

Rapid Response Report

NPSA/2010/RRR014

From reporting to learning

30 July 2010

Reducing treatment dose errors with low molecular weight heparins

Issue

Prescribed doses of low molecular weight heparins (LMWHs) for the treatment of a thromboembolic event are dependent on the weight of the patient and renal function. Underdosing has an increased risk of a further thromboembolic event, while overdosing can increase the risk of bleeding. Dosing errors with LMWHs can occur if the prescribed treatment dose is not calculated using the patient's current weight. Reports to the National Reporting and Learning System (NRLS) indicate that some patients are not weighed prior to dosing, that body weight is estimated or recorded inaccurately, or that doses based on a patient's weight are miscalculated. Additionally, there are numerous reports where the prescribed, dispensed or administered dose and frequency of LMWH were outside accepted guidelines for the required clinical indication and other predisposing conditions such as renal failure. Limited patient information (i.e. weight, dosage, indication and intended duration of treatment) communicated at transfers of care has also led to reports of harm.

Evidence of harm

Between January 2005 and September 2009, the NPSA received 2,716 patient safety incident reports relating to dosing errors concerning LMWHs. These include one incident reported to have led to death and three reports of severe harm. A review of NHS Litigation Authority claims identified one further death.

Reducing the risk of harm

The recommendations in this Rapid Response Report (RRR) relate to all healthcare sectors and specialties where the prescribing, administration, monitoring and dispensing of treatment doses of LMWHs occur. The use of treatment doses in the community is becoming more commonplace making this relevant to a range of staff and settings.

For IMMEDIATE ACTION by all organisations in the NHS and independent sector. Deadline for ACTION COMPLETE is 28 January 2011.

An executive director, nominated by the chief executive, working with the chief pharmacist and relevant medical/nursing staff should ensure that:

1. A patient's weight is used as the basis for calculating the required treatment dose of LMWH. The weight must be accurately recorded in kilograms (kg) in the inpatient medication chart (when in use) and clinical record. Patients should be weighed at the start of therapy and, where applicable, during treatment.
2. Renal function is considered when prescribing treatment doses of LMWHs. The renal function test should not delay initiation of the first dose but every effort must be made to base subsequent dosing on these results.
3. Dose calculation tools are available for a range of body weights, specific clinical indications and LMWH products, and that consideration is given to rationalising the range of LMWH products used in the organisation.
4. Essential information such as dose, weight, renal function, indication and duration of treatment is communicated at transfers of care (e.g. by discharge letters) and used to ensure that future doses are safe.
5. Dosing checks based on patient information are made by healthcare professionals who review, dispense or administer LMWHs when this information is readily available to them.
6. System improvements should be demonstrated through the collection and review of data, such as incident reports, clinical pharmacy interventions, audit or other relevant outcome measures.

Further information

Supporting information, including evidence of harm and a compliance checklist, is available at www.nrls.npsa.nhs.uk/alerts. Further queries should be directed to the NPSA medication safety team at rrr@npsa.nhs.uk; telephone 020 7927 9890.

The NPSA has informed: NHS organisations, independent sector, commissioners, regulators and professional bodies.

Gateway ref: 14444

© National Patient Safety Agency 2010. Copyright and other intellectual property rights in this material belong to the NPSA and all rights are reserved. The NPSA authorises UK healthcare organisations to reproduce this material for educational and non-commercial use.