Ketamine

Ketamine is used rarely in critical care and is reserved for use in those patients with severe asthma or bronchospasm who have not responded to accepted therapy

Administration

Dilute 10mls of 100mg/ml solution (1g/10ml) with 40mls of sodium chloride 0.9% or glucose 5%. To give 50mls of 20mg/ml solution.

Dose

- A starting dose of between 0.5mg to 1mg/kg/hour is suggested, increasing up to a maximum of 2.5mg/kg/hour
- Therapy should be commenced at 0.5mg/kg/hour in patients with a cardiovascular history
- Ketamines adverse cardiovascular effects will increase as the dose increases. The dose should therefore be maintained at the minimal amount which provides an adequate response.

To calculate dose in mg/kg/min use equation below or use table overleaf

$$\text{Rate (mls/hour)} = \frac{\text{Dose (mg/kg/hour) X Body weight (kg)}}{\text{20 (concentration mg/ml)}}$$

Cautions

Many patients on ketamine complain of vivid and disturbing dreams particularly when emerging from therapy. To minimise this ketamine should always be used with a small background dose of benzodiazepine for example 1mg/hour of midazolam or alternatively propofol could be used.

Adverse effects

- Cardiovascular: cardiac output increased, hypertension, tachycardia. Paradoxical direct myocardial depression especially in stress or catecholamine deficient patients
- Psychiatric effects: hallucinations, vivid dream, delirium, confusion, agitiation, flashback, dysphoria.
- GI: Hypersalivation, Nausea
- CNS: Nystagmus, hypertonia, tonic clonic movements
- Skin: Erythema
- Other: raised CSF pressure, raised intraocular pressure

Ketamine (20mg/ml)

Rate mls/hr	Weight (kg) and Dose in mg/kg/hour																
	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110	115	120
1	0.5	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
2	1.0	0.9	0.8	0.7	0.7	0.6	0.6	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.3	0.3
3	1.5	1.3	1.2	1.1	1.00	0.9	0.9	0.8	0.8	0.7	0.7	0.6	0.6	0.6	0.5	0.5	0.5
4	2.0	1.8	1.6	1.5	1.30	1.2	1.1	1.1	1.0	0.9	0.9	0.8	0.8	0.8	0.7	0.7	0.7
5	2.5	2.2	2.0	1.8	1.7	1.5	1.4	1.3	1.3	1.2	1.1	1.1	1.0	1.0	0.9	0.9	0.8
6			2.4	2.2	2.00	1.8	1.7	1.6	1.5	1.4	1.3	1.3	1.2	1.1	1.1	1.1	1.0
7				2.5	2.3	2.2	2.0	1.9	1.8	1.6	1.6	1.5	1.4	1.3	1.3	1.2	1.2
8						2.5	2.3	2.1	2.0	1.9	1.8	1.7	1.6	1.5	1.5	1.4	1.3
9								2.4	2.3	2.1	2.0	1.9	1.8	1.7	1.6	1.6	1.5
10									2.5	2.4	2.2	2.1	2.0	1.9	1.8	1.7	1.7
11											2.4	2.3	2.2	2.1	2.0	1.9	1.8
12												2.5	2.4	2.3	2.2	2.1	2.0
13														2.5	2.4	2.3	2.2
14															2.5	2.4	2.3
15																	2.5