Clinical conundrums in maternal medicine

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Clinical conundrums in maternal medicine

• Two cases
• Approach to maternal medicine patients
Case 1 - SC

- 32 year old
- Fit and well
- P0, midwife led care throughout pregnancy

- Forceps delivery in theatre at term – 3.6Kg female infant
  - BP spike at time of delivery 170/90
  - temp 40 degrees
  - lactate 4.5, 6.5, 8.5, 15
  - anuric
  - developing disseminated intravascular coagulation (DIC)
# Day 1

## CLOTTING SCREEN

<table>
<thead>
<tr>
<th>Test</th>
<th>Result</th>
<th>Normal Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prothrombin time</td>
<td>15.6</td>
<td>9.5 - 13.0</td>
</tr>
<tr>
<td>INR</td>
<td>1.4</td>
<td></td>
</tr>
<tr>
<td>APTT</td>
<td>38.3</td>
<td>21.0 - 33.0</td>
</tr>
</tbody>
</table>

## LIVER FUNCTION TEST

<table>
<thead>
<tr>
<th>Test</th>
<th>Result</th>
<th>Normal Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Bilirubin</td>
<td>22</td>
<td>&lt;21</td>
</tr>
<tr>
<td>ALP</td>
<td>123</td>
<td>30 - 130</td>
</tr>
<tr>
<td>ALT</td>
<td>150</td>
<td>10 - 40</td>
</tr>
</tbody>
</table>

## MAGNESIUM

<table>
<thead>
<tr>
<th>Test</th>
<th>Result</th>
<th>Normal Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magnesium</td>
<td>0.70</td>
<td>0.70 - 1.00</td>
</tr>
</tbody>
</table>

## CALCIUM GROUP

<table>
<thead>
<tr>
<th>Test</th>
<th>Result</th>
<th>Normal Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Albumin</td>
<td>38</td>
<td>35 - 50</td>
</tr>
<tr>
<td>Calcium</td>
<td>2.99</td>
<td>2.20 - 2.60</td>
</tr>
<tr>
<td>Adjusted Calcium</td>
<td>2.09</td>
<td>2.20 - 2.60</td>
</tr>
</tbody>
</table>

Interpret adjusted calcium with caution if albumin < 20 g/L.

## PHOSPHATE

<table>
<thead>
<tr>
<th>Test</th>
<th>Result</th>
<th>Normal Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phosphate</td>
<td>2.43</td>
<td>0.80 - 1.50</td>
</tr>
</tbody>
</table>

## FULL BLOOD COUNT

<table>
<thead>
<tr>
<th>Test</th>
<th>Result</th>
<th>Normal Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>WBC</td>
<td>21.61</td>
<td>4.0 - 11.0</td>
</tr>
<tr>
<td>RBC</td>
<td>2.12</td>
<td>3.62 - 5.20</td>
</tr>
<tr>
<td>Hb</td>
<td>60</td>
<td>120 - 150</td>
</tr>
<tr>
<td>Hct</td>
<td>0.201</td>
<td>0.37 - 0.45</td>
</tr>
<tr>
<td>MCV</td>
<td>94.8</td>
<td>83 - 100</td>
</tr>
<tr>
<td>MCH</td>
<td>28.3</td>
<td>27.0 - 32.0</td>
</tr>
<tr>
<td>MCHC</td>
<td>209</td>
<td>210 - 350</td>
</tr>
<tr>
<td>Platelets</td>
<td>60</td>
<td>150 - 450</td>
</tr>
<tr>
<td>RDW</td>
<td>15.0</td>
<td>11.5 - 15.5</td>
</tr>
<tr>
<td>Neutrophils</td>
<td>19.12</td>
<td>1.5 - 8.0</td>
</tr>
<tr>
<td>Lymphocytes</td>
<td>1.52</td>
<td>1.0 - 4.0</td>
</tr>
<tr>
<td>Monocytes</td>
<td>0.95</td>
<td>0.2 - 1.0</td>
</tr>
<tr>
<td>Eosinophils</td>
<td>0.00</td>
<td>0.0 - 0.5</td>
</tr>
<tr>
<td>Basophils</td>
<td>0.02</td>
<td>0.0 - 0.2</td>
</tr>
</tbody>
</table>

## C-REACTIVE PROTEIN

<table>
<thead>
<tr>
<th>Test</th>
<th>Result</th>
<th>Normal Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRP</td>
<td>8</td>
<td>&lt;5.0</td>
</tr>
</tbody>
</table>

## FIBRINOGEN

<table>
<thead>
<tr>
<th>Test</th>
<th>Result</th>
<th>Normal Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fibromogen</td>
<td>1.0</td>
<td></td>
</tr>
</tbody>
</table>

## UREA,CREAT & ELECTROLYTES

<table>
<thead>
<tr>
<th>Test</th>
<th>Result</th>
<th>Normal Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium</td>
<td>414</td>
<td>132 - 166</td>
</tr>
<tr>
<td>Potassium</td>
<td>4.7</td>
<td>3.5 - 5.3</td>
</tr>
<tr>
<td>Urea</td>
<td>3.0</td>
<td>2.5 - 7.0</td>
</tr>
<tr>
<td>Creatinine (CRD-EPI)</td>
<td>155</td>
<td>45 - 84</td>
</tr>
<tr>
<td>eGFR comment</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Acute Kidney Injury (Stage) *1*

Comment

Rise in creatinine may indicate AKI stage 1. Review urgently and follow AKI guidelines.

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![Image of an X-ray of a spine in a semi-erect position](image-url)
Case 1 - SC

• Causes of deterioration?

• Differentials
  • sepsis
  • concealed obstetric haemorrhage
  • uterine rupture
  • other intrabdominal event
CT abdomen/pelvis

- diffuse capsular hepatic haemorrhage
- large volume haemoperitoneum
- no active uterine bleeding
Progress on ITU

• Liver failing
  • INR 1.8
  • Unable to maintain blood glucose
  • ALT rising (peaking at 3640)
  • Encephalopathy stage 1

• On vasopressors, intubated and ventilated, receiving haemofiltation
MDT discussion

- obstetrics
- anaesthetics
- intensive care
- haematology
- hepatology
- nurses/AHPs
- midwifery
- mat med
Differential diagnosis

- HELLP (haemolysis/elevated liver enzymes/low platelets)
- Acute fatty liver of pregnancy (AFLP)
- Sepsis
- Haemolytic Uraemic Syndrome (HUS)
HELLP

- New onset elevated liver enzymes in pregnancy
  AND
- Low platelets (<100)
  AND
- Haemolysis or hypertension or proteinuria

- A severe form of pre-eclampsia
- Management is delivery of the fetus and supportive care
Acute fatty liver of pregnancy (AFLP)

• Rare (1 in 7000 to 1 in 20000 pregnancies)
• Maternal mortality around 2%, perinatal around 10%
• Usually after 30/40 or immediately post partum
• Typical features
  • Vomiting
  • Abdominal pain
  • Nausea, anorexia, lethargy
• May develop DIC, fulminant hepatic failure, renal failure
## HELLP vs. AFLP

<table>
<thead>
<tr>
<th></th>
<th>HELLP</th>
<th>AFLP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raised transaminases</td>
<td>high</td>
<td>high</td>
</tr>
<tr>
<td>hypertension</td>
<td>++</td>
<td>+</td>
</tr>
<tr>
<td>primiparous</td>
<td>++</td>
<td>+</td>
</tr>
<tr>
<td>thrombocytopenia</td>
<td>++</td>
<td>+/-</td>
</tr>
<tr>
<td>USS/CT</td>
<td>Normal/hepatic haematoma</td>
<td>Normal/fatty liver</td>
</tr>
<tr>
<td>vomiting</td>
<td>+/-</td>
<td>++</td>
</tr>
</tbody>
</table>

- Could it be HUS (AKI/thrombocytopenia/haemolysis)?
  - abnormal liver function and coagulopathy – more suggestive of HELLP
Differential diagnosis

- HELLP (haemolysis/elevated liver enzymes/low platelets)
- Acute fatty liver of pregnancy (AFLP)
- Sepsis
- Haemolytic Uraemic Syndrome (HUS)

Following discussion, diagnosis of HELLP, with secondary ischaemic liver injury.
Clinical progress

• Transferred intubated to King’s College Hospital liver unit
• Liver transplant on day 12
• Repatriated to Southmead nearly 7 weeks and 5 days following delivery

• Baby
  • 8 days on NICU
  • Received phototherapy for jaundice and respiratory support initially
  • Doing well
The blind men and the elephant
Managing complex maternal medicine cases

• A range of expertise is needed
• A lot can be achieved with the right people in the same room
• Requires an overview of all issues
• (Not dissimilar to acute medicine!)
Case 2 - JW

- Healthy 27-year-old lady
- First tonic-clonic seizure in airport
- Sent to ED, GCS is 11/15 (E2 V4 M5)
- Urine pregnancy test is positive
- USS confirms early intrauterine pregnancy
- LMP was 8 weeks ago
Differential diagnosis

• Primary epilepsy
• PET (but too early..)
• CNS infection (but history not supportive)
• Space-occupying lesion
• Haemorrhage
Seizures in pregnancy

• Suspect PET if >20/40
• Image as you would normally
• Drugs
  • risk vs. benefit
  • sodium valproate – unsafe in pregnancy

• Safety advice
PET diagnosis

- Hypertension (>140/90) after 20/40 with one or more of the following new onset conditions:
  - proteinuria
  - maternal organ dysfunction
    - renal impairment
    - liver dysfunction
    - neurological abnormalities
    - haematological complications
  - fetal growth restriction
Clinical progress

• MDT input
• Started on levetiracetam, weaning course of dexamethasone
• Awake craniotomy at 14/40
  • speech disturbance post-operatively
  • discharged home 4 days later
  • grade 2 astrocytoma on histology
• Elective CS at term of 2.8Kg female infant
Key points

• Collaboration is key
• Early discussion with relevant specialists
• New challenges
  • advancing maternal age
  • assisted conception
  • increasing medical complexity