

Anaesthesia and neurological disorders in pregnancy

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Anaesthesia and neurological disorders in pregnancy

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General principles

- **Antenatal period**
 - Early planning, counselling and referral to specialist
- **Intrapartum period**
 - Shared decision making well in advance
 - Anaesthetist should be alerted to arrival of patient
 - Review of patient's current status
- **Postpartum period**
 - Some conditions worsen especially autoimmune conditions
 - New neurological symptoms may require urgent investigation

Epilepsy

- Most common serious neurological disorder in pregnancy
- Early specialist input required
- Management balance between mother and fetus
- Majority are seizure free
- Antiepileptics may require adjustment
- Treat seizures as eclampsia – benzos may be required

Multiple sclerosis

- Immune mediated chronic demyelinated condition of CNS
- More common in women than men
- Can present with wide range of neurological symptoms and deficits
- Number of relapses reduces during pregnancy – hormone induced down regulation of cell mediated immunity
- Controversy regarding spinal anaesthesia – exposure to LA. No issues?
- Extra caution taken with NMBAs - hyperkalaemia may occur with depolarizing, non-depolarizing may have prolonged effect
- Most DMARDs are stopped during preconception, if relapses occur they are treated with high dose steroids

Cerebrovascular disorders

- **Intracranial haemorrhage**
 - Usually SAH, related to aneurysms or arteriovenous malformation
 - Half have a history of pre-eclampsia, eclampsia or HELLP syndrome
- **Cerebral aneurysms**
 - No action required if known about
 - If bleeds then early intervention e.g. coiling or clipping improve outcomes

Cerebrovascular disorders

- **Arteriovenous malformations**
 - Risk of bleeding increased in pregnancy
 - Those who have had a bleed when not pregnant should have intervention pre-pregnancy
 - If discovered when pregnant risks between expected and intervention, termination may even be necessary
 - If event of bleed likely to need to GA & neuroprotection
- **Cerebral venous sinus thrombosis**
 - Rare cause of stroke
 - 2/3 occur in postpartum period
 - Diagnosis confirmed by CT / MRI
 - Treatment is with anticoagulation

Cerebrovascular disorders

- **Ischaemic stroke**
 - Risks related to PET / eclampsia, prothrombotic states
 - Thrombolysis and antiplatelets may be needed
 - Obstetric management is expected unless pregnancy prevents optimisation
 - Neuraxial techniques preferred being mindful of anticoagulants
 - Neuroprotective measures imperative and prevention of swings of blood pressure
 - Risk of PPH is increased due to anticoagulation

Myasthenia gravis

- Autoimmune condition where antibodies directed against nAChR
- More likely in females, not uncommon for MG to 1st present in pregnancy
- Treatment includes anticholinesterase and immunosuppressants – some are contraindicated in pregnancy
- One third will improve, third will not notice a change and the remainder will have worsening symptoms
- Increasing muscle weakness may occur during labour – more likely to require instrumental intervention
- Epidural recommended to reduce risk of myasthenic crisis due to stress / pain
- Caution with block heights to avoid respiratory weakness
- If GA is needed then caution with drugs which may exacerbate symptoms e.g. magnesium and caution with NMBAs
- Some element of placental transfer of MG antibodies can occur

Hereditary neuromuscular disorders

- **Myotonic dystrophy**
 - Most common in adults, features contractions in skeletal and smooth muscles
 - Both subtypes result in multisystemic disorder involving CV, respiratory, endocrine and neurodevelopment
 - Pregnancy is rare as most are infertile
 - Neuraxial techniques preferred as GA is extremely high risk
 - Site epidural early
 - Avoid triggers of myotonia e.g. sux, neostigmine, shivering, hypothermia
 - Allow spontaneous reversal of neuromuscular block
 - Likely to need HDU / ITU post-operatively

Hereditary neuromuscular disorders

- **Spinal muscular atrophies**
 - Many types, most common affecting parturients is type 2
 - Associated with severe scoliosis, respiratory failure
 - Obstetric outcomes are poor – early labour and worsening muscle function
 - Neuraxial techniques preferred but are technically difficult
 - Opioids should be avoided or avoided altogether
 - May need NIV in peripartum period
 - Early discussions regarding plans for GA as risk of long term ventilation is likely if this is needed
 - Caution with NMBA especially sux

Spinal dysraphisms

- Group of disorders involving the vertebral arches, spinal cord and meninges
- Common birth defect with 10 in 1000 having isolated bone abnormalities e.g. spina bifida occulta
- If have undergone closure surgery unlikely to have an epidural space and absent ligamentum flavum
- Spinal anaesthesia above area of repair if recent MRI shows possible to access space without injuring cord
- Chiara malformation is common which may have been treated with a shunt
- Skin changes may be only sign of underlying dysraphism
- MRI strongly recommended to plan anaesthesia

