Drug Therapy Protocols: Morphine

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Clinical.Guidelines@ambulance.qld.gov.au

Date
April, 2018

Purpose
To ensure a consistent procedural approach to Morphine administration.

Scope
Applies to all QAS clinical staff.

Author
Clinical Quality & Patient Safety Unit, QAS

Review date
April, 2021

Information security
This document has been security classified using the Queensland Government Information Security Classification Framework (QGISCF) as UNCLASSIFIED and will be managed according to the requirements of the QGISF.

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Morphine

Drug class
Narcotic analgesic

Pharmacology
Morphine is a narcotic analgesic that acts on the central nervous system by binding with opioid receptors, altering processes affecting pain perception and emotional response to pain. It also combines to cause respiratory depression, vasodilation, decreases in the gag reflex and slows AV node conduction.[1-3]

Metabolism
By the liver, kidney and lungs.[1]

Indications
- Significant pain
- Autonomic dysreflexia[4] (with a systolic BP > 160 mmHg)
- Sedation for the maintenance of an established LMA/ETT

Contraindications
- Allergy and/or Adverse Drug Reaction
- Renal failure

Precautions
- Older people
- Hypotension
- Respiratory tract burns
- Respiratory depression and/or failure
- Known addiction to narcotics
- Concurrent MAOI therapy
- Cardiac chest pain

Side effects
- Bradycardia
- Drowsiness
- Hypotension
- Nausea and/or vomiting
- Pin point pupils
- Respiratory depression

April, 2018

Figure 4.35
Morphine

**Presentation**

- Ampoule, 10 mg/1 mL *morphine*

**Onset** | **Duration** | **Half-life**
---|---|---
5–10 minutes (peak 20–30 minutes (IM)) / 2–5 minutes (peak 20 minutes (IV)) | 1–2 hrs | 2 hours

**Special notes**

- When morphine is administered to a hypotensive patient, ACPs must call for CCP backup where available.
- In the setting of the hypotensive adult patient (SBP < 90 mmHg) all incremental morphine doses are to be no greater than 2.5 mg IV or 5 mg IM.
- GTN is the first line of treatment for autonomic dysreflexia, but morphine should be considered as part of the management regime if the patient is unresponsive to initial treatment.
- Morphine (preference for single IM dose) is a suitable analgesic for the treatment of moderate to severe labour pain in full term mothers in the pre-hospital setting. In all situations paramedics must carefully assess the risks and benefits to both mother and child. Morphine will result in a degree of neonatal respiratory depression (transplacental transfer of morphine is rapid and measurable within 5 minutes of IM/IV administration). Therefore, it is imperative to advise the receiving hospital of the time/dose of morphine given, so that a Paediatrician may attend the delivery as appropriate.
- When administering morphine and midazolam to maintain sedation in the intubated patient, appropriate management is to be instituted to address any adverse side effects such as hypotension. The addition of morphine in this setting will reduce midazolam requirements, provide analgesia and ultimately decrease the risk of hypotension. Under no circumstances are morphine and midazolam to be mixed in the one syringe.
- All cannulae and IV lines must be flushed thoroughly with sodium chloride 0.9% following each medication administration.
Morphine

Adult dosages

<table>
<thead>
<tr>
<th>Significant pain</th>
<th>SUBCUT</th>
<th>IM</th>
<th>≥ 70 yrs – 2.5–5 mg</th>
<th>Repeated at up to 5 mg every 10 minutes.</th>
<th>Total maximum dose 10 mg.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adults</td>
<td>ACP2</td>
<td>IM</td>
<td>&lt; 70 yrs – 2.5–10 mg</td>
<td>Repeated at up to 5 mg every 10 minutes.</td>
<td>Total maximum dose 20 mg.</td>
</tr>
<tr>
<td>Significant pain</td>
<td></td>
<td>IM</td>
<td>2.5–10 mg</td>
<td>Repeated at up to 5 mg every 10 minutes.</td>
<td>No maximum dose.</td>
</tr>
<tr>
<td>Autonomic dysreflexia</td>
<td></td>
<td>IV</td>
<td>≥ 70 yrs – 2.5 mg</td>
<td>Repeated at up to 2.5 mg every 5 minutes.</td>
<td>Total maximum dose 10 mg.</td>
</tr>
<tr>
<td>Adults</td>
<td>ACP2</td>
<td>IV</td>
<td>&lt; 70 yrs – 2.5–5 mg</td>
<td>Repeated at up to 5 mg every 5 minutes.</td>
<td>Total maximum dose 20 mg.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>IV</td>
<td>2.5–5 mg</td>
<td>Repeated at up to 5 mg every 5 minutes.</td>
<td>No maximum dose.</td>
</tr>
</tbody>
</table>

Paediatric dosages

<table>
<thead>
<tr>
<th>Significant pain</th>
<th>IM</th>
<th>≥ 1 year – 200 microg/kg (rounded down to the nearest 5 kg). Single dose only.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adults</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>Dose</td>
<td>Volume</td>
</tr>
<tr>
<td>10 – &lt; 15 kg</td>
<td>2 mg</td>
<td>0.2 mL</td>
</tr>
<tr>
<td>15 – &lt; 25 kg</td>
<td>3 mg</td>
<td>0.3 mL</td>
</tr>
<tr>
<td>25–30 kg</td>
<td>5 mg</td>
<td>0.5 mL</td>
</tr>
</tbody>
</table>

Sedation for the maintenance of an established LMA/ETT

<table>
<thead>
<tr>
<th>IV</th>
<th>2.5 mg</th>
<th>Consider administration with midazolam</th>
<th>Repeated PRN.</th>
<th>No maximum dose.</th>
</tr>
</thead>
<tbody>
<tr>
<td>IO</td>
<td>2.5 mg</td>
<td>Consider administration with midazolam</td>
<td>Repeated PRN.</td>
<td>No maximum dose.</td>
</tr>
</tbody>
</table>

QAS Clinical Consultation and Advice Line approval required in all situations.
### Paediatric dosages

<table>
<thead>
<tr>
<th>Age</th>
<th>Route</th>
<th>Dosage</th>
</tr>
</thead>
</table>
| ≥ 1 year | **IM** | **100–200 microg/kg**  
Single maximum dose 5 mg.  
**Total maximum dose 200 microg/kg.** |
| < 1 year | QAS Clinical Consultation and Advice Line approval required in all situations. |
| ≥ 1 year | **IM** | **200 microg/kg**  
Single maximum dose 5 mg.  
Repeated at 100 microg/kg (maximum 2.5 mg) at 10 minute intervals.  
**No maximum dose.** |
| < 1 year | QAS Clinical Consultation and Advice Line approval required in all situations. |
| ≥ 1 year | **IV** | **100 microg/kg**  
Single maximum dose 2.5 mg.  
Repeated at 50 microg/kg (maximum 2.5 mg) at 5 minute intervals.  
**Total maximum dose 200 microg/kg.** |
| < 1 year | QAS Clinical Consultation and Advice Line approval required in all situations. |
| ≥ 1 year | **IV** | **100 microg/kg**  
Single maximum dose 2.5 mg.  
Consider administration with midazolam.  
**No maximum dose.** |
| < 1 year | QAS Clinical Consultation and Advice Line approval required in all situations. |
| ≥ 1 year | **IO** | **100 microg/kg**  
Single maximum dose 2.5 mg.  
Consider administration with midazolam.  
**No maximum dose.** |
| < 1 year | QAS Clinical Consultation and Advice Line approval required in all situations. |

**Note:** QAS officers are NOT authorised to administer morphine to paediatric patients presenting with cardiogenic chest pain.