The Walton Centre NHS Foundation Trust

Excellence in Neuroscience

Guidance on VTE Prevention for Patients with Suspected or Confirmed COVID-19 Infection

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Adapted for use at The Walton Centre NHS Foundation Trust by:	[redacted]	
Responsible Director:	**Medical Director**	
Approved by and date:	**Clinical Effectiveness and Services Group** **Drugs and Therapeutics Committee Chair's Action for version 1.3** **Drugs and Therapeutics Committee 1.4 plus Chair's Action for further minor changes**	**May 2020** **Dec 2020** **January 2021**
Document Type:	**CLINICAL GUIDELINE**	**Version 1.4**
Scope:	All trust employees.	
Document Approval, History/Changes	Changes from v1.3 • Change in timing of once daily dalteparin dosing, to facilitate monitoring of anti-Xa levels • Clarification of timing of anti-Xa levels • Advice on switching from 6pm to morning dosing • Clarification that this guideline still applies if patients test positive and subsequently test negative.	

	For further information contact the Governance Department on [redacted]

Think of the environment…Do you have to print this out this document? **You can always view the most up to date version electronically on the Trust intranet.**

N*ote this document should be read in conjunction with the Trust VTE Prevention Policy. This guidance only relates to patients with suspected or confirmed COVID-19 infection.*

COVID-19 infection represents a significant thrombotic risk, especially in those severely affected. The literature to date suggests increased activation of coagulation, and venous thrombosis as part of the disease course. The evidence base is evolving, and as such this guidance is subject to change.

All patients must have a risk assessment documented for VTE risk on admission, at first consultant review and if the clinical situation changes

This should be documented using the standard Trust processes (eP2). It should be noted that all patients admitted with suspected or confirmed COVID-19 infection will be at increased risk of VTE.

Pharmacological Thromboprophylaxis should be administered to all inpatients with COVID-19 infection if there is no contraindication, with dose adjustments for weight. Anti-Xa activity should be monitored and drug dose titrated.

Patients where pharmacological thromboprophylaxis is contraindicated should receive mechanical thromboprophylaxis with antiembolism stockings and/or intermittent pneumatic compression devices.

Dalteparin dosing by weight:

Weight	Creatinine Clearance	
	≥30 ml/min	< 30 ml/min
≤49kg	5000 units once daily	5000 units once daily
50-99kg	5000 units once daily	5000 units once daily
100-139kg	5000 units twice daily	5000 units once daily
140-179kg	7500 units twice daily	5000 units once daily
≥180kg	Discuss with Haematology	Discuss with Haematology

Once daily doses should be prescribed in the morning.

When initiating a prescription for LMWH, an Anti-Xa level should also be prescribed on JAC. This will indicate to nursing staff that a level is required. Ensure this is added for the correct day and time.

Check Anti-Xa activity 4 hours after third dose of anticoagulant and weekly thereafter. (For morning doses, prescribe anti-Xa level at noon)

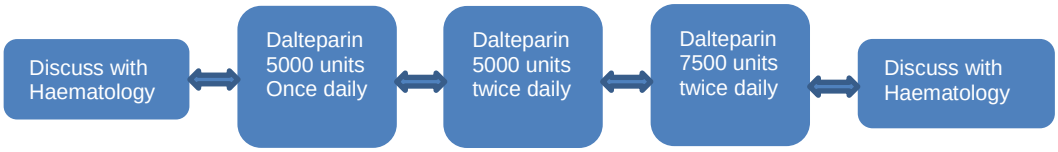
- ***If a change in dose has been made***: check Anti-Xa activity 4 hours after third dose after dose change.
- If the third dose is an evening dose for a patient on twice daily dosing, the level should be postponed and taken post fourth dose the following morning.

Dose adjustments based on Anti-Xa activity

Target Anti-Xa activity for prophylaxis is 0.2-0.4 IU/ml.

- If Anti-Xa activity >0.6 international units/ml discuss with Haematology.
- If levels of 0.0 international units/ml – implies patient has NOT received LMWH. If doubt, discuss with Haematology.
- For dose adjustments :
    - ≤0.19 international units/ml move up a dosage rung
    - If ≥0.5 international units/ml move down a dosage rung

Dalteparin dosage rungs



Pharmacological Thromboprophylaxis should be continued on discharge for those admitted, and continued until the patient has recovered and returned to their premorbid state.

It is recognised that the recovery from COVID-19 infection, particularly where it results in hospital admission, is likely to be protracted. It is likely that the thrombotic risk continues following discharge. The patient should be assessed on discharge and pharmacological thromboprophylaxis should be continued until the patient has regained their premorbid state (minimum 7 days total duration of anticoagulation; supply 10 days on discharge). Anti-Xa activity does not need to be monitored as an outpatient unless there are particular concerns or the patient is therapeutically anticoagulated – discuss with Haematology.

Wherever possible, patients or their carers should be supported to self-administer their thromboprophylaxis. Ensure that patients are discharged with a sharps bin and supporting information.

This advice is also applicable to patients who initially test positive and then subsequently negative during the course of their admission. Until the patient returns to their premorbid state, dalteparin should be continued at doses advised in this guideline based on weight and Anti-Xa levels until it is stopped.

Continue pharmacological thromboprophylaxis provided the platelet count is above $30x10^9$/L and there is no evidence of bleeding. Review this daily.

This represents a different cut-off from the Trust Policy and the DH risk assessment. This is considered to be a safe level at which to administer prophylactic anticoagulation, and is in line with international consensus.

Continue pharmacological thromboprophylaxis despite abnormal coagulation results, provided there is no evidence of bleeding and the platelet count remains >$30x10^9$/L and fibrinogen remains >1.0g/L.

References

National Institute for Health and Care Excellence (2018). Venous thromboembolism in over 16s: reducing the risk of hospital-acquired deep vein thrombosis or pulmonary embolism. NICE guideline [NG89]. Available at: https://www.nice.org.uk/guidance/ng89 Accessed 05/04/2020.

Hunt B, Retter A, McClintock C. Practical Guidance for the prevention of thrombosis and management of coagulopathy and disseminated intravascular coagulation in patients infected with COVID-19. Available at: https://thrombosisuk.org/covid-19-thrombosis.php . Accessed 05/04/2020.

Thachil, J., Tang, N., Gando, S., Falanga, A., Cattaneo, M., Levi, M., Clark, C. and Iba,(2020), ISTH interim guidance on recognition and management of coagulopathy in COVID-19. J Thromb Haemost. Accepted Author Manuscript. doi:10.1111/jth.14810

HAT Committee (UKCPA). (2010). What doses of thromboprophylaxis are appropriate for adult patients at extremes of body weight? UKCPA.

COVID-19 – VTE Prevention and Anticoagulation Frequently Asked Questions

Note this document is supplementary to the COVID-19 VTE Prevention and Anticoagulation Guidance documents.

- REMEMBER - COVID-19 infection is to be associated with an increased risk of VTE.
- New guidance available on the intranet has been issued around prophylaxis and treatment of VTE. Some doses may differ from established guidance. These rely upon **accurate** Anti-Xa monitoring to guide subsequent dose adjustments.
- These guidelines apply to patients who are admitted

Frequently Asked Questions

How should patients already admitted with confirmed or suspected COVID-19 be managed?

Switching dose times in existing Covid patients

All current inpatients with confirmed or suspected Covid who have their dalteparin prescribed at 6pm should have this changed to morning. The 6pm dose should be given on the day prior to timing change, then the following day the dose should be given in the morning and continued 24 hourly thereafter. However if post 3rd dose monitoring has not yet been done, delay the timing change until after the 3rd dose so a post dose level can be sent. If an individual patient has a significant bleeding risk where this one-off shorter dosing interval might be of concern, consider a staggered switch in timing over a couple of days – ask the ward pharmacist for advice.

Switching dose times in patients already admitted and on Dalteparin but newly diagnosed with Covid

When existing patients are newly diagnosed with suspected or confirmed Covid, then the dose and dose timing should not be changed immediately, as appropriate monitoring is more urgent. An anti-Xa level should be prescribed on EPMA 4 hours after the 3rd dose, (or the next dose if the patient has been on it longer than 3 days.) Then change the dose time from the morning after the level, and when the result of the anti-Xa level is back, adjust the dose if necessary based on the level.

What is the reference range for Anti-Xa, when LMWH is given prophylactically, and does this vary for once vs twice daily dosing?

Prophylaxis- 0.2-0.4 international units/ml

*Applicable to **both** once and twice daily dosing*

When should levels be taken?

4 hours post third dose, regardless of dosing frequency. Repeat weekly or three doses post dose change. Although 4 hours post dose is preferable, a window of 3 - 5 hours is acceptable. For patients on twice a day dosing, it is acceptable to wait till the next morning dose to take Anti-Xa levels if this facilitates sample taking. For patients prescribed once daily dalteparin in the morning, prescribe the level at noon. (Although EPMA timing for once daily morning doses is set at 7.30am, the morning medicine round is usually at about 8am.)

How are out of range Anti-Xa levels managed?

As per this guideline which provides advice surrounding dosage adjustments when Anti-Xa is out of range. If level is >0.6 international units/ml discuss with haematology.

What time should once daily doses be given?

Once daily doses are given in the morning (prescribe as once daily in the morning on EPMA, which will show as 7.30am. 24 hour Anti-Xa monitoring is available via the labs. These timings may be changed on an individual patient basis at the clinicians' discretion.

For patients on asymmetric twice daily prophylactic dosing (i.e. split doses are not the same), after which dose should the level be taken?

Prophylaxis: Take level after higher dose

If a patient has been admitted for over 7 days should they still be prescribed prophylaxis on discharge?

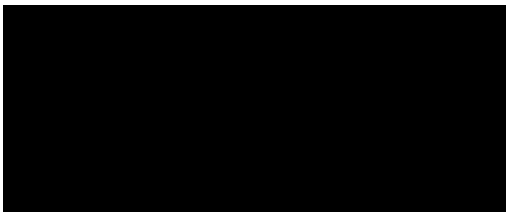
Yes, until patients are back to their pre-morbid state they should continue VTE prophylaxis. Patients should complete the full course of anticoagulation provided to them – 10 days.

If a patient remains unwell at home for over 10 days, should they continue VTE prophylaxis and if so how to obtain further supplies?

If they remain unwell at 10 days further advice should be sought from their GP, if it is felt extended thromboprophylaxis is indicated the GP could liaise with haematology to arrange an outpatient prescription.

Who provides sharps bins and how are they disposed of post discharge?

Sharps bins provided from the ward on discharge. Disposal of used bins by local councils, patients to organise via below contact details. Some community pharmacies may accept.



On discharge is Anti-Xa monitoring required?

Anti-Xa monitoring is not required for prophylactic doses on discharge.

What if patients are unsuitable for LMWH out of hospital?

The clinical team should discuss with the patient (and possibly haematology) around options and the most suitable strategy.

Do we switch all patients on warfarin and DOACS to LMWH on admission?

No, only patients in critical/enhanced care areas should be taken off their pre-admission anticoagulation due to COVID-19. Patients receiving ward level care may be switched to LMWH at the clinicians discretion if they are significantly unwell or concerns regarding anticoagulation. Ensure this decision is clearly documented in the patient notes.

For patients normally prescribed DOACs or warfarin who have been switched to LMWH as an inpatient, when should these be switched back?

Warfarin If patient previously stable and happy to continue warfarin, restart as per standard initiation of warfarin. Haematology advice can be sought if in doubt. Consider how self-isolation may impact on community INR checks.

DOACs Provided patient is clinically well when discharged, DOAC may be restarted.

Why are we splitting the dose of LMWH?

Once daily dosing of LMWH results in higher peaks which are associated with increased risk of bleeding and lower trough levels which may present a thrombotic risk.

Is it safe to start a COVID positive patient on oral anticoagulation if they have a new indication for treatment (ie new AF or new VTE)?

Haematology advice should be sought regarding all COVID-19 positive patients with a new indication for treatment dose anticoagulation. For non-COVID positive patients it is acceptable to start DOACs but the above points should be considered if wanting to start warfarin – seek haematology advice.

What if the patient is transferred to Walton on a different regime?

Patient to remain on this regime with Anti-Xa monitoring and dose to be adjusted accordingly.