**Dalteparin bridging for patients taking warfarin / DOACs (please see page 2)**

**This is guidance:**

**If you are unsure please ring anticoagulation team on x 4006 or bleep 1413 / 1440 (working hours) or email:** [**sft.anticoagulation.service@nhs.net**](mailto:sft.anticoagulation.service@nhs.net)

**More complex patients or those with more than one high risk indication, should be discussed with a consultant haematologist. email:** [**shc-tr.haemenquiries@nhs.net**](mailto:shc-tr.haemenquiries@nhs.net) **for generic consultant haematology/anticoag queries.**

**Please photocopy the patient’s dosage information leaflet/INR record, to include the target range and file in the healthcare record.**

Is it considered safe to do the procedure with the patient on warfarin?

No

|  |  |  |  |
| --- | --- | --- | --- |
| **Patients at high risk from withdrawal of anticoagulation (Table 1)**  **Heart valve**  • Rheumatic valvular heart disease  • Mechanical mitral valve  • Mechanical aortic valve (including bileaflet) with one of the following risk factors: AF, prior stroke/TIA, hypertension, diabetes, heart failure, age >75 years)  **AF -** Calculate the CH A D S VA Sc score – bridging required for score ≥ 5  2 2 | | | |
|  |  | Risk Factor | Score |
| C | Congestive heart failure / Left ventricular dysfunction | 1 |
| H | Hypertension - high blood pressure | 1 |
| A  2 | Age ≥75 | 2 |
| D | Diabetes mellitis | 1 |
| S  2 | Stroke / TIA / TE | 2 |
| V | Vascular disease - coronary artery disease (CAD), myocardial infarction, peripheral artery disease (PAD) or aortic plaque | 1 |
| A | Age 65 - 74 | 1 |
| Sc | Female gender | 1 |
| **VTE**  Recurrent VTE  Single VTE and severe thrombophilia (antithrombin deficiency, antiphospholipid syndrome)  **NB**. if DVT <3 months defer surgery or consider IVC filter if this is not possible  **Stroke/embolism**  Recurrent stroke or embolism  Stroke/TIA < 3 months  **Cardiac failure**  With cardiac aneurysm +/- thrombus | | | |

Stop warfarin 5 days before procedure

Ye s Continue. Check INR is within required limits

Is the patient at high

risk from withdrawal of anticoagulation

Yes No

Confirm no allergy to

heparin

Check FBC, U+Es, LFTs

& INR and make a note that you have checked

it on the relevant pre-op document

Check eGFR >30 and platelets >100x109/l

**All other patients are at low risk from withdrawal of anticoagulation. Low risk patients do not need prophylactic dalteparin pre-procedure. Assess the patient for risk of VTE and prescribe post-procedure prophylactic dalteparin accordingly.**

**No? - discuss with anaesthetist or haematologist**

**Dalteparin**

**bridging Pre procedure:**

• check patient’s INR record when you photocopy it.

• If the control is good, stop 5 days pre procedure

|  |  |
| --- | --- |
| **Actual body weight Kg** | **Dalteparin dose (units)** |
| under 46 | 7500 once daily |
| 46 - 56 | 10000 once daily |
| 57 - 68 | 12500 once daily |
| 69 - 82 | 15000 once daily |
| 83 and over | 18000 once daily |
| > 110kg | You may wish to give a higher dose although this is unlicenced d/w haematologist or anticoag clinic. See Dalteparin policy |

• If INR >4 consider stopping warfarin earlier

• start therapeutic dalteparin 3/7 pre procedure

• last pre procedure dose of therapeutic dalteparin >24

hrs (i.e. before 09:00 preceding day).

• fill out clotting screen request form for the day of surgery and file in the healthcare record

• complete and give patient the warfarin bridging patient

information leaflet

See page 2 for post procedure guidance.

**Day of surgery/procedure (page 2)**

**Morning of procedure:**

• Check clotting screen, review by anaesthetist

• Ensure mechanical prophylaxis applied if appropriate (and continued until full mobility).

**Post-surgery/procedure**

**Post procedure: High risk patients**

(those patients who were bridged with therapeutic dalteparin pre-procedure)

• Give dalteparin 5000 units on day of surgery (day 0 - as soon as possible after procedure, by 6pm for morning surgery/

procedure, 10pm for afternoon surgery/procedure)

• Restart therapeutic dalteparin from day 1

• After major surgery (significant blood loss/risk of renal failure) please check FBC U&Es LFTs & INR before restarting

warfarin

• Restart warfarin from day 2 after surgery/procedure (defer to day 3 if surgery carries a high risk of wound bleeding). High risk patients must have at least 1 dose of therapeutic dalteparin before warfarin is restarted.

• Dose of warfarin; If the INR remains 1.5 or more after surgery give the patient’s usual maintenance dose. If the INR is less than 1.5 give warfarin at double their normal maintenance dose for the first dose followed by the usual maintenance dose daily thereafter

• Check INR within 3 days of restarting warfarin and stop the dalteparin when the INR is in the therapeutic range.

• If patient has cancer and therapeutic dalteparin is continued beyond 4 days then repeat FBC between days 4 - 7 &

10 - 14 to look for a fall in platelet count (heparin induced thrombocytopenia), discuss any concerns with a consultant

haematologist.

**Post procedure: Low risk patients**

(those patients who were not bridged with therapeutic dalteparin pre-procedure)

• Give prophylactic dalteparin according to VTE risk assessment / policy

• Restart warfarin 1 - 2 days after surgery/procedure (defer to day 2 if surgery carries a high risk of wound bleeding).

• Dose of warfarin; If the INR remains 1.5 or more after surgery give the patient’s usual maintenance dose. If the INR is less than 1.5 give warfarin at double their normal maintenance dose for the first dose followed by the usual maintenance dose daily thereafter.

• Check INR within 3 days of restarting warfarin and stop the dalteparin when the INR is in the therapeutic range.

**Patients taking DOACs (Apixaban, Edoxaban, Rivaroxaban, Dabigatran)**

Assess each patient’s level of risk on stopping DOAC as per guidance on page 1.

Stop the DOAC if required as per recommended stoppage times.

[Guidelines on the management of patients on oral anticoagulants and/or antiplatelet agents undergoing surgery and invasive procedures (microguide.global)](https://viewer.microguide.global/salis/CLINICAL/content/clinical-guidelines-on-the-management-of-patients-on-oral-anticoagulants-andor-antiplatelet-agents-undergoing-surgery-and-invasive-procedures)

No **preoperative** dalteparin bridging is required if the DOAC has been stopped at the recommended time before surgery. If the DOAC has been stopped for longer than recommended (e.g. surgery delayed) assess the need for dalteparin bridging as per Table 1.

**Postoperative:**

**Major / High bleeding risk** surgery/procedures: Delay restarting the DOAC for 48 – 72hrs to ensure adequate haemostasis has been achieved.

If the patient is at high risk of VTE / CVA on stopping the DOAC and there is to be a delay in re-starting post operatively, give treatment dose dalteparin or contact the anticoagulation nursing team for assistance and provision of bridging plan.

Minor / Low bleeding risk procedures: Bridging is not required if the DOAC can re-start 6 – 12 hrs post-surgery.