

# INPLASY PROTOCOL

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None declared.

## High Tourniquet Pressure versus Low Tourniquet Pressure in Total Knee Arthroplasty: A systematic review and meta-analysis

Peng, Y<sup>1</sup>; Bin, S<sup>2</sup>.

**Review question / Objective:** The objective of this study was to assess the efficacy and safety of high tourniquet pressure (HTP) for patients after total knee arthroplasty (TKA) compared with low tourniquet pressure (LTP).

**Condition being studied:** Tourniquet use is common in total knee arthroplasty. Many factors have influence on the development of post-tourniquet complications like tourniquet pressure, time, width, and type, while the pressure remains a critical element. However, no standard protocols yet have been established for the use of this device.

**Information sources:** PubMed, Embase, Web of Science, Cochrane and Ovid database were searched for studies published from inception of the databases to September 10st, 2021. Additionally, relevant journals and references of studies was hand-searched.

**INPLASY registration number:** This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 15 November 2021 and was last updated on 15 November 2021 (registration number INPLASY2021110048).

### INTRODUCTION

**Review question / Objective:** The objective of this study was to assess the efficacy and safety of high tourniquet pressure (HTP) for patients after total knee arthroplasty (TKA) compared with low tourniquet pressure (LTP).

**Condition being studied:** Tourniquet use is common in total knee arthroplasty. Many factors have influence on the development of post-tourniquet complications like tourniquet pressure, time, width, and type, while the pressure remains a critical element. However, no standard protocols

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## METHODS

**Search strategy:** The study protocol, conducted according to the Cochrane standard. “tourniquet pressure” and “knee replacement, knee arthroplasty and total knee arthroplasty” were used as key words in connection with AND or OR.

**Participant or population:** Patients undergoing total knee arthroplasty with tourniquet.

**Intervention:** Low tourniquet pressure (LTP) group involves cuff pressure not above 250mmHg or systolic blood pressure (SBP) plus 120 mmHg.

**Comparator:** High tourniquet pressure (HTP) group involves cuff pressure not less than 300mmHg or SBP plus 150mmHg.

**Study designs to be included:** Randomised controlled trails

**Eligibility criteria:** (1) The study had to be a randomized controlled trail. (2) The intervention(s) evaluated in the trials had to be two or more different tourniquet pressures in primary TKAs and the results of both designs had to be reported separately.

**Information sources:** PubMed, Embase, Web of Science, Cochrane and Ovid database were searched for studies published from inception of the databases to September 10st, 2021. Additionally, relevant journals and references of studies was hand-searched.

**Main outcome(s):** Complications; pain; calculated blood loss; duration of surgery; hemoglobin (HB) drop; transfusion and range of motion (ROM).

**Quality assessment / Risk of bias analysis:** The risk of bias about the included studies was assessed by consulting the Cochrane Handbook (including random sequence generation, allocation concealment,

blinding of participants and personnel, blinding of outcome assessment, incomplete outcome data, selective reporting, and other bias).

**Strategy of data synthesis:** Heterogeneity was evaluated using the I2 test.

**Subgroup analysis:** Sensitivity analyses and subgroup analyses were conducted to investigate possible sources of heterogeneity and the stability of the results.

**Sensitivity analysis:** Sensitivity analyses and subgroup analyses were conducted to investigate possible sources of heterogeneity and the stability of the results.

**Language:** English.

**Country(ies) involved:** China.

**Keywords:** tourniquet; pressure; total knee arthroplasty; pain; complication.

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