Anticoagulation in pregnancy

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Outline

- Thromboprophylaxis
- Management of PE and DVT

Thromboprophylaxis

- CEMD reports have highlighted failures in recognising risk factors for VTE and employing adequate prophylaxis – some improvement in rate of PE post LSCS

Thromboprophylaxis

- Use LMWH for prophylaxis
- Enoxaparin, dalteparin, tinzaparin
- Dosage depends on severity of risk and ranges from once daily prophylactic dose not requiring monitoring to twice daily full dose with anti Xa monitoring
- Need to monitor platelet count at 7 days
- Expert haematological advice should be sought

Thromboprophylaxis

Prophylaxis	enoxaparin	dalteparin	tinzaparin
Normal body weight	40mg daily	5000u daily	4500u daily
Higher prophylactic dose	40mg bd	5000u bd	4500u bd
Therapeutic dose	1mg/kg bd	90u/kg bd	90u/kg bd

Risk assessment

- All women should undergo assessment of risk factors for VTE in early pregnancy or before pregnancy, and should be repeated if develops intercurrent problems

Thromboprophylaxis

Group 1

-2 or more risk factors:

>35 years

body mass index >30kg/m^2 (calculated at booking)

parity 4 or more

- labour 12 hours or more
- gross varicose veins
- current infection
- pre-eclampsia
- immobility prior to labour for four or more days
- mid-cavity or rotational forceps delivery
- major current medical illness

•Give postpartum LMWH prophylaxis for 3-5 days post vaginal delivery

Thromboprophylaxis

Group 2

omen with the following risk factors in pregnancy (including 1st trimester):

Prolonged bed rest (>4 days),

pre eclampsia, dehydration,

hyperemesis

Give LMWH prophylaxis for

Thromboprophylaxis

Group 3

omen with family history of VTE

Seek family history in all pregnant women at booking

If present, check thrombophilia screen

If thrombophilic defect present, consider prophylaxis and refer for haematology

Thromboprophlaxis

Group 4

atients with past history of VTE

Check thrombophilia screen

Consider prophylaxis in all such patients, even if thrombophilia screen negative esp if FH of VTE, recurrent VTE (see below – Group 5) – antenatal and for 6 weeks post partum

Thromboprophylaxis

Group 5 **Women with thrombophilic defect and / or past history of VTE**

- High risk of recurrence (PH of VTE and ATIII defy)
  - Full dose LMWH as soon as pregnancy confirmed
- Moderate risk of recurrence (PH of VTE and thrombophilia or asymptomatic thrombophilia with ATIII defy, homozygous defect, combined defects
  - LMWH prophylaxis, starting early in pregnancy and continuing for 6 weeks post partum
- Low risk of recurrence (no personal h/o VTE but known thrombophilia defect)
  - LMWH prophylaxis for 6 weeks post partum

Thromboprophylaxis

Group 7

istory of lupus anticoagulant / anticardiolipin antibodies

Refer for haematology opinion

anagement

f past history of single episode of VTE, treat as moderate risk (Group 5) throughout pregnancy and 6 weeks post partum

f past history of recurrent VTE and on long term warfarin treat as high risk (Group 5) full dose monitored LMWH throughout pregnancy and prophylaxis for 6 weeks post partum

RCOG Risk assessment profile for thromboembolism in caesarean section

Low risk: early mobilisation and hydration

Elective caesarean section – uncomplicated pregnancy and no other risk factors.

moderate risk: LMWH prophylaxis starting 6 hrs post delivery:

Age over 35 years

Obesity (80 kg. or greater)

Parity four or more

Labour 12 hours or more

Gross varicose veins

RCOG Risk assessment profile for thromboembolism in caesarean section

<u>High risk: LMWH prophylaxis with or without leg stockings</u>

- A patient with three or more moderate risk factors from above
- Extended major pelvic or abdominal surgery; e.g. caesarean hysterectomy
- Patients with personal or family history of DVT, pulmonary embolism or thrombophilia, paralysis or lower limbs
- Patients with antiphospholipid antibody (cardiolipin antibody or lupus anticoagulant).

Other reasons for use of LMWH in pregnancy

- Prophylactic LMWH is being increasingly used in management of women with recurrent miscarriage x3, a fetal death after 10 weeks of gestation or a premature birth due to PET or IUGR
- Particularly if found to have thrombophilic defect, but also used empirically
- Current trials should answer more questions in this area

References

- Thromboprophylaxis during pregnancy, labour and after vaginal delivery Guideline No 37 RCOG 2004

Management of PE and DVT in pregnancy and the puerperium

- Pulmonary embolism is the leading cause of maternal death in the UK (50% of antepartum deaths occurred in first trimester) 4-5 deaths / yr antenatal PE and 3 deaths from PE post vaginal delivery
- Confidential enquiries into maternal deaths have highlighted failures in obtaining objective diagnoses and employing adequate treatment
- Obstetrician and consultant haematologist should be involved from early stages of investigation
- CEMD showed women died in early pregnancy because risk not taken sufficiently seriously

Diagnosis

- Any woman with signs or symptoms suggestive of VTE should have objective testing performed expeditiously.
- Individual hospitals should have an agreed protocol for diagnosis of suspected VTE in pregnancy
- In women with factors consistent with VTE anticoagulant therapy should be given until objective diagnosis is made

Diagnosis

- DVT
  - Majority are ileofemoral
  - USS scan is first choice, but if scan is negative and there is high index of clinical suspicion then go on to Xray venography
- PE
  - Perfusion scan, with ventilation scan if perfusion scan abnormal
  - If low probability scan, consider performing bilateral USS of leg veins

Diagnosis

- D Dimer
  - A negative D Dimer in pregnancy is likely, as in the nonpregnant, to suggest there is no VTE
  - Positive D Dimer in pregnancy can also occur with pre-eclampsia, infection etc

Treatment

- Treatment with LMWH should be given until the diagnosis is excluded by objective testing
- IV heparin remains the preferred treatment in massive PE and DVT
- Twice daily LMWH recommended, based on early pregnancy weight
- Peak antiXa levels should be measured : target of 0.4 – 1.0 units / ml 3 hours after injection
- Check platelet count at day 7

Management of pregnancy in Women on warfarin

- Women of childbearing age must be told to report suspicion of pregnancy ASAP (before 6 weeks)
- Start LMWH as soon as pregnancy confirmed
- Dose will depend on reason for anticoagulation
- Full treatment dose for women with mechanical valves, recurrent VTE on anticoagulant in past
- Consider Warfarin in mid trimester

Treatment

- Oral anticoagulants are avoided in pregnancy if possible
  - Cross the placenta
  - Warfarin embryopathy in first trimester (esp weeks 6-12) 5% risk
  - CNS abnormalities
  - Fetal haemorrhage

Treatment

- Maintenance with LMWH
  - Twice daily LMWH
  - Monitoring of anti Xa level – peak and trough 7 days then monthly
  - Monitor platelet count at 7 days
- Duration of therapy
  - Continue for at least 6 months
  - Could then reduce to prophylactic dose if treatment had been commenced early in pregnancy
  - Following delivery, treatment should continue for at least 6-12 weeks
  - Warfarin can be used following delivery

Delivery

- Once in established labour the woman should be advised not to inject any further heparin
- Further doses should be prescribed by medical staff
- Reduce to prophylactic dose day prior to induction of labour
- Recommence treatment dose following delivery (3-4 hours)
- Epidurals should not be used until atleast 12 hours after last prophylactic dose of LMWH or 24 hours after treatment dose of LMWH

Post natal anticoagulation

- Continue for 6-12 weeks post partum
- Warfarin not contra indicated in breast feeding
- LMWH can be used in breastfeeding mothers
- Overlap LMWH with warfarin until INR >2 or continue LMWH

References

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