

VTE prophylaxis in pregnancy and the puerperium

Clinical Guideline Presentation v4



45 minutes

Towards CPD Hours

References:

Queensland Clinical Guideline: Venous thromboembolism (VTE) in prophylaxis in pregnancy and the puerperium is the primary reference for this package.

Recommended citation:

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Disclaimer:

This presentation is an implementation tool and should be used in conjunction with the published guideline. This information does not supersede or replace the guideline. Consult the guideline for further information and references.

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Learning objectives

- Identify risk factors for venous thromboembolism (VTE) in pregnancy and the puerperium
- Identify VTE prophylactic options in pregnancy and the puerperium
- Recognise when and what VTE prophylaxis is indicated according to risk



Definition

Pulmonary embolism (**PE**)

and

Deep vein thrombosis (**DVT**)

are two components of a single disease
venous thromboembolism (**VTE**)

Aetiology

- Pregnant women are at increased risk due to:
 - Hypercoagulability
 - Increased venous stasis
 - Decreased venous outflow
 - Compression of the inferior vena cava and pelvic veins by gravid uterus



VTE incidence

- A leading cause of maternal death world-wide
- Risk is greater postpartum
 - 43–60% of PE occur 4–6 weeks postpartum
- Estimated 1–2 VTE per 1000 pregnancies
 - 75–80% are DVT
 - 20–25% are PE
- DVT more likely to occur in left lower extremity

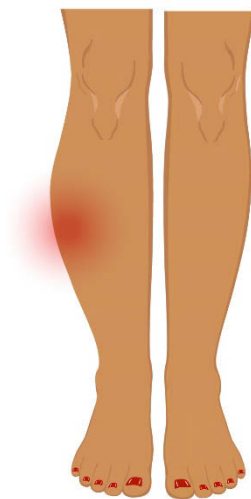
Signs and symptoms of VTE

PE

- Dyspnoea (most common)
- Palpitations
- Chest pain
- Haemoptysis
- Hypoxia/cyanosis
- Tachycardia
- Tachypnoea
- Hypotension
- Collapse

DVT

- Often proximal—may not present with usual features of distal DVT
- Increased calf/thigh circumference
- Prominent superficial veins
- Unilateral leg pain
- Swelling in extremity
- Increased temperature
- Pitting oedema



High risk factors for VTE

- Personal history of VTE is strongest risk
 - 15–25% of VTE in pregnancy are recurrent
- Thrombophilia
 - Present in 20–50% of women who have a VTE
- Medical comorbidity increases risk:
SLE, nephrotic syndrome, heart failure, sickle cell, type I diabetes, inflammatory bowel disease, polyarthropathy and others....

Known risk factors

Before pregnancy

- > 35 years
- Parity ≥ 3
- Smoking
- Gross varicose veins
- BMI > 30 kg/m²
- Family history of VTE
- Anticoagulation (any reason)

Birth and postpartum

- Caesarean section
- Labour > 24 hours
- Preterm birth
- PPH > 1 L or transfusion
- Stillbirth

Pregnancy related

- Multiple pregnancy
- In vitro fertilisation (IVF)
- Pre-eclampsia
- Immobility
- Systemic infection
- Hyperemesis
- Dehydration
- Any surgery

Risk assessment

Laela is a G2P1 presenting for her first antenatal appointment at 28 weeks gestation.

When should you *routinely* assess Laela's risk for VTE?

- Early in pregnancy (ideally before conception) or at first opportunity
- Intrapartum or within 6 hours of birth



When else is it important to assess risk for VTE?

Reassess if there is a change in clinical circumstances, for example

- Admission to hospital
- Pregnancy complication develops (e.g. pre-eclampsia)
- Prolonged immobility
- Systemic infection

Commence prophylaxis at times of additional VTE risk

Assessing risk

You commence an assessment of Laela's risk for VTE.

How will you assess Laela?

- Ask about personal and family history of VTE
- Assess for high risk and other known risk factors
- Review for any contraindications to VTE prophylaxis (mechanical and pharmacological)



What else will you discuss with Laela about VTE?

- Increased risk during pregnancy and after birth of her baby
- The consequences of having a VTE (immediate and longer term)
- Importance of mobilisation and avoiding dehydration
- Signs and symptoms of VTE and importance of seeking help

Thrombophilia

During your assessment you identify that Laela has a heterozygous factor V Leiden (FVL) mutation and her sister had a DVT in her last pregnancy.

What thrombophilia are considered 'high risk'?

- If > 1 laboratory thrombophilia
- Antiphospholipid syndrome
- Antithrombin deficiency
- Homozygous FVL
- Homozygous prothrombin mutation
- Compound heterozygous FVL and prothrombin mutation
- Protein C deficiency
- Protein S deficiency

What factors will influence your recommendations about VTE prophylaxis for Laela?

- Presence/absence of personal or family history of VTE
- Whether any VTE was provoked or unprovoked
- Presence of other risk factors
- Laela's values and preferences for risk management
- Contraindications to prophylaxis

Options for prophylaxis

You also note that Laela's BMI is 38 kg/m², she smokes 15 cigarettes/day and is 37 years old.

What methods of VTE prophylaxis are commonly used in pregnancy?

- Emphasising importance of hydration and mobility
- Leg compression stockings (graduated or TED)
- Standard or high dose pharmacological prophylaxis
- Therapeutic anticoagulation
- Sequential or intermittent compression devices



Cautions for prophylaxis

You assess if Laela has contraindications to VTE thromboprophylaxis?

What are risk factors for bleeding?

- Active bleeding or high risk of bleeding (e.g. placenta praevia)
- Acquired/inherited bleeding disorders
- Intracranial or spinal lesion
- Recent CNS bleeding, major surgery
- Abnormal blood coagulation
- Obstructive jaundice/cholestasis
- Severe platelet dysfunction
- Active peptic ulcer or ulcerative gastrointestinal disease
- Neuraxial analgesia

Contraindications pharmacological

- Hypersensitivity,
- Heparin induced thrombocytopenia (HIT) (past or current)

Cautions pharmacological

- Renal impairment
- Hepatic impairment
- Thrombocytopenia

Contraindications mechanical

- Leg deformities/problems, peripheral arterial disease, ulcers, skin grafts, severe oedema, pulmonary oedema, heart failure

Low molecular weight heparin

Laela declines stockings but agrees to your recommendation to commence low molecular weight heparin (LMWH).

Laela asks if LMWH is safe. What can you say about LMWH?

- Agent of choice for antenatal and postnatal prophylaxis
- Does not cross the placenta
- Safe while breastfeeding
- No deaths or HIT reported
- There is small risk of:
 - VTE despite compliance (0.84%)
 - Increased maternal bleeding (2%)
 - Thrombocytopenia (0.08%)
 - Allergic skin reactions (1.84%)

What LMWH drugs are commonly used in pregnancy?

- Enoxaparin
- Dalteparin

What drugs are NOT first line therapies/recommended for prophylaxis in pregnancy?

- Unfractionated heparin (UFH)
- Warfarin
- Direct thrombin and factor Xa inhibitors (e.g. rivaroxaban, apixaban, edoxaban, fondaparinux, dabigatran)

Plan care

Because Laela's has commenced antenatal LMWH what plans do you make with her?

Develop an agreed plan of care.

- Consider consultation/referral with an experienced physician
- Discuss importance of regular antenatal appointments
- Anaesthetic referral (from 32 weeks)
- Implications for neuraxial blockade (if this should be required)
- When to cease injecting LMWH before onset of labour
- Requirement for postnatal VTE prophylaxis



Intrapartum care

Laela is in active labour at 40 weeks. She is requesting an epidural.

Can you safely offer Laela a neuroaxial blockade?

- Recommended interval between last dose prophylactic **LMWH** and catheter insertion or removal is 12 hours.
- Recommended interval between last dose prophylactic **UFH** and catheter insertion or removal is 4 hours

How long after catheter removal should you wait before giving the next prophylactic dose?

- Recommended interval between catheter removal and next dose prophylactic **LMWH** is 4 hours.
- Recommended interval between catheter removal and next dose prophylactic **UFH** is 1 hour.

Postpartum care

Laela required an emergency caesarean section (CS) but is now recovering uneventfully without further complications. She had a healthy baby boy.

What postpartum care is indicated for Laela in relation to VTE prophylaxis?

- Recommence LMWH in 6 hours if haemostasis achieved
- Clinical surveillance for neuraxial haematoma for 24 hours
- Recommend intermittent pneumatic or sequential compression devices at least until next day for all CS
- Discuss use of leg stockings
- Mobilise early
- Avoid dehydration



Discharge

Laela and her baby 'Joe' are now ready for discharge. You have recommended that Laela continue LMWH for 6 weeks after birth.

What do you discuss with Laela about continuing LMWH?

- Importance of compliance in preventing postpartum VTE
- Correct use and duration of prophylaxis
- Signs and symptoms of VTE and importance of seeking help immediately
- The possibility of needing prophylaxis in future pregnancies

