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| Renal Directorate GuidelinesRoyal Infirmary of Edinburgh |

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**Dalteparin to maintain patency of a haemodialysis circuit**

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| **Indication and additional Information** | Prevention of clotting of the extracorporeal circuit in patients on haemodialysis.  |
| **Criteria for treatment** | Receiving haemodialysis and no contra-indications to anticoagulant therapy. |
| **Dosage and administration** | Adjust dose according to patient’s target (“dry”) weight. Administer into the arterial port at the start of dialysis.

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| **Target Weight** | **Dalteparin Dose** |
| under 65 kg | 2500 units |
| 65 – 90 kg | 5000 units |
| over 90 kg | 7500 units |

• Consider lower dose for planned haemodialysis treatment of less than four hours.**For patients who experience clotting:**• increase by 2500 units for the next dialysis session (up to maximum 7500 units)• if already receiving 7500 units then consider a further dose of 2500 units at the mid-point of the dialysis session**For patients who have prolonged bleeding from the needle site post dialysis**:• reduce dose by 2500 units for the next dialysis session |
| **Monitoring Xa levels** | Routine anti-Xa monitoring is not necessary. Consider monitoring if there are extremes of body weight or persistent clotting or prolonged bleeding. The half-life of elimination of anti Xa activity is approximately 2 hours with intravenous dosing in patients with normal renal function but around 5 hours in haemodialysis patients. Anti-Xa activity is therefore measured at one hour and 4 hours post Dalteparin administration at the start of a dialysis sessions.Anti Xa activity level should be between 0.4 to 0.7units/ml at 1 hour and less than 0.4units/ml at 4 hours. If the anti-Xa level is outwith the target range, discuss with the medical team (renal registrar/renal consultant) regarding a dose change of dalteparin.  |
| **Contraindications** | • Systemic anticoagulation (e.g. with warfarin)• 24 hrs before or after invasive procedures including surgery • Hypersensitivity to heparin or to LMWHs• Haemophilia and other haemorrhagic disorders• Profound thrombocytopenia• Recent cerebral haemorrhage• Severe liver disease• Acute peptic ulceration |
| **Side Effects** | • Skin rashes (and minor bruising at injection site)• Systemic allergic reaction• Excessive bleeding • Thrombocytopenia • Skin necrosis • Hyperkalaemia |
| **Reversal** | If severe bleeding occurs during or within 2 hour of completing a dialysis session with dalteparin consider the use of protamine sulphate as a reversal agent for dalteparin. This should be discussed with haematology.  |