Extended Thromboprophylaxis with Rivaroxaban Compared with Short-Term Thromboprophylaxis with Enoxaparin after Total Hip Arthroplasty: The RECORD2 Trial

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INTRODUCTION

Venous thromboembolism (VTE) is a common, potentially fatal complication of major orthopaedic surgery. Pharmacologic thromboprophylaxis is recommended for patients undergoing total hip arthroplasty (THA) for a minimum of 10 days, and up to 35 days. However, extended thromboprophylaxis is not universally used. Therefore, this trial was conducted to evaluate the potential benefits of extended thromboprophylaxis after THA.

METHODS

RECORD2 is the largest, prospective, randomized clinical trial conducted to date, in this indication. This global, phase III, double-blind trial, was designed to compare short-term thromboprophylaxis with a low molecular weight heparin—enoxaparin—with extended thromboprophylaxis for up to 5 weeks with a novel, oral, direct Factor Xa inhibitor rivaroxaban after THA. Patients received subcutaneous enoxaparin 40 mg once daily (od), beginning the evening before surgery, continuing for 10-14 days (short-term prophylaxis), and followed by placebo until day 35±4, or oral rivaroxaban 10 mg od beginning 6-8 hours after surgery and continuing for 35±4 days (extended prophylaxis). Mandatory, bilateral venography was conducted at the end of the extended treatment period. The primary efficacy endpoint was the composite of any deep vein thrombosis (DVT), non-fatal pulmonary embolism (PE), and all-cause mortality. The main secondary efficacy endpoint was major VTE; the composite of proximal DVT, non-fatal PE, and VTE-related death. Major and non-major bleeding during double-blind treatment were the primary and secondary safety endpoints, respectively.

CONCLUSION

In conclusion, extended duration rivaroxaban was significantly more effective than short term enoxaparin for the prevention of VTE, including major VTE, in patients undergoing THA. Furthermore, this large trial demonstrated that extended thromboprophylaxis provides substantial benefits for patients undergoing THA, and that the oral, direct Factor Xa inhibitor rivaroxaban provides a safe and effective option for such a strategy.

RESULTS

A total of 2509 patients were randomized; 2457 were included in the safety population and 1733 in the modified intention-to-treat (mITT) population. Extended thromboprophylaxis with rivaroxaban was associated with a significant reduction in the incidence of the primary the incidence of the primary efficacy endpoint and major VTE, compared with short-term thromboprophylaxis with enoxaparin (Table). The incidences of major and non-major bleeding were similar in both groups (Table).

	Short-term s.c. enoxaparin 40 mg od % (n/N)	**Extended oral rivaroxaban 10 mg od % (n/N)**	**Relative risk reduction (%)**	***P*-value for difference**
DVT, non-fatal PE, and all-cause mortality[a]	9.3% (81/869)	2.0% (17/864)	79%	$P<0.001$
Major VTE[b]	5.1% (49/962)	0.6% (6/961)	88%	$P<0.001$
Major bleeding[c]	0.1% (1/1229)	0.1% (1/1228)	-	$P=0.980$
Non-major bleeding[c]	5.5% (67/1229)	6.5% (80/1228)	-	$P=0.246$

[a]mITT population; [b]mITT population valid for major VTE analysis; [c]Safety population

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