

Fondaparinux better for orthopaedic prophylaxis than enoxaparin

Clinical question Is fondaparinux or enoxaparin better at preventing important venous thromboembolic events following orthopaedic surgery?

Bottom line Fondaparinux prevents more clinically important venous thromboembolic events than enoxaparin for patients undergoing major orthopedic surgery.

Synopsis A wide variety of outcomes are used in studies of venous thromboembolism (VTE) prophylaxis for surgical patients, ranging from the disease-oriented (asymptomatic radiographically detected deep vein thrombosis [DVT]) to the truly patient-oriented (death from any cause). Four studies have compared fondaparinux with enoxaparin for patients undergoing major orthopaedic surgery and each included asymptomatic distal DVTs in their combined outcome. Since these are of questionable clinical significance, the authors of this study reanalysed the data using a more patient-oriented combined outcome. All four of these studies included adults scheduled for elective major hip or knee surgery, or surgery for a proximal femoral fracture. Patients were randomised to either fondaparinux 2.5mg once daily or enoxaparin. In two studies, enoxaparin was given as a 30mg dose twice daily starting 12 to 24 hours preoperatively; in the other two studies, 40mg was given once daily starting 12 hours before surgery. There were a total of 7,344 patients in the four studies, and they were followed up for 11 days postoperatively. Outcomes were assessed by a committee, blinded to treatment

assignment. The four studies were homogenous, but allocation concealment was not described. The two outcomes assessed in this reanalysis were: (1) symptomatic and asymptomatic proximal DVT, any symptomatic DVT or pulmonary embolism (PE), and any fatal PE; and (2) symptomatic and asymptomatic proximal DVT, symptomatic PE, and death from any cause. Both were less common in patients receiving fondaparinux, 1.7 per cent vs 3.3 per cent for the first outcome and 2.1 per cent vs 3.9 per cent for the second. Both differences were statistically significant, with numbers needed to treat of 62 and 56, respectively. When considering subgroups by the type of surgery, the difference was still significant for hip fracture surgery and elective major knee surgery, but not for elective hip replacement surgery. The study was not powered to detect a significant difference in symptomatic events alone in the two treatment groups.

Level of evidence 1a (systematic review, with homogeneity, of randomised controlled trials)

Reference Turpie AG, Bauer KA, Eriksson BI, Lassen MR. Superiority of fondaparinux over enoxaparin in preventing venous thromboembolism in major orthopaedic surgery using different efficacy end points. *Chest* 2004;126:501-08.

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