INPLASY PROTOCOL

Corresponding author:
Hongwei Zhang

zhanghongwei@ccmu.edu.cn

Author Affiliation:
Department of Neurosurgery, Sanbo Brain Hospital, Capital Medical University, Beijing 100093, China.

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

Conflicts of interest: None declared.

Efficacy and safety of prophylaxis for venous thromboembolism in brain neoplasm patients undergoing neurosurgery: a systematic review and bayesian network meta-analysis

Liu, DS[1]; Song, DX[2]; Ning, WH[3]; Zhang, XY[4]; Chen, SY[5]; Zhang, HW[6].

Review question / Objective: Examine the comparative safety and effectiveness of chemoprophylaxis (UFH, LMWH, DOACs (apixaban, rivaroxaban)), mechanical therapy (Intermittent pneumatic compression (IPC)), Chemoprophylaxis plus mechanical therapy (LMWH plus IPC (LMWH_IPC), UFH plus IPC (UFH_IPC)) for the prophylaxis of VTE in brain neoplasm patients undergoing neurosurgery.

Eligibility criteria: The eligible study was satisfied with the following criteria: (1) Adult patients (≥ 18 years of age) undergoing neurosurgery for brain neoplasms. (2) Interventions include chemoprophylaxis, mechanical therapy, chemoprophylaxis plus mechanical therapy, regardless of type of devices used, dose or duration. (3) A control therapy included a placebo, no treatment/routine physiotherapy. (4) Types of studies included only randomized controlled trials.

INTRODUCTION

Review question / Objective: Examine the comparative safety and effectiveness of chemoprophylaxis (UFH, LMWH, DOACs (apixaban, rivaroxaban)), mechanical therapy (Intermittent pneumatic compression (IPC)), Chemoprophylaxis plus mechanical therapy (LMWH plus IPC (LMWH_IPC), UFH plus IPC (UFH_IPC)) for

the prophylaxis of VTE in brain neoplasm patients undergoing neurosurgery.

Condition being studied: Examine the comparative safety and effectiveness of chemoprophylaxis (UFH, LMWH, DOACs (apixaban, rivaroxaban)), mechanical therapy (Intermittent pneumatic compression (IPC)), Chemoprophylaxis plus mechanical therapy (LMWH plus IPC (LMWH_IPC), UFH plus IPC (UFH_IPC)) for the prophylaxis of VTE in brain neoplasm patients undergoing neurosurgery.

METHODS

Participant or population: Brain neoplasm patients undergoing neurosurgery.

Intervention: chemoprophylaxis (UFH, LMWH, DOACs (apixaban, rivaroxaban)), mechanical therapy (Intermittent pneumatic compression (IPC)), Chemoprophylaxis plus mechanical therapy (LMWH plus IPC (LMWH_IPC), UFH plus IPC (UFH_IPC)).

Comparator: Placebo.

Study designs to be included: RCT.

Eligibility criteria: The eligible study was satisfied with the following criteria: (1) Adult patients (≥ 18 years of age) undergoing neurosurgery for brain neoplasms. (2) Interventions include chemoprophylaxis, mechanical therapy, chemoprophylaxis plus mechanical therapy, regardless of type of devices used, dose or duration. (3) A control therapy included a placebo, no treatment/routine physiotherapy. (4) Types of studies included only randomized controlled trials.

Information sources: EBM Reviews-Cochrane Central Register of Controlled Trials, Embase, Epub Ahead of Print, In-Process, In-Data-Review & Other Non-Indexed Citations, Daily and Versions(R) and Ovid MEDLINE(R).

Main outcome(s): The efficacy outcome included symptomatic or asymptomatic VTE (pulmonary embolism (PE) and deep venous thrombosis (DVT)) and a combination of proximal DVT or PE.

Additional outcome(s): Minor bleeding, major bleeding, all occurrence of bleeding and all-cause mortality were the main safety outcomes.

Quality assessment / Risk of bias analysis: All RCTs had their risk of bias assessed using RoB 2 (a refined technique for assessing risk of bias in randomized trials) across five domains of bias: (1) the process of randomization, (2) deviations from the intended interventions, (3) missing the outcome data, (4) measurement of the outcome, (5) selection of the reported result. Each bias domain was assigned a risk of bias of either high, some concern, or low.

Strategy of data synthesis: Bayesian model was performed to conduct a meta-analysis network, combined and compared the indirect and direct evidence of the included studies.

Subgroup analysis: No subgroup analysis.

Sensitivity analysis: Unnecessary.

Country(ies) involved: China.

Keywords: meta-analysis; thromboembolism prophylaxis; neurosurgery; brain neoplasm.

Contributions of each author:
Author 1 - Deshan Liu.
Author 2 - Dixiang Song.
Author 3 - Weihai Ning.
Author 4 - Xiaoyu Zhang.
Author 5 - Shengyun Chen.
Author 6 - Hongwei Zhang.