Acute Limb Compartment Syndrome

Observation Chart

Patients at risk

- Tibial, forearm or high-energy distal radius fractures.
- Orthopaedic injury/intervention combined with known coagulopathies/patient taking anticoagulants.
- Crush injuries.
- High impact trauma, including open fractures.

Monitor hourly for the first 24 hours. From 24 to 48 hours monitor 4 hourly. However, if suspicions arise at any point revert back to hourly monitoring.

Other patients may be monitored following individual assessment. In particular, consider the risk from newly applied traction, a restrictive cast or a tight circumferential bandage which does not allow for swelling. Patients who start reporting pain out of proportion to the injury/treatment, especially on passive movement, should also be considered for monitoring.

Pain out of proportion to the injury/treatment and pain on passive movement of the muscles of the involved compartment are the key clinical findings.

Patients who have had an anaesthetic nerve block or epidural may not be able to report the pain associated with compartment syndrome. In addition the ‘pain’ section should not be used in situations where the patient has an impaired ability to report this symptom, for example, when the patient is unconscious.

Changes in pulse, sensation and skin colour are late symptoms of neurovascular compromise and should not be relied upon to diagnose compartment syndrome. However, these may be recorded as part of a ‘well limb’ assessment.

A second chart will be required to provide a minimum of 48 hours monitoring.

Passive movement of the fingers

Place your fingers underneath the patient’s fingers and gently extend the fingers.

Passive movement of the toes

Place your fingers underneath the patient’s toes and gently extend the toes.

An increase in pain when carrying out this test may indicate a developing compartment syndrome and should be recorded appropriately on the chart overleaf.
<table>
<thead>
<tr>
<th>Patient details</th>
<th>Circle affected limb and select options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name:</td>
<td>Nerve block or epidural □ Left leg □ Left arm</td>
</tr>
<tr>
<td>Hospital no.:</td>
<td>Cast/ traction/tight bandaging □ Right leg □ Right arm</td>
</tr>
<tr>
<td>Date of birth:</td>
<td>A separate chart must be used for each limb being assessed</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Example</th>
</tr>
</thead>
</table>

The primary symptom is pain on passive extension.

Passively extend the fingers or toes of the affected limb (see images on front of chart).

Pain not controlled by regular and appropriate analgesia is a key clinical finding.

<table>
<thead>
<tr>
<th>Pain at rest</th>
<th>Pain on passive movement</th>
<th>Pain not controlled by analgesia</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 – None</td>
<td>0 – None</td>
<td>0 – No pain/has improved</td>
</tr>
<tr>
<td>1 – Mild</td>
<td>1 – Mild</td>
<td>2 – Is the same</td>
</tr>
<tr>
<td>2 – Moderate</td>
<td>2 – Moderate</td>
<td>3 – Has worsened</td>
</tr>
<tr>
<td>3 – Severe</td>
<td>3 – Severe</td>
<td></td>
</tr>
</tbody>
</table>

Pain since last analgesia

Initial EX

Time next observation due 1hr

Score 2

A total pain score of 5 or above, an individual pain parameter score of 3, or a clinical concern should be escalated immediately to the responsible clinician as per trust guidelines, emphasising the severity and/or worsening nature of the pain.

Continuous monitoring in situ: record pressures hourly.

Intermittent monitoring: times under direction of lead clinician.

Pressures

- Diastolic blood pressure (DBP)
- Intracompartmental pressure reading (IPR)
- Delta pressure
- Difference ≥30

Difference ≤29

Intracompartmental pressure reading greater than 40 or Delta pressure equal/less than 29 should be escalated immediately to the responsible clinician as per trust guidelines.

Neurovascular status

- Pulse (with/without doppler)
- Sensation
- Skin colour

Changes in pulse, sensation and skin colour are late symptoms of neurovascular compromise (see front of chart for notes).

Present

Reduced in volume or rate since last assessment

Not present

Normal

Abnormal has changed from last assessment

Normal, responsive capillary refill

Pallor and/or slow/absent capillary refill

Any abnormal neurovascular status observations should be escalated immediately to the responsible clinician as per trust guidelines.

Initial EX