

Assessment and Management of Cancer Associated Thrombosis in Chemotherapy Patients Clinical Guideline

V3.0

June 2023

Summary

Cancer Associated Thrombosis (CAT) is the term given to any blood clot which develops in a patient with an active diagnosis of cancer. These blood clots usually present as either Deep Vein thrombosis (DVT) or Pulmonary Embolism (PE).

It is estimated that up to 1 in 5 patients with cancer will develop a thrombosis with the risk appearing highest in the first three months following the cancer diagnosis. Patients undergoing chemotherapy treatment are at the highest risk of developing CAT as are those patients who have been diagnosed with metastatic disease.

The presenting symptoms of a Cancer Associated Thrombosis may be subtle and as a result can be ignored by patients who may regard them as side effects associated with their cancer treatment. Cancer Associated Thrombosis is frequently identified on routine scans often when patients have had little or no clinical symptoms.

It is important that cancer patients, particularly those who are receiving chemotherapy treatment, are made aware of the risks of developing CAT and are able to recognise the physical symptoms associated with CAT so that they can be clinically assessed and, where appropriate, commenced on blood thinning treatment as soon as possible.

1. Aim/Purpose of this Guideline

- 1.1. The purpose of this guidance is to provide general recommendations for the appropriate assessment and diagnosis of cancer associated thrombosis in patients receiving chemotherapy. For more detailed advice on the management of confirmed thrombosis please see the RCHT Clinical guideline for thrombosis prevention investigation and management of anticoagulation at: [Thrombosis Prevention Investigation and Management of Anticoagulation Clinical Guideline \(cornwall.nhs.uk\)](http://www.cornwall.nhs.uk)
- 1.2. This version supersedes any previous versions of this document.

Data Protection Act 2018 (General Data Protection Regulation – GDPR) Legislation

The Trust has a duty under the Data Protection Act 2018 and General Data Protection Regulations 2016/679 to ensure that there is a valid legal basis to process personal and sensitive data. The legal basis for processing must be identified and documented before the processing begins. In many cases we may need consent; this must be explicit, informed, and documented. We cannot rely on opt out, it must be opt in.

Data Protection Act 2018 and General Data Protection Regulations 2016/679 is applicable to all staff; this includes those working as contractors and providers of services.

For more information about your obligations under the Data Protection Act 2018 and General Data Protection Regulations 2016/679 please see the Information Use Framework Policy or contact the Information Governance Team

Royal Cornwall Hospital Trust rch-tr.infogov@nhs.net

2. The Guidance

2.1. Education and advice for patients

- 2.1.1. Prior to starting chemotherapy all patients should be counselled with regard to their risk of developing thrombotic events as a potential side effect of treatment.
- 2.1.2. Patients receiving chemotherapy should be given written information regarding the risks associated with their treatment including the signs and symptoms of CAT.
- 2.1.3. Patients should be given advice regarding when it is appropriate to contact the 24hr advice line regarding any signs and symptoms of possible cancer associated thrombosis.
- 2.1.4. Patients should be advised to access emergency care in cases of suspected DVT with critical limb ischaemia or in cases of suspected massive pulmonary embolism.

2.2. Signs and symptoms of lower limb DVT

- 2.2.1. Patients with DVT will usually present with a unilateral leg swelling which may be warm to touch. The affected leg is likely to be oedematous and may appear erythematous or dusky in colour. Non-varicose superficial collateral veins may be present on the affected leg.
- 2.2.2. Some patients may describe a cramping or throbbing pain in the leg, especially in the calf, which may affect their gait. It needs to be noted that a lack of pain should not in itself rule out DVT as even very extensive DVT can be completely painless on presentation.
- 2.2.3. DVT occurring in both legs simultaneously is clinically rare however where this is suspected a bilateral Doppler ultrasound should be considered in the first instance. Further radiological imaging may be necessary to exclude IVC thrombus or to define the upper limit of any confirmed thrombosis.

2.3. Signs and symptoms of upper limb DVT

- 2.3.1. Patients with upper limb DVT will often present with swelling throughout the arm which can be discoloured or warm to touch.
- 2.3.2. Superficial collateral veins are common across the affected arm or chest and are a good clinical indicator of venous obstruction.
- 2.3.3. Upper limb DVT is more common in patients with central venous catheters but can also occur as a result of direct tumour compression.

2.4. Signs and symptoms of PE

- 2.4.1. Patients with suspected PE will usually present with breathlessness and low oxygen saturations. Patients may also have tachycardia and tachypnoea and less commonly haemoptysis. Any reported chest pain is usually pleuritic in nature and is often worse on inspiration (deep breathing).
- 2.4.2. Massive PE will often present as collapse/hypotension with hypoxia. Patients with sub-massive PE may report dizziness or pre-syncopal symptoms.
- 2.4.3. PE in cancer is commonly incidental and often only identified as a result of routine or staging CT scan.

2.5. Management of suspected CAT

All patients should be assessed clinically if there is a suspicion of underlying CAT or if they report any of the symptoms outlined above.

- 2.5.1. D-dimer screening for exclusion of VTE in patients with known cancer is unlikely to be helpful as this patient group will routinely have raised baseline D-dimer levels as a result of underlying disease and cancer therapies. Undertaking D-dimer testing in this patient group may lead to

an avoidable delay in diagnosis of VTE.

- 2.5.2. Routine blood tests including U+E, FBC, LFT, and coagulation screen should be taken. Blood results should be available prior to commencing treatment for CAT and may help support an alternative diagnosis in cases where CAT is subsequently excluded.
- 2.5.3. Where a suspicion of CAT remains following clinical review patients should be referred for appropriate radiological imaging as follows:
 - 2.5.3.1. Suspected DVT (both upper and lower limb) – outpatient referral to the Thrombosis Clinic on Maxims who will arrange next available scan slot.
 - 2.5.3.2. Suspected PE – CTPA via radiology department (patients with history of contrast reaction or severe renal failure may require a VQ scan via nuclear medicine).
- 2.5.4. Pending any radiological imaging patients should be commenced on either treatment dose Dalteparin 200units/kg once daily or a DOAC (Rivaroxaban or Apixaban) as long as there are no clinical contraindications (see below). In patients with known renal impairment (eGFR <30 mL/min) Enoxaparin should be used at the attenuated renal dose of 1mg/kg. Treatment should be commenced if clinical imaging/ scanning is not available within 1 hour for suspected PE or within 4 hours for suspected DVT.

2.6. Clinical pathway for confirmed CAT.

- 2.6.1. All patients with DVT confirmed on an outpatient Doppler ultrasound scan will be seen in the Thrombosis Clinic to discuss and agree their ongoing anticoagulation.
- 2.6.2. Recent phase 3 trials support the use of DOAC's in patients with cancer, but decisions should be made on a case-by-case basis, often in consultation with their Oncologist.
- 2.6.3. Patients at increased risk of bleeding, thrombocytopenia (platelets <100x10⁹/L) and those with CrCl <15ml/min should continue anticoagulation with LMWH only (see table below).
- 2.6.4. Most patients with CAT will be managed by their GP or Oncologist but complex cases or those requiring specialist input can be referred to the Thrombosis Clinic via Maxims.
- 2.6.5. All patients with confirmed VTE require anticoagulation for a minimum of three months.
- 2.6.6. Central venous catheters (CVC) can remain in situ as long as they remain patent and are not associated with infection or significant symptoms – if the line is to be removed, we would recommend at least 3-5 days of anticoagulation beforehand.

Medication	Dose	Criteria
Apixaban	10mg twice daily for 7 days then 5mg twice daily	Low/moderate risk bleeding Use with caution in GI tumours Contraindicated if CrCl <15ml/min
Rivaroxaban	15mg twice daily for 21 days then 20mg once daily	Low bleeding risk Contraindicated if CrCl <15ml/min
Edoxaban	60mg once daily 30mg once daily	Low bleeding risk Weight <60kg or CrCl 15-50ml/min Contraindicated if CrCl <15ml/min
Dalteparin	200iu/kg for the first 30 days then 150iu/kg thereafter (dose banded as per SmPC)	High bleeding risk CrCl >30ml/min
Enoxaparin	1mg/kg twice daily 1mg/kg once daily	Weight >100kg and CrCl >30ml/min CrCl<30ml/min

2.7. Long-term management of CAT

- 2.7.1. Consider stopping anticoagulation after three months if reversible risk factor i.e. surgery, cancer resected, CVC removed.
- 2.7.2. Patients with CAT and active disease or those receiving prothrombotic treatments such as chemotherapy should continue anticoagulation to mitigate the risk of further VTE unless the risk of bleeding is felt to outweigh the risk of thrombosis.
- 2.7.3. Patients with DVT secondary to CVC should continue anticoagulation until they have received three months of anticoagulation, or the line has been removed, whichever is the longer.
- 2.7.4. Patients who continue anticoagulation beyond three months should be reviewed regularly to ensure anticoagulation is still appropriate.
- 2.7.5. Consider discontinuation of anticoagulation in those patients receiving end of life care.

3. Monitoring compliance and effectiveness

Information Category	Detail of process and methodology for monitoring compliance
Element to be monitored	The incidence and outcomes of treatment for cancer associated thrombosis in adult chemotherapy patients.
Lead	Thrombosis Specialist Nurse.
Tool	Electronic CAT pathway UDA forms (within maxims).
Frequency	As required / on-going.
Reporting arrangements	To Thrombosis and anticoagulation steering group (TPAS) and Chemotherapy MDT.
Acting on recommendations and Lead(s)	Thrombosis and anticoagulation steering group (TPAS) and Chemotherapy MDT.
Change in practice and lessons to be shared	Required changes to practice will be identified and actioned within 2 months. The thrombosis specialist nurse will be responsible for taking each change forward where appropriate. Lessons will be shared with all the relevant stakeholders.

4. Equality and Diversity

4.1. This document complies with the Royal Cornwall Hospitals NHS Trust service Equality and Diversity statement which can be found in the [Equality Diversity And Inclusion Policy](#) or the [Equality and Diversity website](#).

4.2. Equality Impact Assessment

The Initial Equality Impact Assessment Screening Form is at Appendix 2.

Appendix 1. Governance Information

Information Category	Detailed Information
Document Title:	Assessment and Management of Cancer Associated Thrombosis in Chemotherapy Patients Clinical Guideline V3.0
This document replaces (exact title of previous version):	Assessment and Management of Cancer Associated Thrombosis in Chemotherapy Patients Clinical Guideline V2.0
Date Issued/Approved:	March 2023
Date Valid From:	June 2023
Date Valid To:	June 2026
Directorate / Department responsible (author/owner):	Carrie Gray, Thrombosis Nurse Specialist.
Contact details:	01872 253827
Brief summary of contents:	How to assess and manage suspected Cancer Associated Thrombosis in patients receiving chemotherapy including what education should be provided to patients.
Suggested Keywords:	Chemotherapy, Thrombosis, CAT, VTE
Target Audience:	RCHT: Yes CFT: No CIOB ICB: No
Executive Director responsible for Policy:	Chief Medical Officer.
Approval route for consultation and ratification:	Chemotherapy MDT. Care Group Governance DMB.
Manager confirming approval processes:	Ian McGowan.
Name of Governance Lead confirming consultation and ratification:	Suzanne Atkinson.
Links to key external standards:	None required.
Related Documents:	Thrombosis Prevention Investigation and Management of Anticoagulation Clinical Guideline.

Information Category	Detailed Information
Training Need Identified?	No.
Publication Location (refer to Policy on Policies – Approvals and Ratification):	Internet and Intranet.
Document Library Folder/Sub Folder:	Clinical / Cancer services.

Version Control Table

Date	Version Number	Summary of Changes	Changes Made by
April 2015	V1.0	Initial Issue.	Andrew McSorley Thrombosis Specialist Nurse
October 2019	V2.0	2.1 Updated link to Trust Thrombosis guidance. Amendment to indicate use of DOAC treatments in selected patients. Amendment to text regarding purpose of 6-month clinical review.	Andrew McSorley, thrombosis Specialist Nurse
March 2023	V3.0	Updated to new Trust template. Amended to include new links.	Carrie Gray, Thrombosis Nurse Specialist

All or part of this document can be released under the Freedom of Information Act 2000

All Policies, Strategies and Operating Procedures, including Business Plans, are to be kept for the lifetime of the organisation plus 6 years.

This document is only valid on the day of printing.

Controlled Document

This document has been created following the Royal Cornwall Hospitals NHS Trust [The Policy on Policies \(Development and Management of Knowledge Procedural and Web Documents Policy\)](#). It should not be altered in any way without the express permission of the author or their Line Manager.

Appendix 2. Equality Impact Assessment

Section 1: Equality Impact Assessment (EIA) Form

The EIA process allows the Trust to identify where a policy or service may have a negative impact on an individual or particular group of people.

For guidance please refer to the Equality Impact Assessment Policy (available from the document library) or contact the Equality, Diversity, and Inclusion Team
rcht.inclusion@nhs.net

Information Category	Detailed Information
Name of the strategy / policy / proposal / service function to be assessed:	Assessment and Management of Cancer Associated Thrombosis in Chemotherapy Patients Clinical Guideline V3.0
Directorate and service area:	General Surgery and Cancer Services, Cancer Services.
Is this a new or existing Policy?	Existing.
Name of individual completing EIA (Should be completed by an individual with a good understanding of the Service/Policy):	Carrie Gray, Thrombosis Nurse Specialist.
Contact details:	01872 253827

Information Category	Detailed Information
1. Policy Aim - Who is the Policy aimed at? (The Policy is the Strategy, Policy, Proposal or Service Change to be assessed)	Provide guidance in the recognition and treatment of suspected cancer associated thrombosis.
2. Policy Objectives	Provide guidance in the recognition and treatment of suspected cancer associated thrombosis.
3. Policy Intended Outcomes	Provide guidance in the recognition and treatment of suspected cancer associated thrombosis.
4. How will you measure each outcome?	Early diagnosis of Cancer Associated Thrombosis.
5. Who is intended to benefit from the policy?	All chemotherapy patients.

Information Category	Detailed Information
6a. Who did you consult with? (Please select Yes or No for each category)	<ul style="list-style-type: none"> • Workforce: Yes • Patients/ visitors: No • Local groups/ system partners: No • External organisations: No • Other: No
6b. Please list the individuals/groups who have been consulted about this policy.	Please record specific names of individuals/ groups: Chemotherapy MDT.
6c. What was the outcome of the consultation?	Agreed.
6d. Have you used any of the following to assist your assessment?	National or local statistics, audits, activity reports, process maps, complaints, staff, or patient surveys: No.

7. The Impact

Following consultation with key groups, has a negative impact been identified for any protected characteristic? Please note that a rationale is required for each one.

Where a negative impact is identified without rationale, the key groups will need to be consulted again.

Protected Characteristic	(Yes or No)	Rationale
Age	No	
Sex (male or female)	No	
Gender reassignment (Transgender, non-binary, gender fluid etc.)	No	
Race	No	
Disability (e.g. physical or cognitive impairment, mental health, long term conditions etc.)	No	
Religion or belief	No	

Protected Characteristic	(Yes or No)	Rationale
Marriage and civil partnership	No	
Pregnancy and maternity	No	
Sexual orientation (e.g. gay, straight, bisexual, lesbian etc.)	No	

A robust rationale must be in place for all protected characteristics. If a negative impact has been identified, please complete section 2. If no negative impact has been identified and if this is not a major service change, you can end the assessment here.

I am confident that section 2 of this EIA does not need completing as there are no highlighted risks of negative impact occurring because of this policy.

Name of person confirming result of initial impact assessment:

Carrie Gray, Thrombosis Nurse Specialist.

If a negative impact has been identified above OR this is a major service change, you will need to complete section 2 of the EIA form available here:

[Section 2. Full Equality Analysis](#)