

# DIRECT THROMBIN INHIBITORS VERSUS VITAMIN K ANTAGONISTS OR LOW MOLECULAR WEIGHT HEPARINS FOR PREVENTION OF VENOUS THROMBOEMBOLISM FOLLOWING TOTAL HIP OR KNEE REPLACEMENT

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## ABSTRACT

### Background

Patients who have undergone total hip or knee replacement (THR, TKR) have a high risk of developing venous thromboembolism (VTE) following surgery, despite appropriate anticoagulation with warfarin or low molecular weight heparin (LMWH). New anticoagulants are under investigation.

### Objective

To examine the efficacy and safety of prophylactic anticoagulation with direct thrombin inhibitors (DTIs) versus LMWH or vitamin K antagonists in the prevention of VTE in patients undergoing THR or TKR.

### Criteria for considering studies for this review

The Cochrane Peripheral Vascular Disease Group searched their Specialized Register (last searched 12 March 2010) and CENTRAL (last searched 2010, Issue 1).

### Selection criteria

Randomised controlled trials.

### Data collection and analysis

Three reviewers independently assessed methodological quality and extracted data in pre-designed tables. The reported follow-up events were included

### Main results

We included 14 studies included involving 21,642 patients evaluated for efficacy and 27,360 for safety. No difference was observed in major VTE in DTIs compared with LMWH in both types of operations (odds ratio (OR) 0.91; 95% confidence interval (CI) 0.69 to 1.19), with high heterogeneity (I<sup>2</sup> 71%). No difference was observed with warfarin (OR 0.85; 95% CI 0.63 to 1.15) in TKR, with no heterogeneity (I<sup>2</sup> 0%).

### Authors' conclusions

Direct thrombin inhibitors are as effective in the prevention of major venous thromboembolism in THR or TKR as LMWH and vitamin K antagonists. However, they show higher mortality and cause more bleeding than LMWH. No severe hepatic complications were reported in the analysed studies. Use of ximelagatran is not recommended for VTE prevention in patients who have undergone orthopedic surgery. More studies are necessary regarding dabigatran.

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