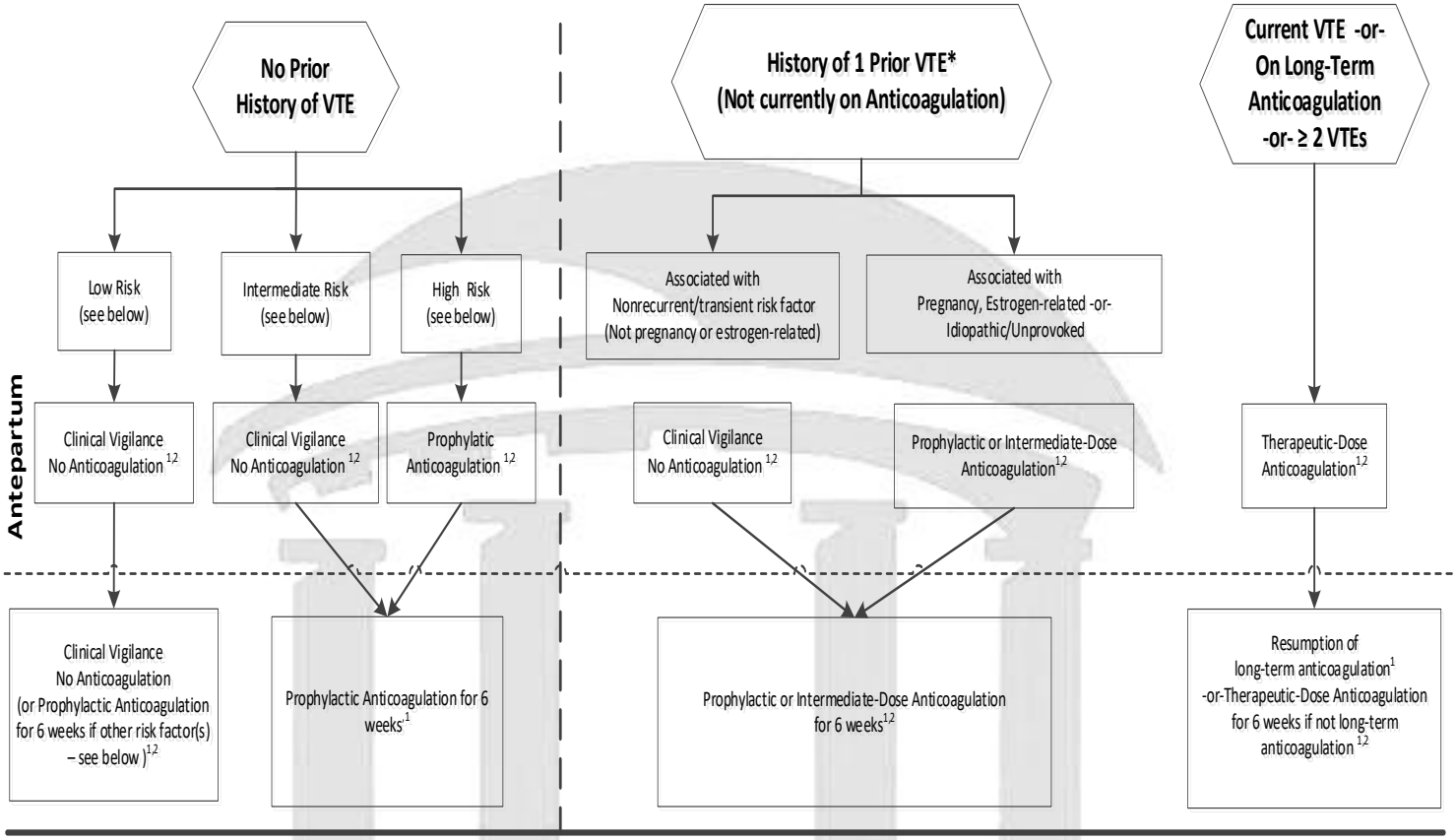
UNC SCHOOL OF MEDICINE

Thromboembolic Disease in Pregnancy



Low Risk [1,2]

No Family History
(First degree relative w/ VTE < 50yo)
AND
"Mild Thrombophilia":
Factor V Leiden Heterozygote -or-
Prothrombin G20210A Heterozygote

Intermediate Risk [1,2]

No Family History
(First degree relative w/ VTE < 50yo)
AND
"Strong Thrombophilia":
Factor V Leiden Homozygote
Prothrombin G20210A Homozygote
Protein S Deficiency
Protein C Deficiency
Antithrombin Deficiency
Double Heterozygote for Factor V Leiden & Prothrombin G20210A
Antiphospholipid Antibody Syndrome

OR

Positive Family History (First degree relative w/ VTE < 50yo)
AND
"Mild Thrombophilia":Factor V Leiden Heterozygote -or- Prothrombin G20210A Heterozygote

High Risk [1,2]

Positive Family History
(First degree relative w/ VTE < 50yo)
AND
"Strong Thrombophilia":
Factor V Leiden Homozygote
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: [2]

- Obesity (BMI >30kg/m^2)
- Prolonged immobility (Strict bed rest ≥1wk in the antepartum period)
- Cesarean Delivery
- Peripartum hemorrhage ≥1,000mL
- Pregnancy Complication (Ex: Preeclampsia, Multiples, Fetal Growth Restriction)
- Postpartum infection
- Blood Transfusion
- Medical Conditions (Ex: SLE, Sickle cell, Heart Dz, IBD)
- Smoking >10 cig/day
- Other Major Thrombotic Risk Factor

* *"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."*[3] *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.*

ANTICOGULATION REGIMENS[1,2]

Low Molecular Weight Heparin (LMWH)-Recommended[2]

Prophylactic[a]	Enoxparin 40 mg sq once daily
	Dalteparin 5,000 units sq once daily
Intermediate[b]	Enoxaparin 40mg sq q12hrs
	Dalteparin 5,000 sq units q12rs
Therapeutic[c]	Enoxparin 1 mg/kg sq q12hrs
	Dalteparin 200 units/kg sq once daily -or- 100units/ kg sq q12hrs

Unfractionated Heparin (UFH)[d, e]

Prophylactic	1st trimester: 5,000-7,500 units sq q12hrs
	2nd trimester: 7,500-10,000 units sq q12hrs
	3rd 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)

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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:

1) Thromboembolism in pregnancy. Practice Bulletin No. 123. American College of Obstetricians and Gynecologists. Obstet Gynecol 2011; 118:718-29.

2) Bates SM, Greer IA, Middeldrop S, Veenstra DL,Prabulos A, Vandvik PO. VTE, Thrombophilia, Antithrombotic Therapy, and Pregnancy. American College of Chest Physicians Evidence-Based Clinical Practice Guidelines (9thEd). CHEST 2012: 141(2)(Suppl):e691S-e736S

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

3) Inherited thrombophilias in pregnancy. Practice Bulletin No. 138. American College of Obstetricians and Gynecologists. Obstet Gynecol 2013; 122:706-17.

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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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