Rivaroxaban for Prevention of Venous Thromboembolism after Total Knee Arthroplasty: Impact on Healthcare Costs Based on the RECORD3 Study.

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INTRODUCTION

Rivaroxaban is a novel, oral, direct Factor Xa inhibitor in advanced clinical development for the prevention and treatment of thromboembolic disorders, including the prophylaxis for venous thromboembolism (VTE) after major orthopaedic surgery. In RECORD3, the first pivotal phase III study, rivaroxaban 10 mg once daily had superior efficacy to enoxaparin 40 mg once daily for the reduction of VTE following total knee arthroplasty (TKA). Mean duration of prophylaxis was 12.1 days. The primary endpoint (deep vein thrombosis [DVT], pulmonary embolism [PE], and all-cause mortality) occurred in 9.6% of the rivaroxaban group and in 18.9% of the enoxaparin group (RRR 49%; $p<0.001$; modified intention-to-treat), and symptomatic VTE occurred in 1.0% and 2.6%, respectively. There was no difference in major bleeding between rivaroxaban and enoxaparin. This analysis was designed to show the impact of this efficacy improvement on healthcare costs from a payer s perspective. Preventing DVT, PE, and all-cause mortality (primary endpoint) and symptomatic VTE events have economic benefits, because fewer healthcare resources are required.

METHODS

The impact of rivaroxaban on healthcare resources in the US and UK were assessed using the resource utilization in the RECORD3 trial, and the reduced administration cost associated with an oral therapy. Only non-drug costs borne by the healthcare sector were included in the analysis. The cost of symptomatic VTE was taken from published sources in the US, and from the 2007 NICE Guidelines in the UK. It was assumed that asymptomatic events had no impact on healthcare costs. It was also conservatively assumed that nurses spend three minutes per day administering a subcutaneous enoxaparin dose and training patients to self-inject for out-patient use. For costing purposes, the duration of hospitalization was 5 days. In the UK, full blood counts should be taken every 3 days while receiving enoxaparin.

RESULTS

The total cost associated with healthcare resource use in the US was $290 per patient with enoxaparin and $98 with rivaroxaban (excluding rivaroxaban and enoxaparin drug costs). This implies a resource use saving of $192 per patient due to the improved health outcomes with rivaroxaban. This improvement was driven primarily by the reduced costs of hospitalization for symptomatic events. In the UK, the total cost of resource use per patient was £48 ($78) with enoxaparin and £5 ($8) with rivaroxaban. The reduced healthcare cost of £43 ($70) per patient was driven equally by reduced hospitalization and reduced monitoring.

The substantial difference in cost impact is due to higher US hospitalization costs. These results exclude the impact of post-thrombotic syndrome (PTS), the estimated 5-year rate of which is 21% in asymptomatic patients and 30% in symptomatic patients. Estimated costs for PTS treatment is more than $11,000 in the USA, and £4,000 ($6,472) in the UK. Given the reduced incidence of both asymptomatic and symptomatic events with rivaroxaban, there would be even further savings in healthcare costs associated with rivaroxaban, due to a reduction in PTS.

CONCLUSION

The clinical results shown by rivaroxaban for the prevention of VTE after TKA also result in savings to healthcare costs. With more than 600,000 US patients having hip or knee arthroplasty annually, these potential cost savings are significant.

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