

Managing Thrombosis and Pregnancy

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I haven't been able to touch my feet for three months

Aim

- Risk Assessment
 - Pre conceptual
 - Antenatal
 - Postnatal
- Investigations and management

Risk assessment

- Pre conceptual
- Poorly thought through and often not considered until the positive test.
- Family/ personal history
- BMI



Risk assessment

- Antenatal

Antenatal assessment and management (to be assessed at booking and repeated if admitted)

Any previous VTE except a single event related to major surgery



HIGH RISK
Requires antenatal prophylaxis with LMWH
Refer to trust-nominated thrombosis in pregnancy expert/team

Hospital admission
Single previous VTE related to major surgery
High-risk thrombophilia + no VTE
Medical comorbidities e.g. cancer, heart failure, active SLE, IBD or inflammatory polyarthropathy, nephrotic syndrome, type I DM with nephropathy, sickle cell disease, current IVDU
Any surgical procedure e.g. appendicectomy
OHSS (first trimester only)



INTERMEDIATE RISK
Consider antenatal prophylaxis with LMWH

Obesity (BMI > 30 kg/m²)
Age > 35
Parity ≥ 3
Smoker
Gross varicose veins
Current pre-eclampsia
Immobility, e.g. paraplegia, PGP
Family history of unprovoked or estrogen-provoked VTE in first-degree relative
Low-risk thrombophilia
Multiple pregnancy
IVF/ART
Transient risk factors:
Dehydration/hyperemesis; current systemic infection; long-distance travel



Four or more risk factors:
prophylaxis from first trimester
Three risk factors:
prophylaxis from 28 weeks

Fewer than three risk factors

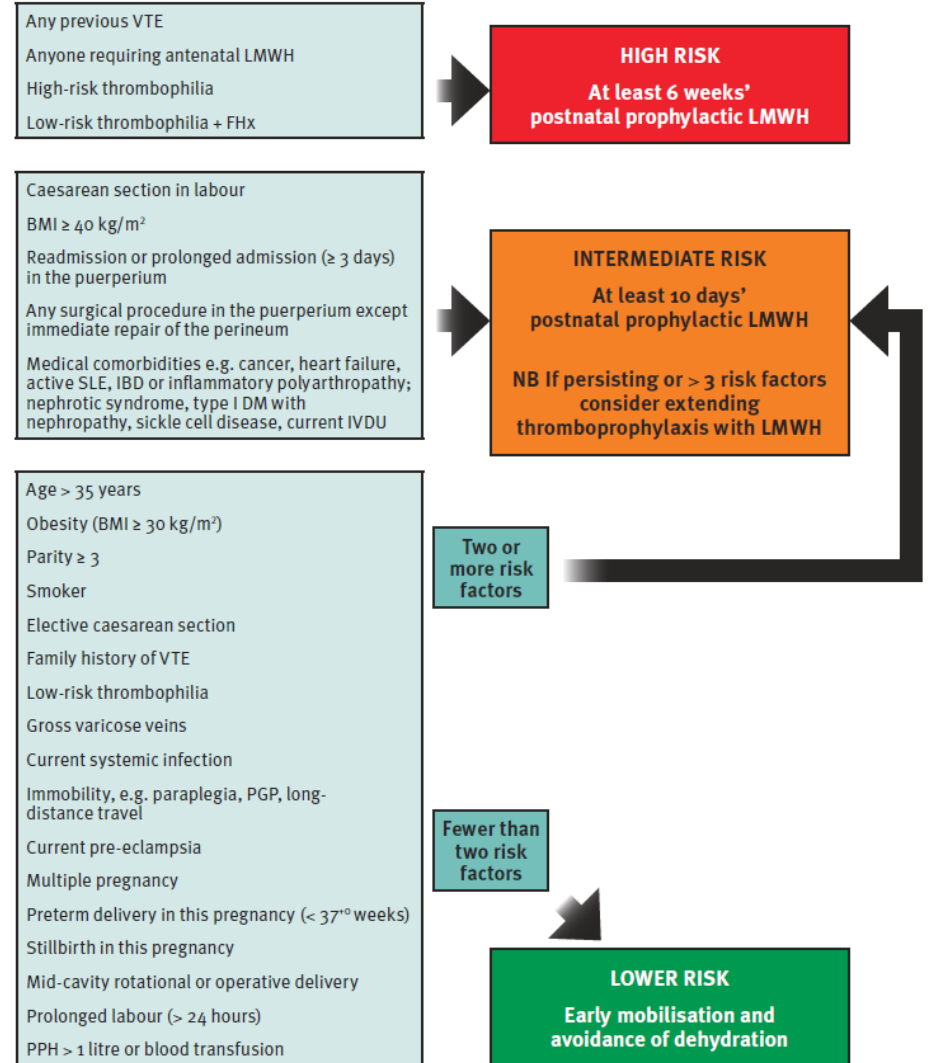


LOWER RISK
Mobilisation and avoidance of dehydration

Risk assessment

- Post natal

Postnatal assessment and management (to be assessed on delivery suite)



Maternal, Newborn and
Infant Clinical Outcome
Review Programme



Saving Lives, Improving Mothers' Care

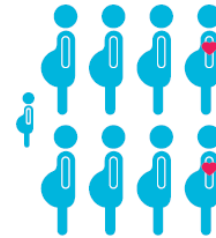
Surveillance of maternal deaths in the UK 2012–14 and lessons learned to inform maternity care from the UK and Ireland Confidential Enquiries into Maternal Deaths and Morbidity 2009–14



December 2016



Key messages from the report 2016



8.5 women per 100,000 died during pregnancy or up to six weeks after giving birth or the end of pregnancy in 2012 - 14

2

women per 100,000 died from heart disease



Persistent breathlessness when lying flat is **not normal** in pregnancy and may mean heart problems



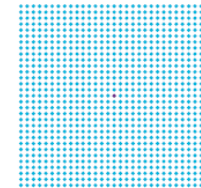
Women known to have **heart disease** are **high risk** and need specialist care



Be aware severe **chest pain** spreading to the left arm or back may be **cardiac**

Good care makes a difference

Less than **1 woman in every million** who gives birth now dies from **pre-eclampsia**, but to detect it blood pressure and urine must be checked at every antenatal visit



‘Thrombosis and thromboembolism remain the leading cause of direct maternal death and cardiovascular disease the leading cause of indirect maternal death during or up to six weeks after the end of pregnancy’.

THREE P's IN A POD

Every other day a pregnant or recently pregnant woman dies in the UK.

$\frac{2}{3}$ of maternal mortality is due to a medical or mental health condition, not pregnancy itself.

Remember it's ok to ask...

Working as a team will improve women's care and save lives.

Pick up the phone, pick up the problem and let's prevent maternal morbidity and mortality.

PREGNANCY "THINK CHEST"

23% maternal mortality caused by **CARDIAC conditions**

14% maternal mortality caused by **PNEUMONIA or INFLUENZA**

11% maternal mortality caused by **VENOUS THROMBO-EMBOLISM**

POST NATAL "THINK HEAD"

11% maternal mortality caused by **NEUROLOGICAL conditions**

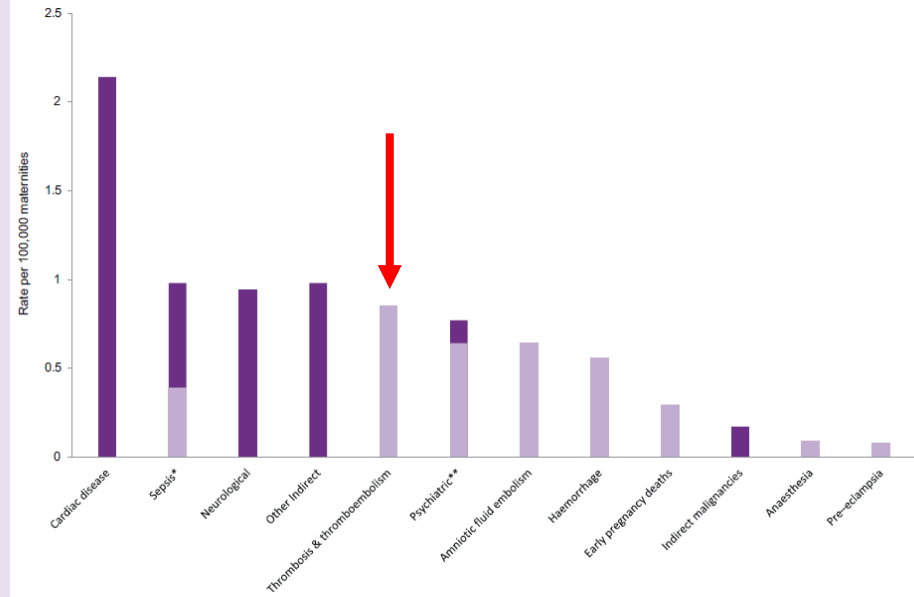
9% maternal mortality caused by **MENTAL HEALTH disorders**

PICK IT UP "THINK HIGH RISK"

Pick up the phone
Pick up the problem

For Further information:
#threepsinapod
<http://rcp.sg/maternalhealth>
www.e-fffh.org.uk/programmes/medical-problems-in-pregnancy/

Figure 2.4: Maternal mortality by cause 2012–14



Dark bars indicate indirect causes of death, pale bars show direct causes of death;

*Rate for direct sepsis (genital tract sepsis and other pregnancy related infections) is shown in pale and rate for indirect sepsis (influenza, pneumonia, others) in dark bar

**Rate for suicides is shown in pale and rate for indirect psychiatric causes (drugs/alcohol) in dark bar

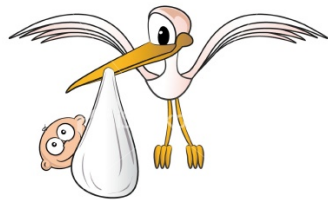
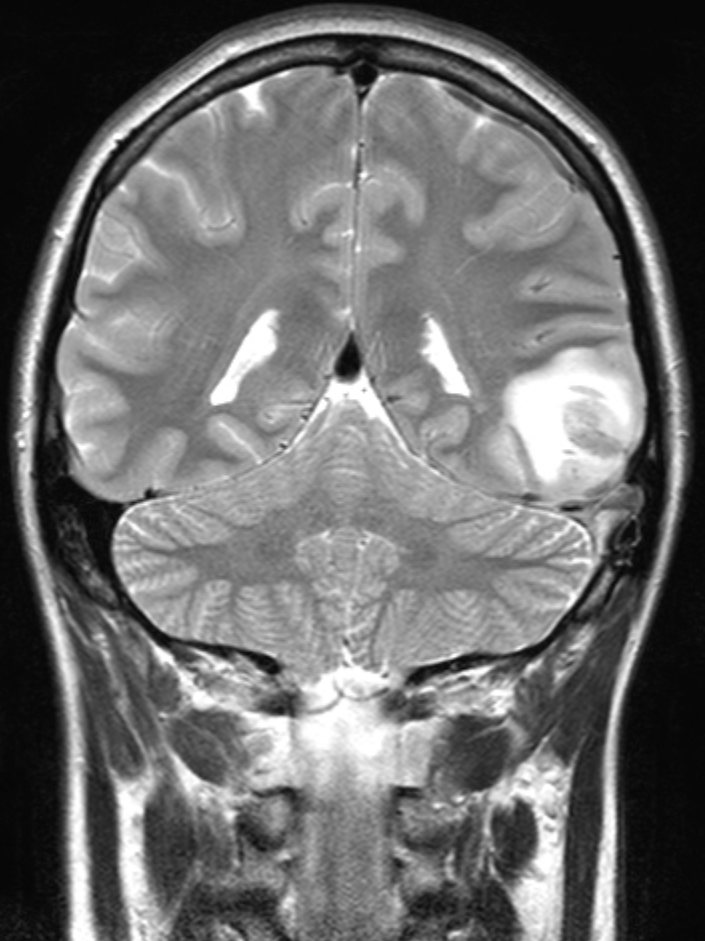
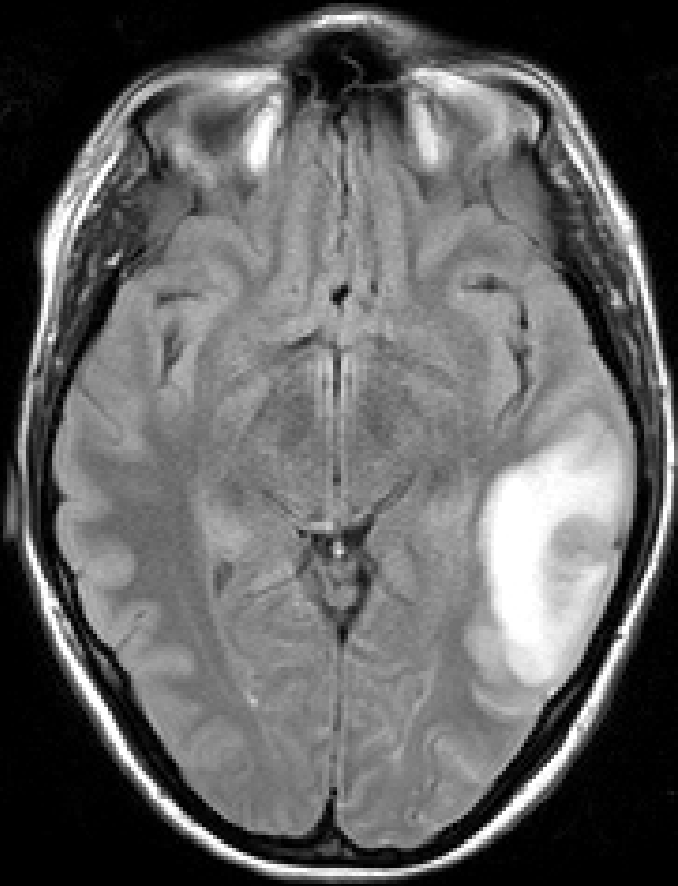
Source: MBRRACE-UK

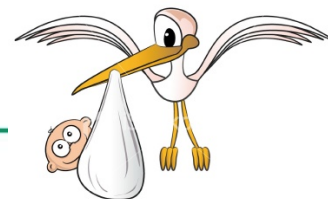
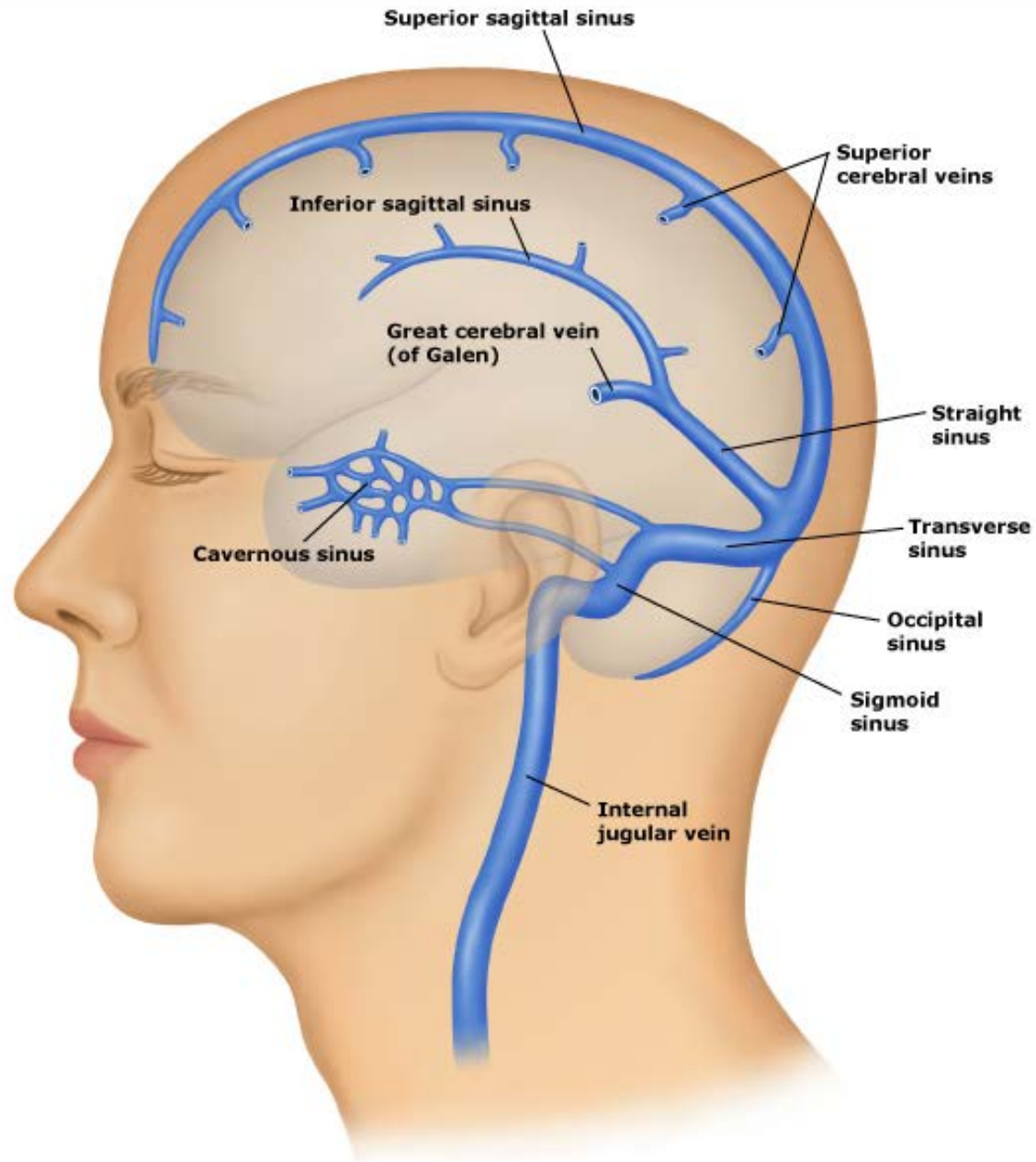
Direct Deaths resulting from obstetric complications of the pregnant state (pregnancy, labour and puerperium), from interventions, omissions, incorrect treatment or from a chain of events resulting from any of the above.

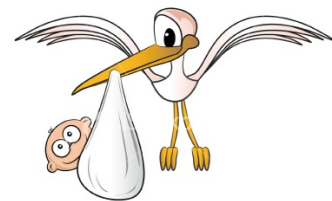
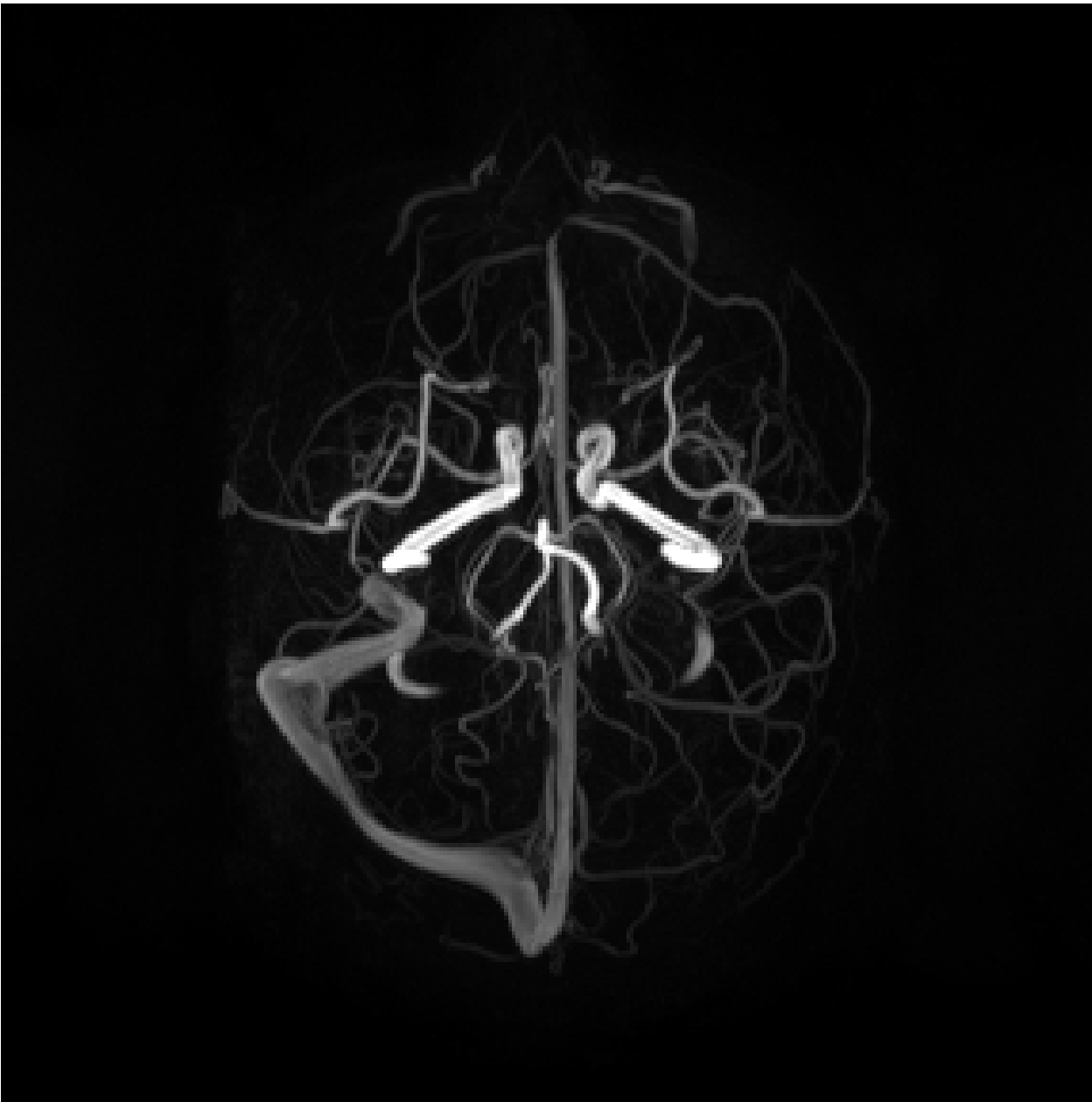
Medical history

- P2+0
- LMP one week late, positive pregnancy test
 - Progressive headache
 - Nausea, vomiting
 - Admitted for rehydration.
 - Generalised tonic clonic seizures
- MRI scan



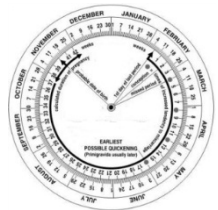




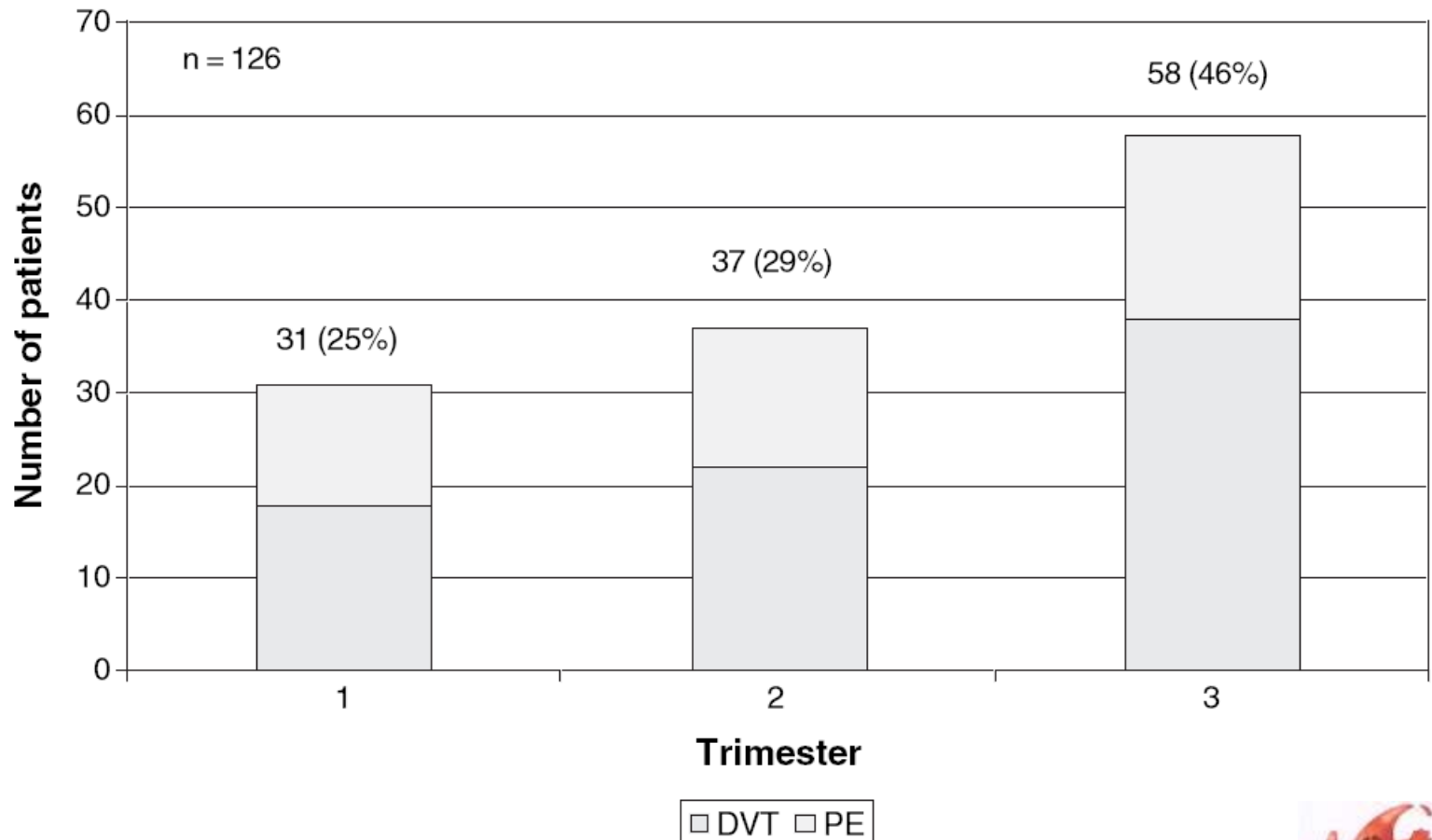


DVT investigations

- Compression duplex ultrasound should be undertaken where there is clinical suspicion of DVT. If ultrasound is negative **and** there is a low level of clinical suspicion, anticoagulant treatment can be discontinued.
- Surprised its negative, consider continuing treatment for a further week and repeating the scan again.
- When iliac vein thrombosis is suspected (back pain and swelling of the entire limb), magnetic resonance venography or conventional contrast venography may be considered



The management of antenatal venous thromboembolism in the UK and Ireland: a prospective multicentre observational survey*



Diagnosis of antenatal venous thromboembolic event by trimester.



Right iliofemoral **2**

Left iliofemoral **19**

Right proximal **6**

Left proximal **20**

Right popliteal **6**

Left popliteal **6**

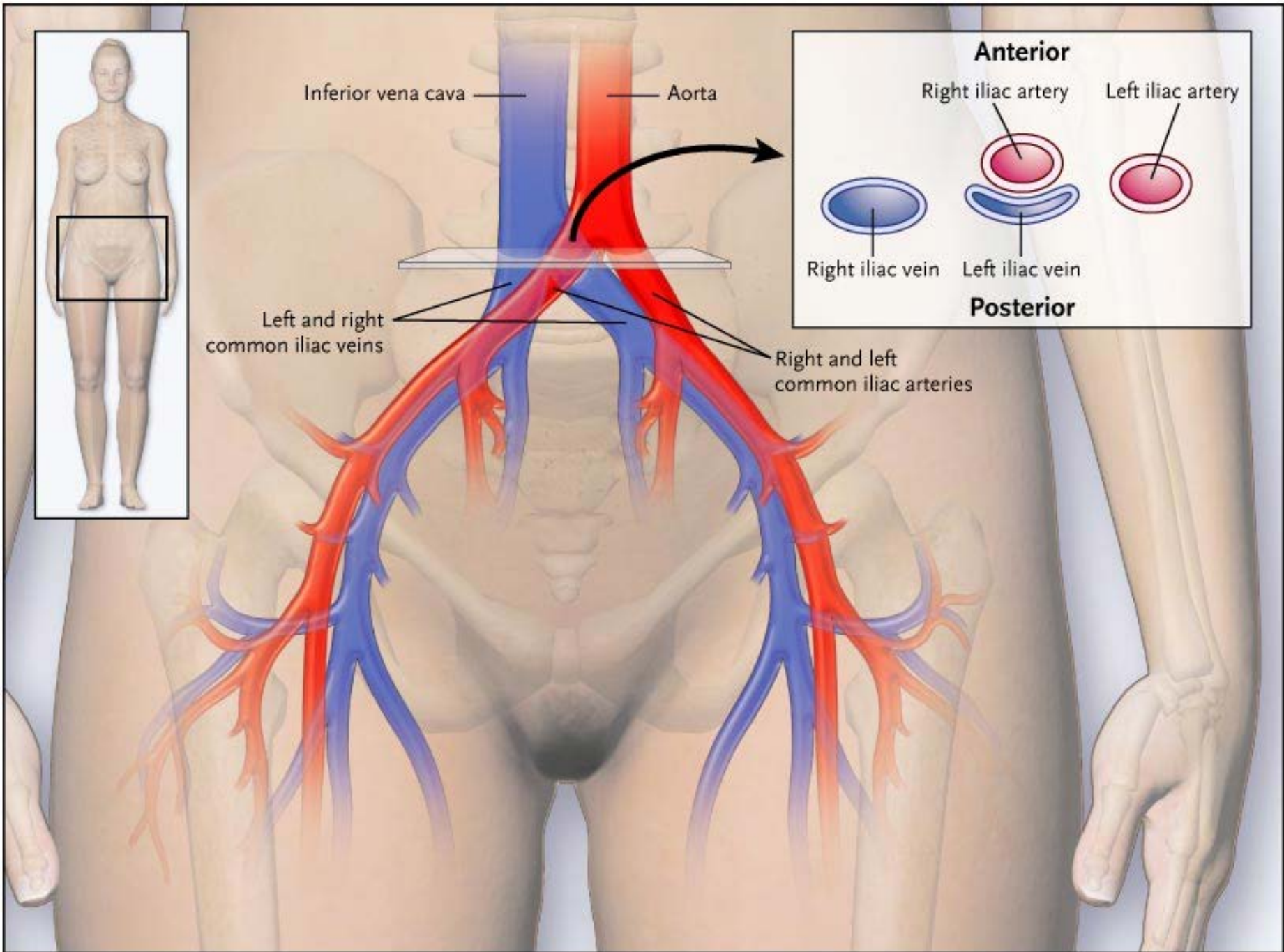
Right calf **8**

Left calf **9**



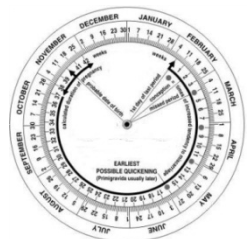
Fig 3. Site of acute deep vein thrombosis in 78 antenatal patients. The numbers of patients affected are shown in bold.



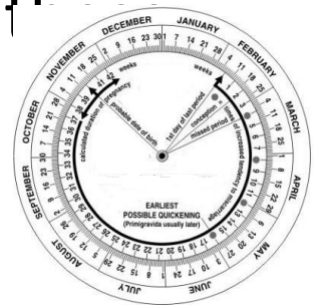


PE investigations

- Where there is clinical suspicion of acute PE a chest X-ray should be performed. Compression duplex Doppler should be performed where this is normal. If both tests are negative with persistent clinical suspicion of acute PE, a ventilation–perfusion (V/Q) lung scan or a computed tomography pulmonary angiogram (CTPA) should be performed
- Alternative or repeat testing should be carried out where V/Q scan or CTPA and duplex Doppler are normal but the clinical suspicion of PE is high. Anticoagulant treatment should be continued until PE is definitively excluded



- Women with suspected PE should be advised that V/Q scanning carries a slightly increased risk of childhood cancer compared with CTPA (1/280,000 versus less than 1/1,000,000) but carries a lower risk of maternal breast cancer (lifetime risk increased by up to 13.6% with CTPA).
- Where feasible, women should be involved in the decision to undergo CTPA or V/Q scanning. Ideally, informed consent should be obtained before the tests are undertaken.



020Y; F

Royal Victoria
0.63 mm
13/07/2012

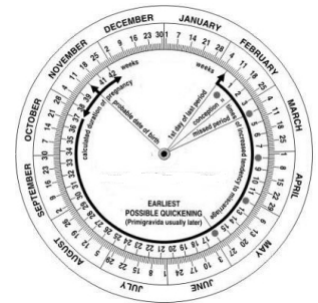
R

Image 1/1
KV 120
mA 30
Slice Location -259.6
Series 1
www.wvl 1500/20



D-dimer

- D-dimer testing should **not** be performed to diagnose acute VTE in pregnancy

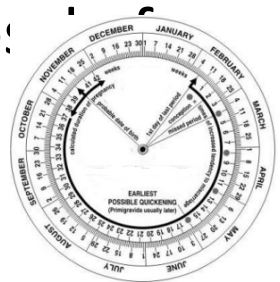


Investigations

- DVT
 - No d-dimer
 - Doppler ultrasound
 - ?repeat
- PE
 - No d-dimer
 - ?bilateral leg doppler
 - ?VQ/ CTPA

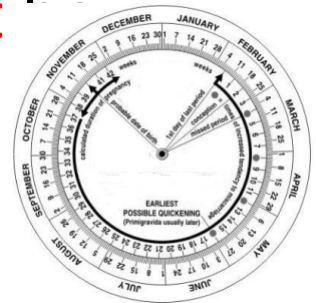
Safe prescribing LMWH

- Before anticoagulant therapy is commenced, blood should be taken for a full blood count, coagulation screen, urea and electrolytes and liver function tests.
- Performing a thrombophilia screen is **not** recommended
- Arrangements should be made to allow safe disposal of needles and syringes



Monitoring required

- Routine measurement of peak anti-Xa activity for patients on LMWH for treatment of acute VTE in pregnancy or postpartum is **not** recommended except in women at extremes of body weight (less than 50 kg and 90 kg or more) or with other complicating factors (for example with renal impairment or recurrent VTE) putting them at high risk.
- Routine platelet count monitoring should **not** be carried out



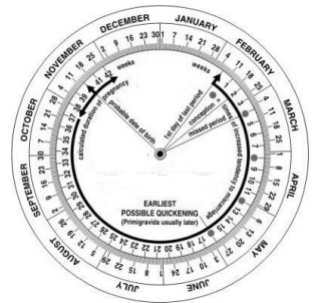
How to manage the collapsed patient with PE

- Collapsed, shocked patients need to be assessed by a team of experienced clinicians, including the oncall consultant obstetrician, who should decide on an individual basis whether a woman receives **intravenous unfractionated heparin**, thrombolytic therapy or thoracotomy and surgical embolectomy.
- The on-call medical team should be contacted immediately. An urgent portable echocardiogram or CTPA within 1 hour of presentation should be arranged. If massive PE is confirmed or, in extreme circumstances prior to confirmation, immediate thrombolysis should be considered.
- Maternity units should develop guidelines for the administration of intravenous unfractionated heparin.



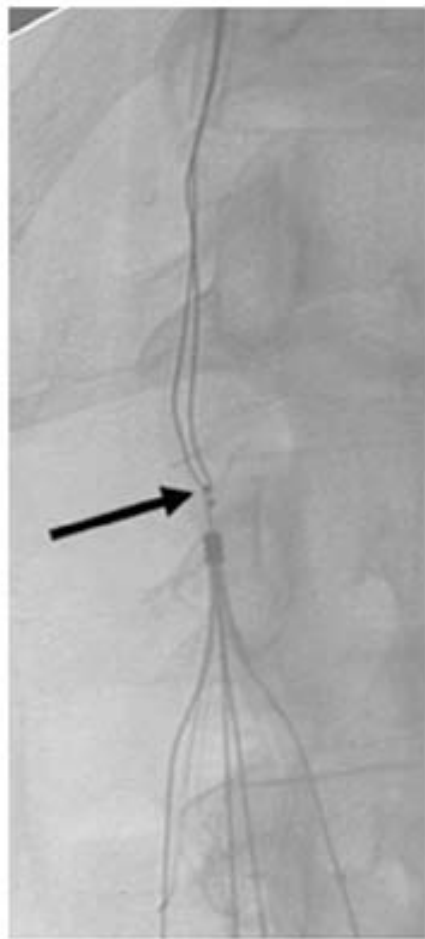
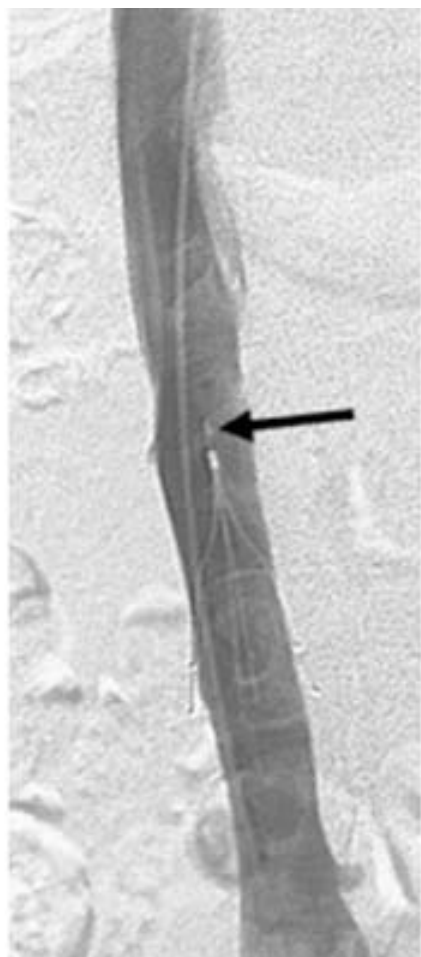
Other treatment options

- In the initial management of DVT, the leg should be elevated and a **graduated elastic compression stocking** applied to reduce oedema. Mobilisation with graduated elastic compression stockings should be encouraged.
- Consideration should be given to the use of a temporary **inferior vena caval filter** if the proximal event occurs within 6 weeks of the expected delivery, to reduce the risk of PTE or in women with proven DVT and who have continuing PTE despite adequate anticoagulation.
- It should be electively placed as close to delivery possible and removed electively one week later



IVC filter insertion

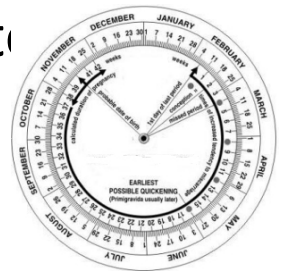
- *Filtering the clots during pregnancy - experience at a tertiary centre*
- This was a retrospective review of case records, of women who had an IVC filter inserted during pregnancy or postpartum period over fourteen years (1997-2010).
- IVC filters were inserted in 14 patients
- Filters were retrieved successfully in 57% of the women whilst the others were advised to continue lifelong warfarin



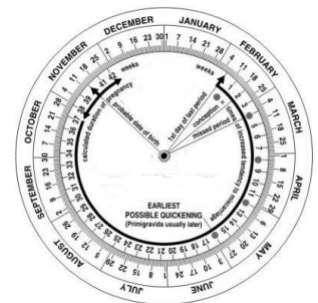
A-D

Delivery plan

- The woman taking LMWH for maintenance therapy should be advised that once she is established in labour or thinks that she is in labour, she should not inject any further heparin.
- Where delivery is planned, LMWH maintenance therapy should be discontinued 24 hours before planned delivery.
- Regional anaesthetic or analgesic techniques should not be undertaken until at least 24 hours after the last dose of therapeutic LMWH
- In women receiving therapeutic doses of LMWH, wound drains should be considered at caesarean section and the skin incision should be closed with staples or interrupted sutures to allow drainage of any haematoma

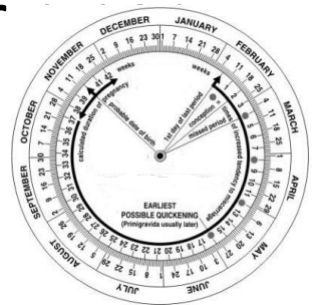


- Any woman who is considered to be at high-risk of haemorrhage and in whom continued heparin treatment is considered essential should be managed with intravenous, unfractionated heparin until the risk factors for haemorrhage have resolved

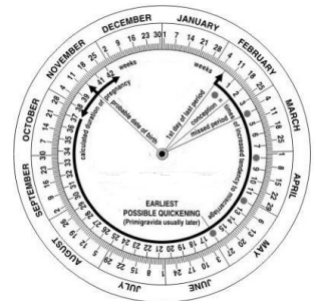


Duration of treatment

- Therapeutic anticoagulant therapy should be continued for the duration of the pregnancy and for at least 6 weeks postnatally and until at least 3 months of treatment has been given in total
- Women should be offered a choice of LMWH or oral anticoagulant for postnatal therapy after discussion about the need for regular blood tests for monitoring of warfarin, particularly during the first 10 days of treatment
- Women should be advised that neither heparin or warfarin is contraindicated in breastfeeding



- Postpartum warfarin should be **avoided** until at least the **third day** and for longer in women at increased risk of postpartum haemorrhage
- Graduated elastic compression stockings should be worn on the affected leg for 2 years after the acute event, if swelling persists, to reduce the risk of post-thrombotic syndrome



AT THE SAC...

maybe there's
more to life than
chasing the egg

that's dangerous
talk Gary.

