

Economic impact of Rivaroxaban versus Enoxaparin for Prevention of Venous Thromboembolism after Total Hip and Total Knee Arthroplasty in Sweden

Lars Ryttberg¹, Alex Diamantopoulos², Fiona Forster², Michael Lees³, Anina Fraschke⁴, Ingela Björholt⁵

¹ Orebro University Hospital, Sweden

² IMS Health, Hammersmith, UK

³ Bayer HealthCare, Uxbridge, UK

⁴ Bayer, Sweden

⁵ NHE Research, Sweden

Introduction: Rivaroxaban is a novel, oral, direct Factor Xa inhibitor for the prevention of venous thromboembolism (VTE) after total hip and knee arthroplasty (THA, TKA). The pivotal RECORD trials showed that 35 days' rivaroxaban significantly reduced total VTE following THA versus both 35-day and 14-day enoxaparin regimens. Following TKA, 14 days' rivaroxaban significantly reduced total and symptomatic VTE versus 14 days enoxaparin. Major bleeding was similar for rivaroxaban and enoxaparin. An economic model was developed based on these results to assess the cost-effectiveness of rivaroxaban relative to enoxaparin in Sweden.

Methods: The incidence of clinical events and resulting consequences on resource use and quality of life were modelled for rivaroxaban and enoxaparin over 5 years. VTE incidence during the prophylaxis period was based upon RECORD2 (THA) and RECORD3 (TKA) and extrapolated out to 90 days following surgery based on published epidemiological data. These trials were used because they best reflect the treatment length currently applied in clinical practice in Sweden. Recurrent VTE and post-thrombotic syndrome (PTS) beyond 90 days were modelled from published clinical data. Literature indicates that 10% of enoxaparin patients require visits from a district nurse following hospital discharge to administer subcutaneous (sc) enoxaparin, a cost not incurred with oral rivaroxaban. The cost associated with clinical events (major bleed, VTE and PTS) and home care visit was derived from published Swedish sources and expressed in Swedish kroner (SEK). Rivaroxaban and enoxaparin costs were included.

Results: In THA, 35 days' rivaroxaban produced an additional cost (SEK 119 [€12.59] per patient) versus 14 days enoxaparin. However, rivaroxaban resulted in a gain of quality-adjusted life years (QALYs) and in fewer symptomatic events per patient relative to enoxaparin. This means an extra cost with rivaroxaban of SEK 29,378 (€3,109) per QALY gained and SEK 3,929 (€416) per symptomatic event avoided. Because the cost for treating a VTE range from SEK 12,000 to 30,000, it is less costly to avoid such an event by using rivaroxaban than treating it once it occurs. In TKA, 14 days' rivaroxaban produced savings of SEK 873 (€92) per patient versus 14 days' enoxaparin, as well as an improvement in QALYs and a reduction in symptomatic VTE events. Consequently, rivaroxaban was both more effective

and less costly. Extensive sensitivity analyses showed that these results persist in a clear majority of situations.

Conclusion: The economic analysis showed that by reducing VTE, and providing an oral alternative to sc enoxaparin, oral rivaroxaban has the potential to significantly improve health outcomes in Sweden at a slightly higher (in THA) or lower (in TKA) cost than existing VTE prophylaxis.