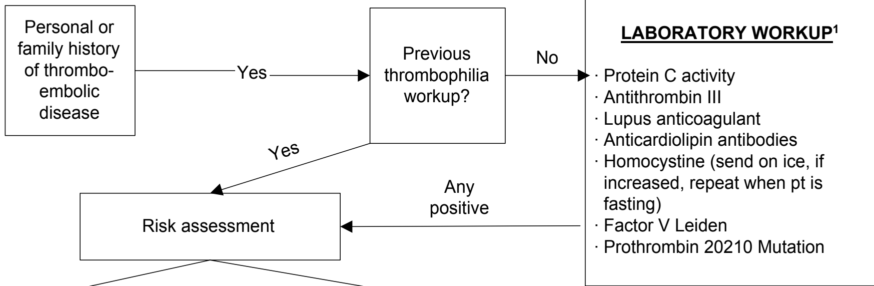
Thrombo-embolic disease



HIGH RISK

1) DVTor PE during current pregnancy
2) Hx of PE with cardiopulmonary sequelae
3) History of life threatening thrombosis
4) Antithrombin III deficiency [2]
5) History of rheumatic heart disease with current atrial fibrillation [2]
6) Homozygous Factor V Leiden mutation [2]
7) Homozygous prothrombin G20210A mutation [2]
8) Chronic anticoagulation for recurrent thromboembolism [2]
9) Protein C deficiency and personal history of clot
10) Antiphospholipid syndrome and personal history of clot [2]
11) Heterozygous for both G20210A and Factor V Leiden

LOW/MODERATE RISK

1) History of PE w/o cardiopulmonary sequelae
2) DVT[3]
   a) idiopathic
   b) DVT related to orthopedic trauma or other injury (option to treat only pospartum w/ 6 weeks warfarin)
3) Protein S deficiency and a family history of thrombosis [3]
4) Protein C deficiency and family history of thrombosis [3]
5) Heterozygous factor V Leiden
6) Heterozygous prothrombin G20210A mutation
7) Antiphospholipid syndrome w/ recurrent pregnancy loss

Full Dose Anticoagulation with LMWH

Lovenox: 1mg/kg BID
Fragmin: 100 U/kg BID

· Check anti-Xa levels Q 6 weeks, 3 - 4 hours post-injection
· Goal 0.5 to 1.2 U/ml anti-Xa levels
· 1000mg/day calcium in the form of TUMS
· Change to unfractionated heparin at 36 weeks

Full dose Anticoagulation with Unfractionated Heparin[4]

· 10,000 U SQ Q 8 hrs to achieve a PTT of 2.0 - 2.5 X the upper limits of normal range 6 hours after dose **(UNC values; correct values for other labs may vary).**
· May check PTT Q 6 weeks once dose is stable.
· Check CBC with platelets on days 3, 7, and 14 after starting heparin. If value less than 50% of baseline, consult hematology service for suspected heparin- induced thrombocytopenia.
· In patients with anti-phospholipid syndrome, need to check anti-Xa levels instead of PTT (goal of 0.35 - 0.7U/ml) [5]

Prophylactic Unfractionated Heparin[4]

5000 U SQ Q 12 hrs 1st trimester
7500 U SQ Q 12 hrs 2nd trimester
10,000 U SQ Q 12 hrs 3rd trimester

· 1000mg/day calcium in the form of TUMS
· Check CBC with platelets on days 3,7, and 14 after starting heparin. If value less than 50% of baseline, consult hematology service for suspected heparin-induced thrombocytopenia.

Prophylactic Dose Anticoagulation with LMWH[4]

Lovenox: 30mg Q 12 hr s dose
  increase to 40 mg Q 12 hrs in 2nd trimester
Fragmin: 5000 U Q12 hrs dose;
  increase to 7500 U Q 12 hrs in 2nd trimester **(DO NOT USE MULTI-DOSE VIAL OF FRAMIN)**
· Check anti-Xa levels Q 6 weeks, 3-4 hours post injection
· Goal 0.2 to 0.4 U/ml anti-Xa levels
· Change to unfractionated heparin at 36 weeks

IN LABOR

· No further heparin or LMWH
· For pts on heparin, epidural when PTT normal
· For pts on LMWH, last dose of LMWH should be at least 24 hours before epidural [7]
· Intermittent compression devices

POST PARTUM

· Start heparin:
  6 hours after vaginal delivery
  12 hours after cesarean delivery
· Start coumadin PM after delivery
· D/C heparin when coumadin INR 2 - 3 (overlap usually 5-7 days) [6]
· Breast-feeding on warfarin is permitted.
· Treat at least 6 weeks post partum unless need for ongoing anticoagulation (may need to confer with patient's internist or hematologist)

Approved 07/2001
Updated 4/2002
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Thromboembolic Disease References

1. ACOG committee on Practice Bulletins. Thromboembolism in pregnancy. **Practice Bulletin 19. Washington DC: American College of Obstetricians and Gynecologists, 2000.**

   The following tests may be ordered to evaluate the risk for thrombotic events in women with a history of thrombosis, a family history of thrombosis, or a first degree relative with a specific mutation: Lupus anticoagulant (for women with a personal history of VTE), Anticardiolipin antibodies (for women with a personal history of VTE), Factor V Leiden mutation, Prothrombin G20210A mutation, ATmantigen activity levels, Fasting homocysteine levels or the MFTBFR mutation, Protein C antigen activity levels, Protein S antigen activity levels (free and total)

2. ACOG committee on Practice Bulletins. Thromboembolism in pregnancy. **Practice Bulletin 19. Washington DC: American College of Obstetricians and Gynecologists, 2000.**
   Patients with the following conditions are at highest risk and should have adjusted dose heparin prophylaxis: Artificial heart valves
   (some investigators recommend warfarin therapy after the first trimester in certain circumstances) Antithrombin m deficiency (with or without a history of thrombosis; also referred to as "anti thrombin deficiency") Antiphospholipid syndrome(some investigators recommend low- dose prophalaxis for this condition if there is no history of DV1) History of rhuematic heart disease with current atrial fibrillation, homozygous factor V Leiden mutation, homozygous prothrombin G20210A mutation, patients receiving chronic anticoagulation for recurrent thromboembolism.

3. ACOG committee on Practice Bulletins. Thromboembolism in pregnancy. **Practice Bulletin 19. Washington DC: American College of Obstetricians and Gynecologists, 2000.**
   Patients who are identified carriers of other inherited thrombophilias who do not have a history of thrombophilia but have a strong family history of thrombosis and non carriers with a history of thrombotic events before the current pregnancy appear to be at lower risk and may be candidates for low-dose prophylaxis.

4. ACOG committee on Practice Bulletins. Thromboembolism in pregnancy. **Practice Bulletin 19. Washington DC: American College of Obstetricians and Gynecologists, 2000.**
   Unfractionated heparin
   Low-dose prophylaxis (1). 5,000-7,500 U every 12 hours during the first trimester. 7,500-10, 000 U every 12 hours during the second trimester, 10,000 U every 12 hours during the third trimester unless the APIT is elevated. The APIT may be checked near term and the hepatin dose reduced if prolonged OR (2) 5,000-10,000U every 12 hours throughout pregnancy.
   Adjusted dose prophylaxis >= 10,000 U twice a day to three times a day to achieve a APIT of 1.5-2.5.
   Low molecular weight heparin:
   Low dose prophylaxis: Dalteparin, 5,000U once or twice daily, or enoxaparin 40 mg once or twice daily.
   Adjusted dose prophylaxis: Dalteparin 5,000- 10,000U every 12 hours or enoxaparin, 30-80mg every 12 hours.

5 ACOG committee on Practice Bulletins. Thromboembolism in pregnancy. **Practice Bulletin 19. Washington DC: American College of Obstetricians and Gynecologists, 2000.**

Heparin and Warfarin therapy should be overlapped for the first 5- 7 days postpartum until an international normalized ratio (lNR) of .approximately 2.0-3.0 has been achieved.

6. *AGOG* committee on Practice Bulletins. Thromboembolism in pregnancy. **Practice Bulletin 19. Washington DC: American College of Obstetricians and Gynecologists, 2000.**
   The safety of epidural anesthesia with twice-daily dosing of LMWH is of concern and should be withheld until 24 hours after the last injection

NOTIFICATION TO USERS

These algorithms are designed to assist the primary care provider in the clinical management of a variety of problems that occur in pregnancy. They should not be interpreted as ***standard of care*** but instead represent ***guidelines*** for the management of these patients. Variation in practice should be taken into- account such factors as characteristics of the individual patient, health resources, and regional experience with diagnostic and therapeutic modalities. The algorithms remain the intellectual property of the University of North Carolina School of Medicine at Chapel Hill. They cannot be reproduced in whole or part without the ***expressed*** permission of the school.

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