Acute Management and Referral of Adults with Subarachnoid Haemorrhage (SAH)

**SAH:** Sudden onset of severe / explosive headache with or without nausea & vomiting, collapse or loss of consciousness or focal neurological deficit

**Is patient pregnant?** (Refer to table to differentiate SAH and pre-eclampsia)

### Suspected SAH

**Intubate**
- Rapid sequence induction with suxamethonium
- Use fentanyl to reduce hypotensive response
- Fine bore NG tube (if time permits)

**Ventilate**
- PaO₂ ≥ 13kPa
- PaCO₂ 5-6.5kPa

**Lines**
- Large bore peripheral cannula
- Arterial and central (femoral) lines

**Sedation and Analgesia**
- Propofol & fentanyl infusions
- Short acting muscle relaxants (Suxamethonium)

**Vasopressors**
- Use if SBP < 120mmHg

**CATHETER**
- Insert urinary catheter

**PUPILS**
- Observe for bilateral dilated if fitting and / or deterioration

**Neurocritical Care Multidisciplinary Team, The National Hospital for Neurology and Neurosurgery, 2015**

### Blood pressure

**Aim** for ‘high normal’ BP for patient (SBP 120–160mmHg if previously normotensive)

**Treat hypotension**
- Initially with fluids
- Use vasopressors only if unable to maintain BP or urine output

**Sustained hypertension**
- (SBP > 160mmHg) with caution

**Prior to leaving**
- Ensure patient stable, bring all notes, scans and x-rays
- NIC of receiving ward or for Surgical ITU admission

**Sedation and Analgesia**
- Propofol & fentanyl infusions
- Short acting muscle relaxants (Suxamethonium)

**Fluid therapy**
- Support BP with IV fluids (0.9% Saline)
- Aim for total 3 litres fluid / 24hrs

**Drug therapy**
- Commence nimodipine 60mg 4 hourly via NGT as soon as SAH confirmed

**Analgesia and Anti-emetics**
- Regular paracetamol (IV in acute scenario)
- Low dose morphine
- Anti-emetics
- Do not give NSAIDs

**Other**
- Blood sugar 6-10mmol/l
- Glucose only if BM < 4mmol/l
- Insert urinary catheter

**Neurological Observations**
- Once sedated & paralysed continue pupil checks every 20 minutes

**CT scan / CTA**
- If not already done

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**SAH IN PREGNANCY**

**Signs, symptoms & investigations for SAH and pre-eclampsia**

**Other**
- Whilst awaiting transfer, patient must be on bed rest with maximum head elevation 15-30°
- Anti-embolism stockings
- Anticoagulants contraindicated

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**CONSIDERATIONS IN SAH**

- Lumbar puncture only when CT imaging negative but history suggestive of SAH
- Cardiac abnormalities common acutely
- Can range from asymptomatic CHF changes to significant de-breathing changes
- Concur matter:未必 doc一ually important and diagnostic levels for urgent or L-TA's
- MII should be included

**NIMODIPINE**
- IV via central line if not absorbing

**VASOPRESSORS**
- Must be used with caution
- Avoid vasopressor if to reduce risk of rebleed

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**World Federation of Neurosurgical Surgeons (WFNS) Grading Scale**

<table>
<thead>
<tr>
<th>Grade</th>
<th>GCS</th>
<th>Motor deficit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>15</td>
<td>Absent/Present</td>
</tr>
<tr>
<td>2</td>
<td>14-13</td>
<td>Absent</td>
</tr>
<tr>
<td>3</td>
<td>14-13</td>
<td>Present</td>
</tr>
<tr>
<td>4</td>
<td>12-7</td>
<td>Present or absent</td>
</tr>
<tr>
<td>5</td>
<td>6-3</td>
<td>Present or absent</td>
</tr>
</tbody>
</table>

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**Glasgow Coma Scale & Score**

<table>
<thead>
<tr>
<th>Eye opening</th>
<th>To sound</th>
<th>To pressure</th>
<th>Verbal response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spontaneous</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>None</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Motor Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obey commands</td>
</tr>
<tr>
<td>Localising</td>
</tr>
<tr>
<td>Flexion</td>
</tr>
<tr>
<td>Abnormal flexion</td>
</tr>
<tr>
<td>Extension</td>
</tr>
<tr>
<td>None</td>
</tr>
</tbody>
</table>

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**REFERENCES**

- Stroke. 2015. 40(3):994-1003
- Neurocritical Care Multidisciplinary Team, The National Hospital for Neurology and Neurosurgery, 2015

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**Contact Information**

- Neurocritical Care Multidisciplinary Team, The National Hospital for Neurology and Neurosurgery, 2015