Monitoring of Dalteparin (Fragmin)
(Low Molecular Weight Heparin (LMWH))

Following the publication of the NICE guidance for 'Venous Thromboembolism – Reducing the Risk in patients admitted to hospital', it is likely more patients will be prescribed LMWHs. In addition, the NPSA have produced a rapid response report titled 'Reducing treatment dose errors with low molecular weight heparins' (http://www.nrls.npsa.nhs.uk/resources/?EntryId45=75208). As a result, it is important to understand the risks of these types of drugs and the monitoring parameters required around their use.

Dalteparin is classified as the following by the South of Tyne and Wear Group (SoTW):

- For travel prophylaxis, DVT treatment or use during pregnancy = **GREEN +**
- For prophylactic use (except pregnancy) = **GREEN +**
- Post operative use = **RED**

For **RED** indications prescribing should remain with the initiating Specialist.

For **GREEN +** indications, it is accepted that some drugs should be initiated by a primary Care or Secondary Care specialist but can be safely maintained in primary care without on-going specialist monitoring.

Checklist and monitoring for Prophylactic doses of Dalteparin (Fragmin®) for VTE (Low Molecular Weight Heparin (LMWH)

Prophylactic doses will be:

For surgical patients:-

- *Moderate risk* 2500 units 1-2 hours before surgery then 2500 units every 24 hours
- *High risk* 2500 units 1-2 hours before surgery then 2500 units 8-12 hours later **or** (5000 units once per day starting the evening before surgery, then 5000 units on the following evening), **then** 5000 units every 24 hours

For medical patients:-

- 5000 units every 24 hours

Treatment should be continued until the patient is mobilised

Doses given are as a guide only and should not be used as a basis for prescribing, for full dosing information consult the BNF or Summary of Product Characteristics.

Monitoring requirements:

There are no routine monitoring requirements for prophylactic dosing, however, monitoring of Anti-Xa may wish to be considered in some patient groups who are on long-term treatment where there may be a risk of drug accumulation and risk of overdose e.g. in patients with renal failure (CrCl <30ml/min)..

Common adverse effects:

- o Reversible mild non-immunologically-mediate thrombocytopenia (type 1)
- o Haemorrhage
- o Transient elevation of liver transaminases (ASAT/ALAT)
- o Subcutaneous haematoma at injection site

Long term treatment:

- o Hypoaldosteronism (leading to increases in plasma potassium levels)
- o Hyperkalaemia (especially in patients with diabetes mellitus, chronic renal failure)
- o Possible link to osteoporosis (although yet to be confirmed with dalteparin specifically)

For full information about the monitoring requirements of treatment doses, drug interactions, cautions and contra-indications consult the BNF online (www.bnf.org.uk) or electronic Medicines Compendium (www.medicines.org.uk).

References:

SPC for Fragmin
http://www.medicines.org.uk/emc/medicine/26897/SPC/Fragmin+7%2c500+IU+0.3+ml+solution+for+injection/#CLINICAL_PRECAUTIONS
British Journal of Haematology 'Guidelines on the use and monitoring of heparin'
http://onlinelibrary.wiley.com/doi/10.1111/j.1365-2141.2005.05953.x/full

Gateshead Medicines Management Committee
Approved June 2013 Review June 2015

Checklist and monitoring for treatment doses of Dalteparin (Fragmin®) for VTE (Low Molecular Weight Heparin (LMWH))

Treatment doses (are dependent upon the indication) and should only be prescribed by/under the direction of a Specialist.

Checklist

- Patient must be weighed prior to commencing treatment, weight (kg) should be documented on patient's medicine chart and in clinical notes
- Dose should be calculated according to patient weight and renal function
- Check renal function when prescribing treatment doses, but should not delay the first doses being given. Dose reductions may be required dependent on the severity of any renal impairment (see Summary of Product Characteristics (SPC) for full details)
- Treatment of VTE in pregnancy (unlicensed indication) – based on early pregnancy body weight:-

Early pregnancy body weight	Under 50Kg	50 to 70Kg	70 to 90Kg	Over 90Kg
Dose	5000 units twice daily	6000 units twice daily	8000 units twice daily	10,000 units twice daily

Doses given are as a guide only and should not be used as a basis for prescribing, for full dosing information consult the BNF or SPC (http://www.medicines.org.uk/EMC/medicine/9148/SPC/Fragmin+-+Treatment+of+VTE/)

Monitoring

Platelets should be monitored before starting treatment and then at day 5 of treatment, further monitoring will depend of whether the patient has a history of low platelet count (on advice of initiating healthcare professional). Monitoring of Activated Partial Thromboplastin Time (APTT) should only be used as an indication of overdosage (measure of bleeding). Monitoring of Anti-Xa may wish to be considered in some patient groups who are on long-term treatment where there may be a risk of drug accumulation and risk of overdose e.g. in patients with renal failure (CrCl <30ml/min).

Treatment Dose Chart for Dalteparin

Recommended doses for treatment of VTE (taken from the SPC)

Please note, the colour in the chart relate to the colour-coding of the syringe of the corresponding dose.

Weight (kg)	<46	46 – 56	57 – 68	69 – 82	83 and over
Dose	7,500 IU	10,000 IU	12,500 IU	15,000 IU	18,000 IU

The single daily dose should not exceed 18,000 international units

Communication

Where patients are being transferred between providers, (discharge) communication should include: dose, weight, renal function, indication and duration of treatment.

For full information about the monitoring requirements of treatment doses, drug interactions, cautions and contra-indications consult the BNF online (www.bnf.org.uk) or SPC on the electronic Medicines Compendium (www.medicines.org.uk).