Cancer Associated Thrombosis Training

Case Studies

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Dr. L. Broughton PhD
Project Coordinator

S. Scargill
Oncology Pharmacist

K. Power
Anticoagulation Pharmacist

N. Hutchinson-Jones
Anticoagulation Pharmacist

Prof. A. Maraveyas PhD FRCP
Consultant Oncologist

NHS

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Introduction

Below is a series of case studies intended to help you think about the types of decisions made and considerations taken by healthcare professionals when discussing thromboprophylaxis with cancer patients. You may wish to discuss the cases with your CAT mentor. This is good practice as often the management of patients will require consultation with colleagues from several different departments and specialties.

Case 1: Thrombocytopenia

Background

Mrs. Jones is a 61-year-old female who has a diagnosis of a right frontoparietal glioblastoma. She has undergone a previous resection and received treatment with temzolamide. She has just started chemotherapy with PCV (procarbazine, lomustine and vincristine) after progression of cancer on temzolamide. Her first cycle was given 10 days ago.

She was admitted 3 months ago with acute shortness of breath and a swollen left calf. A computed tomography pulmonary angiogram (CTPA) found extensive bilateral pulmonary emboli (PE) with some evidence of mild right heart strain. Her left leg was not scanned given the finding of PE. She was started on therapeutic dose dalteparin as per her body weight.

She attends an appointment with you today after completing 3 months of anticoagulation treatment. She has had a full set of bloods the day prior.

Current medication

- Dalteparin 10,000 units SC OD (150 units/kg dose banded)
- Levetiracetam 750mg BD
- Omeprazole 20mg OD
- Dexamethasone 4mg OM
- Adcal-D3 i BD
- Alendronic Acid 70mg OW
- Paracetamol 1g QDS PRN (for pain relief)
- PCV chemotherapy
- Ondansetron 8mg BD for 3/7 (starting 30 minutes before IV chemotherapy and continuing until day 2 post chemotherapy)
- Metoclopramide 10mg TDS PRN (for nausea and vomiting)

Other medical problems

- Osteoporosis

Pertinent results and laboratory values

- Weight 67 kg
- Haemoglobin 116 g/L
- Platelets 40 x 10*9/L (previous counts = normal)
- CrCL = 86 ml/min
- LFTs = normal

On examination

- Left leg swelling has resolved
- Shortness of breath much improved, but still struggles a little on going upstairs / incline
- Some minor bruising on right arm after bumping herself against door 2 days ago

Questions

1. What is the most likely cause for this patient's thrombocytopenia? And why is this relevant to her treatment for her PE?

2. Make an ongoing management plan for this patient's anticoagulation. Would you recommend any changes to her anticoagulation? Would you recommend any further monitoring?

Case 2: Best Supportive Care

Background

Mrs. Hutchinson is a 68-year-old female with a diagnosis of adenocarcinoma of the lung. She has received previous treatment with immunotherapy and radiotherapy. She had a previous PE 2 years ago associated with her cancer and has been on apixaban 2.5mg BD since completing 6 months of treatment. She has been admitted to hospital due to worsening shortness of breath. A CT scan has shown progressive disease, with evidence of low burden sub-segmental chronic thromboembolic disease. Additionally, it is noted that her right leg is swollen below the knee. An ultrasound (US) scan confirms a popliteal vein deep vein thrombosis (DVT) of mixed echogenicity (likely old and new clot). The medical team have stopped apixaban and started full dose therapeutic dalteparin.

However, while in hospital her condition has quickly deteriorated. Her oncologist has recommended her for best supportive care, and it is possible she will be soon transferred to a local hospice for end-of-life care.

You are asked to review the patient and advise on ongoing anticoagulation management. You find that she is unable to tolerate anything orally and she describes bruising on the abdomen around the injection sites.

Current medication

- Dalteparin 18,000 units SC OD
- Omeprazole 20mg OD
- Paracetamol 1g QDS PRN (for pain relief)
- Spiolto Respimat (tiotropium and oldaterol) 2.5mcg/2.5mcg inhaler ii puffs OD
- Salbutamol 2.5mg nebule QDS PRN (for shortness of breath)
- Salbutamol 100mcg inhaler i-ii puffs QDS PRN (for shortness of breath)
- Lorazepam 0.5mg BD PRN (for anxiety / shortness of breath)
- Morphine sulfate 2.5mg 4 hourly PRN (for shortness of breath / pain relief)

Other medical problems

- Chronic obstructive pulmonary disease (COPD)

Pertinent results and laboratory values

- Weight 84 kg
- Haemoglobin 135 g/L
- Platelets 279 x 10*9/L (previous counts = normal)
- CrCL = 58 ml/min
- LFTs = normal

Questions

1. What advice would you give regarding ongoing anticoagulation and the possible discontinuation of treatment? What factors need to be considered?

Case 3: Central Line VTE

Background

Mr. Baker is a 62-year-old male diagnosed with stage III (Dukes C) colon cancer. He has accepted adjuvant treatment for 6 months with FOLFOX4 (5-fluorouracil, leucovorin and oxaliplatin). A peripherally inserted central catheter (PICC) line is inserted in the right arm, and he has had 2 cycles (4 weeks) of treatment uneventfully but presents for cycle 3 with a swollen and uncomfortable right arm which on examination is also discoloured. An urgent Doppler US demonstrates an upper limb DVT (ULDVT) with clot extending into the subclavian vein.

History and physical

- Physically fit
- Performance status (PS) = 0
- Ex-smoker (quit 20 years ago)
- BMI = 28
- Swollen uncomfortable and discoloured warm right arm all the way to the shoulder
- PICC site clean
- No comorbidities
- No contraindicated medications (other than chemotherapy and supportive agents)

Pertinent results and laboratory values

- Haemoglobin 14 g/L
- WBC 3 (differential show Neutrophils 1.2)
- Platelets 110 x 10*9/L
- eGFR= >90 ml/min
- LFTs = normal

Questions

1. Based on this information you would advise (choose one answer):

a) You would recommend line removal followed by 3 months anticoagulation with LMWH.
b) You would check if the line flushes and would recommend salvaging the line using a DOAC e.g. rivaroxaban or LMWH e.g. dalteparin.
c) You would recommend line removal and 3 months of therapeutic DOAC e.g. apixaban.
d) You would check if the line flushes and would recommend salvaging the line using intravenous anticoagulation with heparin through the line.

2. Briefly, explain your answer for the previous question.

Case 4: Clinically Relevant Non-Major Bleeding

Background

Ms. Zervas is a 78-year-old female diagnosed with stage IV breast cancer 4 months ago. This was an estrogen receptor (ER) positive tumour, and she was commenced on tamoxifen. Two months after starting her hormone treatment she developed a left ileo-femoral DVT and commenced treatment with rivaroxaban. Her leg symptoms have abated substantially but 4 weeks after starting the blood thinner she started noticing blood in her urine. She mentioned this to her GP who took no action but suggested she discusses it with her consultant when she sees them again.

48 hours ago she noticed blood clots in her urine and thinks she is not passing urine well and has some discomfort when trying to pass urine. She self-refers to the cancer acute assessment unit.

History and physical

- Frail – walks with a stick
- PS = 2
- Heavy smoker
- Hypertension
- BMI = 30
- Left lower extremity with slight oedema – no inflammatory signs
- Other exams were unremarkable
- Obvious clots in dark, blood-stained urine

Pertinent results and laboratory values

- Haemoglobin 12 g/L (previously, 3 months ago 12.2 g/L)
- WBC 7 (differential is normal)
- Platelets 350 x 10*9/L
- eGFR = 44ml/min (previously, 55 ml/min)

Questions

1. Based on this information you would advise (choose one answer):

a) Stop her rivaroxaban because her GFR is low.
b) Stay on the rivaroxaban, this is not a major bleed.
c) Arrange a CT scan and keep her off anticoagulants of any kind.
d) Switch to LMWH, washout the bladder clots and organise a cystoscopy.

2. Briefly, explain your answer for the previous question.

Case 5: Anticoagulant Treatment Failure

Background

Mrs. Adams is a 72-year-old female who has been receiving tinzaparin at a dose of 175 units/kg once a day for a DVT diagnosed two months ago. The DVT was diagnosed within a month of her starting palliative chemotherapy (gemcitabine/cisplatin) for metastatic cholangiocarcinoma.

Two days ago she developed sudden onset chest pain and shortness of breath and attended her local emergency department. A CTPA confirmed new bilateral PE's. She has been fully compliant with treatment – a 4-hour post dose anti-Xa level was taken and was in the expected range for her treatment. Her other blood tests were unremarkable.

Her inpatient medical team have contacted your clinic for advice on how to manage her anticoagulant treatment going forward.

Current medication

- Amlodipine 5mg OD
- Ramipril 10mg OD

Other medical problems

- Hypertension
- No other known thrombotic episodes of VTE
- No known family history of VTE
- Non-smoker
- Little alcohol

Pertinent results and laboratory values

- Haemoglobin 108 g/L
- WBC 9.1
- Platelets 230 x 10*9/L (Stable since starting LMWH)
- eGFR = 35ml/min (Stable)
- Weight 50 kg

Questions

1. Based on the information above, what (if any) changes would you make to this patient's anticoagulant regime?

2. How should this patient be followed up on discharge? Is any additional monitoring required?

Case 6: Initial Presentation with DVT

Background

Mr. Connolly is a 55-year-old male with known colorectal cancer. He has recently undergone a total colectomy with ileostomy formation. He is three weeks post-surgery and attended an appointment with his oncologist to discuss adjuvant chemotherapy options. The oncologist noted that the patient's right leg was very swollen and sent him for a Doppler US which confirmed an extensive ileo-femoral DVT. The oncologist has sent Mr. Connolly directly over to you to discuss options.

Current medication

- Codeine 60mg QDS
- Paracetamol 1g QDS
- Ventolin 100mcg inhaler 2 puffs up to QDS PRN
- Atorvastatin 40mg OD
- Clopidogrel 75mg OD

Other medical problems

- Asthma
- Previous transient ischaemic attack (TIA) – 10 years ago
- No other known thrombotic episodes of VTE
- No known family history of VTE
- Non-smoker
- Little alcohol

Pertinent results and laboratory values

- Haemoglobin 125 g/L (Improved from 108 post-operatively)
- Platelets 300 x 10*9/L
- eGFR = 60ml/min (Stable)
- Weight 75 kg

Questions

1. Based upon the above information, discuss the risks and benefits of the following strategies:

a) Rivaroxaban
b) Apixaban
c) Warfarin
d) LMWH

2. Which option would you prescribe? Give a rationale. What additional input would you have into this case?

Completion Record

6 Cases reviewed:

YES

Satisfactory answers:

YES / NO

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The above-named CAT trainee has completed the case studies booklet.

..... **CAT Mentor**

..... **Section Manager**

..... **Date**

NOTES: