MIDAZOLAM
PHARMACOLOGY 219

TYPE
Anti-convulsant and minor tranquilliser

ACTION
Reduces seizure activity and has a tranquillising and amnesic effect

<table>
<thead>
<tr>
<th>TYPE</th>
<th>Onset</th>
<th>Peak</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>IM</td>
<td>5-10 min</td>
<td>15 min</td>
<td>30 min</td>
</tr>
<tr>
<td>IV</td>
<td>1-3 min</td>
<td>10 min</td>
<td>20 min</td>
</tr>
<tr>
<td>IN</td>
<td>1-3 min</td>
<td>12 min</td>
<td>20 min</td>
</tr>
</tbody>
</table>

USE
- Control seizures
- Post intubation sedation
- Limb realignment and/or difficult extrication
- Patient management
- Patient sedation for synchronised cardioversion

MIDAZOLAM MUST NOT TO BE USED TO ASSIST INTUBATION

ADVERSE EFFECTS
- ↓LOC resulting in upper airway obstruction
- Respiratory and cardiovascular depression

Vital signs must be carefully monitored and equipment to support respiration must be available. Apnoea can often occur following parenteral use especially in the elderly and those with respiratory disease. Adverse effects are increased in the presence of other sedating drugs such as opiates and alcohol

PREPARATION
- 5mg in 1mL ampoule
- 5mg in 1mL ampoule diluted to 5mL) with 4mL 0.9% normal saline – (1mg in 1mL)
### DOSE

#### PATIENTS ≥ 16 YEARS OLD

**SEIZURES**

<table>
<thead>
<tr>
<th>Dose Description</th>
<th>Detailed Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.5mg (2.5mL) IV diluted slow bolus</td>
<td>Repeat every 3 minutes if indications persist</td>
</tr>
<tr>
<td></td>
<td>Maximum dose: <strong>15mg</strong> (15mL)</td>
</tr>
<tr>
<td>5mg (1mL) IM undiluted bolus</td>
<td>Repeat every 5 minutes if indications persist</td>
</tr>
<tr>
<td></td>
<td>Maximum dose: <strong>15mg</strong> (3mL)</td>
</tr>
</tbody>
</table>

**LIMB REALIGNMENT AND OR DIFFICULT EXTRICATION**

<table>
<thead>
<tr>
<th>Dose Description</th>
<th>Detailed Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>1mg (1mL) IV diluted bolus</td>
<td>Repeat every 3 minutes if indications persist</td>
</tr>
<tr>
<td></td>
<td>Maximum dose: <strong>5mg</strong> (5mL)</td>
</tr>
</tbody>
</table>

**PATIENT MANAGEMENT**

<table>
<thead>
<tr>
<th>Dose Description</th>
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</thead>
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<tr>
<td>2.5mg (2.5mL) IV diluted bolus</td>
<td>Repeat every 3 minutes if indications persist</td>
</tr>
<tr>
<td></td>
<td>Maximum dose: <strong>15mg</strong> (15mL)</td>
</tr>
<tr>
<td>5mg – 10mg (1mL – 2mL) IM undiluted bolus</td>
<td>Repeat every 5 minutes if indications persist</td>
</tr>
<tr>
<td></td>
<td>Maximum dose: <strong>15mg</strong> (3mL)</td>
</tr>
</tbody>
</table>

**PATIENT SEDATION FOR SYNCHRONISED CARDIOVERSION**

<table>
<thead>
<tr>
<th>Dose Description</th>
<th>Detailed Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>1mg (1mL) IV diluted bolus administered slowly</td>
<td>Repeat every 60 seconds until patient LOC has decreased or max dose</td>
</tr>
<tr>
<td></td>
<td>Maximum dose: <strong>5mg</strong> (5mL)</td>
</tr>
</tbody>
</table>
POST INTUBATION SEDATION

10mg (1mL) MORPHINE mixed with 10mg (2mL) MIDAZOLAM and diluted with 7mL 0.9% normal saline to make MORPHINE/MIDAZOLAM SOLUTION (10mL)
1mL = 1mg morphine and 1 mg midazolam

2.5mL IV every 3 minutes
Maximum dose: 15mL MORPHINE/MIDAZOLAM SOLUTION
This regime can be repeated every 20 minutes after last administration

5mL IM bolus MORPHINE/MIDAZOLAM SOLUTION if IV not available
May be repeated every 15 minutes
Maximum dose: 15mL MORPHINE/MIDAZOLAM SOLUTION

NOTE: Patients with head injuries, chronic airway limitation, advanced age, smaller than average size or general debility must have their initial doses halved however maximum doses remains unchanged

PATIENTS ≤ 15 YEARS OLD

SEIZURES

0.3mg/kg (0.06mL/kg) IN undiluted bolus via mucosal atomising device
Maximum bolus dose 5mg (1mL)
IN bolus dose may not be repeated
Maximum dose: 0.3mg/kg (0.06mL/kg)

0.15mg/kg (0.03mL/kg) IM undiluted bolus if a vein is not available
Maximum bolus dose 5mg (1mL)
Repeat every 5 minutes if indications persist
Maximum of 3 doses (0.45mg/kg total)

0.15mg/kg (0.15mL/kg) IV diluted bolus
Maximum bolus dose 2.5mg (2.5mL)
Repeat every 3 minutes if indications persist
Maximum 3 doses (0.45mg/kg total)
PATIENT MANAGEMENT

0.15mg/kg (0.03mL/kg) IM undiluted bolus if a vein is not available
Maximum bolus dose 5mg (1mL)
Repeat every 5 minutes if indications persist
Maximum dose: 3 doses total \(0.45\text{mg/kg total}\)

0.15mg/kg (0.15mL/kg) IV diluted bolus
Maximum bolus dose 2.5mg (2.5mL)
Repeat every 3 minutes if indications persist
Maximum dose: 3 doses total \(0.45\text{mg/kg total}\)

POST INTUBATION SEDATION

10mg (1mL) MORPHINE mixed with 10mg (2mL) MIDAZOLAM and
diluted with 7mL 0.9% normal saline to make
MORPHINE/MIDAZOLAM SOLUTION (10mL)
1mL = 1mg Morphine and 1mg Midazolam

0.1mL/kg IV/IO bolus
Repeat every 3 minutes if indications persist
Maximum dose: 3 doses total MORPHINE/MIDAZOLAM SOLUTION

This regime can be repeated every 20 minutes after last administration

0.1mL/kg IM bolus
Repeat every 15 minutes if indications persist
Maximum dose: 3 doses total MORPHINE/MIDAZOLAM SOLUTION

PAEDIATRIC BOLUS MUST NOT EXCEED THE ADULT DOSE

Oxygen must be administered to all patients receiving midazolam

Note: The most current version of this document is available on the ASNSW Intranet site.

Approved by: Medical Director, Assoc Prof Paul Middleton
Maintained by: Clinical Services