

Costing statement: Dabigatran etexilate for the prevention of venous thromboembolism after hip or knee replacement surgery in adults

The guidance on dabigatran (NICE technology appraisal guidance 157) is unlikely to result in a significant change in resource use in the NHS.

The guidance states that dabigatran etexilate, within its marketing authorisation, is recommended as an option for the primary prevention of venous thromboembolic events in adults who have undergone elective total hip replacement surgery or elective total knee replacement surgery.

Patient numbers affected

Each year in England the NHS undertakes about 43,000¹ elective total hip replacements (THR) and about 49,000¹ elective total knee replacements (TKR).

Current thromboprophylaxis practice

For both THR and TKR the most frequently prescribed chemical is currently low molecular weight heparin² (LMWH).

NICE guidance ('Venous thromboembolism', NICE clinical guideline 46)³ recommends that people who have orthopaedic surgery should be offered LMWH or fondaparinux. The cost of this was included in the costing report which accompanied this guideline. We have assessed the cost of using dabigatran in place of LMWH or fondaparinux for people undergoing THR or TKR.

Table 1 gives the average duration of treatment and drug cost for LMWH, fondaparinux and dabigatran. Actual treatment durations may vary.

Table 1 Estimated drug costs for THR and TKR

Drug	Daily dose	Daily drug cost	THR treatment days	TKR treatment days	Cost of course (THR)	Cost of course (TKR)
LMWH*	4000 units	£4.00	30	8	£120.00	£32.00
Fondaparinux	2.5 mg	£6.66	30	8	£199.80	£53.28
Dabigatran	210 mg	£4.20	30	8	£126.00	£33.60

* The daily cost of LMWH is estimated as £4.00, consistent with the weighted average used in the health economic submission. Prescription cost analysis data suggest the most commonly prescribed LMWH is enoxaparin (£4.20 a day). Dalteparin (£2.82 a day) and tinzaparin (£3.83 a day) are also prescribed.

Savings and benefits

Dabigatran is administered orally; both LMWH and fondaparinux are administered by subcutaneous injection. A proportion of patients will be unable or unwilling to self-administer subcutaneous injections; this group may require daily visits from district nurses to help ensure compliance with the medication.

The unit cost per home visit from a community nurse⁴ is about £24. The manufacturer's submission estimated that 13% of THR patients would be unable or unwilling to self-administer. Table 2 estimates the drug administration costs for those THR patients that are unable or unwilling to self-administer.

Table 2 Cost of administration for LMWH and fondaparinux in THR patients

Estimated proportion of THR patients unable to self-administer	13%
Estimated number of home visits required	20
Cost per home visit (community nurse)	£24
Estimated average cost per patient	£62

It would seem reasonable to assume that some savings may be achievable through a reduction in district nursing attendances for those patients that cannot self-administer subcutaneous injections.

Resource impact

It is not believed that implementation of this technology appraisal will result in a significant change in NHS resource use above levels identified in the costing for the guidance on venous thromboembolism (NICE clinical guideline 46) for prescribing costs, although it may result in a reduction in district nurse visits to administer injections.

References

1. Hospital episodes statistics (HES) data 2006/07.
2. National Joint Registry for England and Wales (4th annual report).
3. National Institute for Clinical Excellence (2007) Venous thromboembolism: reducing the risk of venous thromboembolism (deep vein thrombosis and pulmonary embolism) in inpatients undergoing surgery. London: National Institute for Clinical Excellence. Available from: www.nice.org.uk/CG046
4. Unit Costs of Health and Social Care (PSSRU) 2007.