Scenarios for thromboprophylaxis in pregnancy and puerperium

CONTRAINDICATIONS FOR LMWH

- Active antenatal or postpartum bleeding
- Woman considered at increased risk of major haemorrhage (e.g. placenta praevia)
- Known bleeding disorder (e.g. haemophilia, von Willebrand’s disease or acquired coagulopathy)
- Thrombocytopenia (platelet count < 75,000)
- Severe renal disease (glomerular filtration rate [GFR] < 30 ml/minute/1.73m²)
- Severe liver disease (prothrombin time above normal range or oesophageal varices)
- Uncontrolled hypertension (blood pressure > 200 mmHg systolic or > 120 mmHg diastolic)

PERIPARTUM MANAGEMENT

LMWH with bleeding or dynamic
- Discontinue LMWH
LMWH at therapeutic dose
- LRA after > 24 hours from the last dose
LMWH at prophylactic dose
- LRA after > 24 hours from the last dose
- Discontinue UFH 4-6 hours before or Protamine Sulphate
Restart LMWH after birth
- > 12-24 hours postpartum and at least 6 hours after removing the catheter, in absence of bleeding or risk of bleeding.
ASA low dose
- Consider discontinue 24 hours before

OTHER VTE RISK FACTORS

- Antenatal risk assessment; repeating if hospital admission and postnatal
- LOWER RISK: Mobilisation and avoidance of dehydration

ACREBRIATIONS

- aPL: Antiphospholipid antibodies
- APS: Antiphospholipid Syndrome
- ARL: Local regional anesthesia
- ASA: Acetylsalicylic Acid
- AT: Antithrombin
- ANK: Vitamin K antagonists
- BMI: Body mass index
- APS: Antiphospholipid Syndrome
- AT: Antithrombin
- AVK: Vitamin K antagonists
- BMI: Body mass index
- FII: Factor II of the prothrombin G20210A
- FVL: Factor V Leiden
- II GR: Intrauterine growth retardation
- LMWH: Low molecular weight heparins
- PTE: Pulmonary thromboembolism
- RM: Recurrent Miscarriage
- RF: Risk factors
- RF: Risk factors
- RCOG: Royal College of Obstetricians and Gynaecologists
- RCOG and CHEST: 6 weeks’ postnatal prophylactic LMWH
- RCOG and CHEST: 6 weeks’ postnatal prophylactic LMWH
- VTE: Venous Thromboembolism

REFERENCES

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- Dra. Rosa Comendula Hematology Department
- Hospital Clinico Universitario Lozano Blesa ZARAGOZA
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CONTRAINDICATIONS FOR LMWH

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**INDIVIDUAL RISK ASSESSMENT**
- Type of thrombophilia
- Personal or family history of VTE
- History of gestational vascular complications
- Antenatal and postnatal risk factors

**INDICATIONS TO REQUEST A THROMBOPHILIA STUDY**
- VTE appearing before the age of 50, idiopathic or recurrent
- VTE of atypical location
- Gestational vascular complications (RM, late foetal loss, pre-eclampsia, IUGR)*
- Family history of first-degree relatives (parents and siblings)

*Request only antiphospholipid antibodies (lupus anticoagulant, anti-cardiolipin and anti-ß2-glycoprotein 1)

**GESTATIONAL VASCULAR COMPLICATIONS**
- Recurrent foetal loss or late foetal loss
- There is no scientific evidence. Individual assessment
- Thrombophilia or
- Empirical treatment (ASA/LMWH/ASA+LMWH)

- History of pre-eclampsia or high risk of pre-eclampsia
- ASA all pregnancy, starting in second trimester
- Prophylactic LMWH if additional RF

- IUGR
- Strict ECO-Doppler surveillance

- Inherited
- Individual management according to type of thrombophilia, personal or family history of VTE disease and risk factors

- Acquired (Obstetric APS)
  - ASA antenatal + LMWH
  - LMWH postpartum 4-6 weeks

**THROMBOPHILIA IN PREGNANCY**

**HIGH RISK**
- Recurrent VTE
  - Patient with ASK
  - AT deficiency and APS
- Any previous VTE except a single event related to major surgery
- High risk thrombophilia without previous VTE
  - Family history of unprovoked VTE (FVL or FH heterozygotes, AT, PS or PC deficiency)

**INTERMEDIATE RISK**
- High risk thrombophilia without previous VTE
  - Family history of VTE (FVL or FH heterozygotes, PS or PC deficiency)

**LOW RISK**
- Obesity (BMI > 30 Kg/m2)
- Age > 35
- Parity ≥ 3
- Smoker (> 10 cig/day)
- Gross varicose veins
- Current pre-eclampsia
- Immobility (>3 days)
- Family history of unprovoked or etiologically provable VTE in first degree relative
- Low-risk thrombophilia (FVL or FH heterozygotes)
- Multiple pregnancy
- NVD/RF

**THROMBOPHILIA WITHOUT PREVIOUS EPISODE**

**LOW RISK**
- Obesity (BMI > 30 Kg/m2)
- Age > 35
- Parity ≥ 3
- Smoker (> 10 cig/day)
- Gross varicose veins
- Current pre-eclampsia
- Immobility (>3 days)
- Family history of unprovoked or etiologically provable VTE in first degree relative
- Low-risk thrombophilia (FVL or FH heterozygotes)
- Multiple pregnancy
- NVD/RF

**POSTNATAL THROMBOPHYLAXIS**

**HIGH RISK**
- LMWH prophylactic doses all pregnancy
- LMWH prophylactic doses all pregnancy
- LMWH prophylactic doses all pregnancy
- LMWH prophylactic doses all pregnancy

**INTERMEDIATE RISK**
- LMWH prophylactic all pregnancy
- LMWH prophylactic all pregnancy
- LMWH prophylactic all pregnancy

**LOW RISK**
- LMWH prophylactic all pregnancy
- LMWH prophylactic all pregnancy
- LMWH prophylactic all pregnancy
- LMWH prophylactic all pregnancy

**MANAGEMENT OF ANTIPHOSPHOLIPID SYNDROME IN PREGNANCY**

**Aplastic APS**
- Recurrent miscarriage (<10th week of gestation)
  - ASA* preconception
  - ASA* + Prophylactic LMWH antenatal

**Obstetric APS**
- Late foetal losses, IUGR, pre-eclampsia
- ASA all pregnancy, starting in second trimester
- Prophylactic LMWH if additional RF

**Thrombophilia**
- Acquired (Obstetric APS)
  - ASA antenatal + LMWH
  - LMWH postpartum 4-6 weeks

**THROMBOPHILIA STUDY**
- Hospital admission
  - Single previous episode related to major surgery
- Medical comorbidities (tobacco, heart failure, active SLE, BD or inflammatory polyarthropathy, nephrotic syndrome, type 1 DM with nephropathy, sickle cell disease, current AIDs)
- Any surgical procedure in the pregnancy (i.e. appendicotomy)
- Pre-eclampsia or other hypertensive syndrome (CHH: first trimester only)

**Management of Antiphospholipid Syndrome in Pregnancy**

**Low risk thrombophilia (FVL or FII heterozygotes)**
- No previous VTE
- Family history of VTE (First degree relative)
- Obesity (BMI > 30 Kg/m2)
- Age > 35
- Parity ≥ 3
- Smoker (> 10 cig/day)
- Gross varicose veins
- Current pre-eclampsia
- Immobility (>3 days)
- Family history of unprovoked or etiologically provable VTE in first degree relative
- Low-risk thrombophilia (FVL or FH heterozygotes)
- Multiple pregnancy
- NVD/RF

**High risk thrombophilia without previous VTE**
- Family history of unprovoked VTE (FVL or FH heterozygotes, AT, PS or PC deficiency)

**Conclusion**
- Elective or oral anticoagulation
  - LMWH therapeutic doses all pregnancy
  - Control by expert in thrombosis and pregnancy

**Low risk thrombophilia (FVL or FH heterozygotes, AT, PS or PC deficiency)**
- Elective or oral anticoagulation
  - LMWH prophylactic doses all pregnancy
  - Control by expert in thrombosis and pregnancy

**Intermediate risk**
- High risk thrombophilia without previous VTE
  - Family history of unprovoked VTE (FVL or FH heterozygotes, AT, PS or PC deficiency)

**Low risk thrombophilia (FVL or FH heterozygotes, AT, PS or PC deficiency)**
- Elective or oral anticoagulation
  - LMWH prophylactic doses all pregnancy
  - Control by expert in thrombosis and pregnancy

**POSTNATAL THROMBOPHYLAXIS**

**HIGH RISK**
- LMWH prophylactic doses all pregnancy
  - LMWH prophylactic doses all pregnancy

**INTERMEDIATE RISK**

**LOW RISK**
- LMWH prophylactic all pregnancy
- LMWH prophylactic all pregnancy
- LMWH prophylactic all pregnancy
- LMWH prophylactic all pregnancy

**MANAGEMENT OF ACUTE EPISODE OF VTE IN PREGNANCY**
- Treatment must begin with the clinical suspicion
- Full anticoagulation with adjusted-doses of LMWH for at least 3 months from the episode, maintaining the treatment all pregnancy and up to 6 weeks postpartum

**POSTNATAL THROMBOPHYLAXIS**

**HIGH RISK**
- Any previous VTE
  - Antenatal LMWH
  - High-risk thrombophilia (FVL or FH heterozygotes, AT, PS or PC deficiency)

**INTERMEDIATE RISK**

**LOW RISK**
- Obesity (BMI > 30 Kg/m2)
- Age > 35
- Parity ≥ 3
- Smoker (> 10 cig/day)
- Gross varicose veins
- Current pre-eclampsia
- Immobility (>3 days)
- Family history of VTE (First degree relative)
- Low-risk thrombophilia (FVL or FH heterozygotes)
- Multiple pregnancy
- NVD/RF

**Additional risk factors**
- Any previous VTE
  - Any previous VTE
  - Family history of VTE (First degree relative)
  - Obesity (BMI > 30 Kg/m2)
  - Age > 35
  - Parity ≥ 3
  - Smoker (> 10 cig/day)
  - Gross varicose veins
  - Current pre-eclampsia
  - Immobility (>3 days)
  - Family history of unprovoked or etiologically provable VTE in first degree relative
  - Low-risk thrombophilia (FVL or FH heterozygotes)
  - Multiple pregnancy
  - NVD/RF

**Indications to request a thrombophilia study**

**Gestation**
- Recurrent foetal loss or late foetal loss
- There is no scientific evidence. Individual assessment
- Antenatal or Family history of VTE
- Empirical treatment (ASA/LMWH/ASA+LMWH)

**Thrombophilia**
- ASA all pregnancy, starting in second trimester
- Prophylactic LMWH if additional RF

**IUGR**
- Strict ECO-Doppler surveillance

**Inherited**
- Individual management according to type of thrombophilia, personal or family history of VTE disease and risk factors

**Acquired (Obstetric APS)**
- ASA antenatal + LMWH
- LMWH postpartum 4-6 weeks