Thromboembolic Disease in Pregnancy

**No Prior History of VTE**
- Low Risk (see below)
- Intermediate Risk (see below)
- High Risk (see below)

**History of 1 Prior VTE* (Not currently on Anti-coagulation)**
- Associated with Nonrecurrent/transient risk factor (Not pregnancy or estrogen-related)

**Current VTE -or- On Long-Term Anticoagulation -or- ≥ 2 VTEs**
- Therapeutic Dose Anticoagulation
- Resumption of long-term anticoagulation -on Therapeutic Dose Anticoagulation for 6 weeks if not long-term anticoagulation

**Antepartum**
- No Anticoagulation
- Clinical Vigilance
- Prophylactic Anticoagulation for 6 weeks

**Low Risk**
- No Family History
  - "Mild Thrombophilia": Factor V Leiden Heterozygote -or- Prothrombin G20210A Heterozygote

**Intermediate Risk**
- Positive Family History (First degree relative w/ VTE < 50yo)
  - "Strong Thrombophilia": Factor V Leiden Homozygote -or- Prothrombin G20210A Homozygote
  - Protein S Deficiency
  - Protein C Deficiency
  - Antithrombin Deficiency
  - Double Heterozygote for Factor V Leiden & Prothrombin G20210A Antiphospholipid Antibody Syndrome

**High Risk**
- Positive Family History (First degree relative w/ VTE < 50yo)
  - "Strong Thrombophilia": Factor V Leiden Homozygote -or- Prothrombin G20210A Homozygote
  - Protein S Deficiency
  - Protein C Deficiency
  - Antithrombin Deficiency
  - Double Heterozygote for Factor V Leiden & Prothrombin G20210A Antiphospholipid Antibody Syndrome

**Other Risk Factors to consider postpartum**
- Obesity (BMI >30kg/m²)
- Prolonged immobility (strict bed rest ≥1 wk in the antepartum period)
- Cesarean Delivery
- Peripartum hemorrhage ≥1,000 mL
- Pregnancy Complication
  - (Ex: Preeclampsia, Multiples, Fetal Growth Restriction)
- Peripartum infection
- Blood Transfusion
- Medical Conditions
  - (Ex: SLE, Sickle cell, Heart Dz, IBD)
- Smoking >10 cig/day
- Other Major Thrombotic Risk Factor

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*Screening for thrombophilias is controversial. It is useful only when results will affect management decisions and is not useful in situations where treatment is indicated for other risk factors.* Therefore, we do not recommend routine thrombophilia screening in patients with a prior VTE. We recommend thromboembolism management during pregnancy based on personal risk factors and family history.
ANTICOAGULATION REGIMENS\(^1,\)\(^2\)

Low Molecular Weight Heparin (LMWH)-Recommended\(^2\)

- Prophylactic\(^a\) Enoxaparin 40 mg sq once daily
  - Dalteparin 5,000 units sq once daily
- Intermediate\(^b\) Enoxaparin 40 mg sq q12hrs
  - Dalteparin 5,000 units sq q12hrs
- Therapeutic\(^c\) Enoxaparin 1 mg/kg sq q12hrs
  - Dalteparin 200 units/kg sq once daily -or- 100 units/kg sq q12hrs

Unfractionated Heparin (UFH)\(^d,\)\(^e\)

- Prophylactic 1\(^{st}\) trimester: 5,000-7,500 units sq q12hrs
  - 2\(^{nd}\) trimester: 7,500-10,000 units sq q12hrs
  - 3\(^{rd}\) trimester: 10,000 units sq q12hrs
- Intermediate 5,000-10,000 units sq q12hrs (Adjust to target AntiXa 0.1-0.3 units/mL)
- Therapeutic 216u/kg q12hrs (Adjust to target aPTT of 1.5-2.5, 6hrs after injection)

\(^{a:}\) With prophylactic dosing, do not need to monitor AntiXa or aPTT levels, unless clinically suspect levels outside of recommended range.\(^1\) (Goal: 0.2-0.4 units/mL for prophylactic dosing)\(^1,\)\(^3\)

\(^{b:}\) At extremes of body weight, dose modification may be required.\(^1\)

\(^{c:}\) Consider checking Anti-Xa Levels 4-6hrs after injection (Goal 0.6 -1.0 units/mL for q12hr therapeutic dosing)\(^1,\)\(^3\)

\(^{d:}\) Consider evaluation for Heparin-induced Thrombocytopenia (HIT): Check CBC on days 3, 7, & 14 after starting UFH

\(^{e:}\) Consider calcium supplementation\(^2\)

PERI-DELIVERY
- Change to UFH at 36 weeks
  (or earlier if anticipate preterm delivery)

INTRAPARTUM
- Hold Anticoagulation
- For patients on LMWH/UFH:
  - Last therapeutic dose should be ≥24hrs before regional anesthesia
  - Last prophylactic dose should be ≥12hrs before regional anesthesia
- For patients on UFH, regional anesthesia when PTT normal
- Sequential compression devices

POSTPARTUM
- If restarting LMWH/UFH\(^1\):
  - Prophylactic: 6 hours after vaginal delivery
  - 12 hours after cesarean delivery
    (Must be ≥ 2 hours after epidural removal)
  - Therapeutic: 12 hours after vaginal/cesarean delivery
    (Must be ≥ 12 hours after epidural removal)
- If starting Coumadin:
  - First Dose pm after delivery
  - Bridge with LMWH/UFH for 5 days and until INR 2-3 for 2 days.
  - Breast feeding permitted
- Sequential compression devices
References:


   “For pregnant patients, we suggest LMWH for the prevention and treatment of VTE, instead of UFH (Grade 1B).”


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These algorithms are designed to assist the primary care provider in the clinical management of a variety of problems that occur during pregnancy. They should not be interpreted as a standard of care, but instead represent guidelines for management. Variation in practices should take into account such factors as characteristics of the individual patient, health resources, and regional experience with diagnostic and therapeutic modalities.

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