

Title: Timing of symptomatic venous thromboembolism and bleeding events after total hip arthroplasty: A pooled analysis of rivaroxaban studies

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Introduction: The standard length of hospital stay after total hip arthroplasty (THA) can be as short as 4 days. However, the risk of venous thromboembolism (VTE) extends beyond this period of hospitalization. A pooled analysis of the RECORD1 and RECORD2 studies evaluated the efficacy, safety, and timing of events with rivaroxaban compared with enoxaparin for the prevention of VTE after THA.

Methods: Patients (N=7,050) were randomized to receive oral rivaroxaban 10 mg once daily starting postoperatively (for 31–39 days) or subcutaneous enoxaparin 40 mg once daily starting preoperatively (for 31–39 days in RECORD1, and 10–14 days followed by placebo in RECORD2). The primary efficacy endpoint was the composite of symptomatic VTE and all-cause mortality. The safety endpoints were treatment-emergent major bleeding, major bleeding including surgical-site bleeding, major bleeding plus clinically relevant non-major (CRNM) bleeding, and any bleeding. The primary efficacy endpoint was assessed during treatment. The incidence and timing of the safety endpoints were assessed after the first dose of study medication and up to 2 days after the last dose.

Results: Rivaroxaban significantly reduced the incidence of symptomatic VTE and all-cause mortality compared with enoxaparin regimens (0.44% vs 1.01%, respectively; $p=0.006$), with no significant differences in major bleeding (0.2% vs 0.09%; $p=0.219$) or the composite of major plus CRNM bleeding (3.23% vs 2.61%; $p=0.141$). Of the symptomatic VTE and all-cause mortality events, 73% and 86% occurred after day 4 with the rivaroxaban and enoxaparin regimens, respectively. For the composite of major plus CRNM bleeding, 48% and 33% of events occurred after day 4 with the rivaroxaban and enoxaparin regimens, respectively.

Conclusion: Rivaroxaban significantly reduced symptomatic VTE and all-cause mortality after THA compared with the enoxaparin regimens, with no significant difference in bleeding events. Major plus CRNM bleeding was more likely to occur earlier than day 4, whereas the majority of symptomatic venous thromboembolic events occurred after day 4. These results highlight the relevance of extended duration of thromboprophylaxis after THA as most VTE events occur post-discharge.