Critical Care Guidelines
FOR CRITICAL CARE USE ONLY

NHS Lothian

KETAMINE

For resistant status epilepticus only. For acute pain see "guideline for ketamine subcutaneous infusion for acute pain"

<table>
<tr><td>PRESENTATION:</td><td>Vial containing 500mg in 10ml, 50mg/ml of ketamine.</td></tr>
<tr><td>INDICATION:</td><td>Resistant status epilepticus (unlicensed use).</td></tr>
<tr><td>DOSE AND ADMINISTRATION:</td><td>The evidence on the use of ketamine is mostly based on isolated case reports. From the information available:

Intravenous loading dose of 3mg/kg. Use ideal body weight in obese patients.

Maintenance intravenous infusion of 1-5mg/kg/hr. Use ideal body weight in obese patients.

ICU STANDARD INFUSION

Loading dose:
3mg/kg intravenously, over at least one minute,
then,
Continuous infusion:
2500mg in 50ml undiluted.

<table>
<tr><td rowspan="2">IBW</td><td colspan="5">Infusion rate (ml/hr)</td></tr>
<tr><td>1mg/kg/hr</td><td>2mg/kg/hr</td><td>3mg/kg/hr</td><td>4mg/kg/hr</td><td>5mg/kg/hr</td></tr>
<tr><td>40kg</td><td>0.8ml/hr</td><td>1.6ml/hr</td><td>2.4ml/hr</td><td>3.2ml/hr</td><td>4.0ml/hr</td></tr>
<tr><td>50kg</td><td>1.0ml/hr</td><td>2.0ml/hr</td><td>3.0ml/hr</td><td>4.0ml/hr</td><td>5.0ml/hr</td></tr>
<tr><td>60kg</td><td>1.2ml/hr</td><td>2.4ml/hr</td><td>3.6ml/hr</td><td>4.8ml/hr</td><td>6.0ml/hr</td></tr>
<tr><td>70kg</td><td>1.4ml/hr</td><td>2.8ml/hr</td><td>4.2ml/hr</td><td>5.6ml/hr</td><td>7.0ml/hr</td></tr>
<tr><td>80kg</td><td>1.6ml/hr</td><td>3.2ml/hr</td><td>4.8ml/hr</td><td>6.4ml/hr</td><td>8.0ml/hr</td></tr>
<tr><td>90kg</td><td>1.8ml/hr</td><td>3.6ml/hr</td><td>5.4ml/hr</td><td>7.2ml/hr</td><td>9.0ml/hr</td></tr>
<tr><td>100kg</td><td>2.0ml/hr</td><td>4.0ml/hr</td><td>6.0ml/hr</td><td>8.0ml/hr</td><td>10.0ml/hr</td></tr>
</table>

Administer intravenously via a central access device. Commence intravenous infusion at 1mg/kg/hr and titrate according to response (i.e achievement of burst suppression on the EEG).

Ketamine has a low pH and may cause venous irritation and tissue damage in cases of extravasation.

Ketamine does not need to be administered in a locked syringe in intensive care.</td></tr>
<tr><td>CONCENTRATION:</td><td>50mg/ml</td></tr>
<tr><td>STABILITY:</td><td>Physically and chemically stable for 24 hours at room temperature. Protect from light.</td></tr>
</table>

References:

1. Kramer A.H. Early ketamine to treat refractory status epilepticus. Neurocrit Care (2012) 16: 299-305.
2. Shorvon S, Ferlisi M. The treatment of super-refractory status epilepticus. Brain. 2011; 134(10):2802-2818.
3. Chen JWY, Wasterlain CG. Status epilepticus:pathophysiology and management in adults. Lancet Neurol 2006; 5:246-56.
4. Sheth RD, Gidal BE. Refractory status epilepticus: response to ketamine. Neurology. Dec 1998; 51:1765.
5. Synowiec AS, Singh DS, Yenugadhati V, Valeriano JP, Schramke CJ et al. Ketamine use in the treatment of refractory status epilepticus. Epilepsy Research 2013 in press.
6. UKCPA Minimum Infusion Volumes. Critical Care Group 2012.
7. Injectable Medicines Guide online accessed on 25/09/2023.
8. Yao Fang, Xuefeng Wang: Ketamine for the treatment of refractory status epilepticus. Seizure. 30 (2015) 14-20.
9. Summary of Product Characteristics. Ketamine 50mg/ml Injection. Hameln pharmaceuticals. Last updated 26/06/20.
10. Summary of Product Characteristics. Ketamine 50mg/ml Solution for Injection. Panpharma UK Ltd. Last updated 27/09/21.
11. The Walton Centre NHS Foundation Trust: Status Epilepticus Guideline. Last updated May 2023. Accessed 25/09/23.
12. Erstad B, Barletta J. Drug dosing in the critically ill obese patient-a focus on sedation, analgesia and delirium. Critical Care 24. Article Number:315. 2020.

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