author:
Author 1 - Shuhao Ruan - Conception and design; Provision of study materials or patients; Collection and assembly of data; Data analysis and interpretation; Manuscript writing; Final approval of manuscript.
Author 2 - Zhiyong Chen - Conception and design; Provision of study materials or patients; Collection and assembly of data; Data analysis and interpretation; Manuscript writing; Final approval of manuscript.
Author 3 - Zewu Zhu - Collection and assembly of data; Manuscript writing; Final approval of manuscript.
Author 4 - Huimin Zeng - Data analysis and interpretation; Manuscript writing; Final approval of manuscript.
Author 5 - Jinbo Chen - Conception and design; Administrative support; Manuscript writing; Final approval of manuscript.
Author 6 - Hequn Chen - Conception and design; Administrative support; Manuscript writing; Final approval of manuscript.