MILRINONE

Read in conjunction with Disclaimer

HIGH RISK Medication

Formulary: Highly Restricted
Requires neonatologist or relevant specialist approval **before** commencing.

Presentation	**Ampoule:** 10 mg/10 mL = **1 mg/mL**
Classification	Selective phosphodiesterase inhibitor which has positive inotropic and vasodilatory activity.
Indication	• Refractory pulmonary hypertension. • Low cardiac output. • Septic shock. There is some evidence for milrinone use in preventing low cardiac output in patients undergoing cardiac surgery. For short term treatment only and should generally not be used for longer than 72 hours.
Special Considerations	Avoid use in patients with severe: • Obstructive aortic disease • Pulmonary valvular disease • Hypovolaemia Use with caution in patients with: • History of ventricular arrhythmia, atrial fibrillation or atrial flutter (may be aggravated – use continuous ECG monitoring). • Impaired renal function. • Hypokalaemia (correct before initiating). Use with caution in conjunction with other vasodilating agents. ⚠ Use extreme caution when titrating dosage and changing lines/fluids as sudden changes to rates can result in blood pressure fluctuations.
Monitoring	• Continuous ECG monitoring to promptly detect and manage ventricular arrhythmias. • Blood pressure (hypotension may occur). • Infusion site reactions (extravasation risk). • Fluid and electrolyte status (particularly potassium and magnesium). • Renal function (milrinone is primarily excreted unchanged in the kidneys, reduction of infusion rate may be necessary in renal impairment). • Consider cardiac monitoring for 24 hours after ceasing infusion.
Compatibility	**Fluids:** Sodium chloride 0.9%, glucose 5%, sodium chloride 0.45%. Refer to KEMH Neonatal Medication Guideline: Y-Site IV Compatibility in Neonates.

Adverse Effects	**Common:** Hypotension, ventricular arrhythmia.
	Infrequent: Hypokalaemia, hypomagnesemia, thrombocytopenia, supraventricular arrhythmia.
	Rare: Intraventricular haemorrhage, abnormal liver function tests.
Storage & Stability	**Ampoule:** Store at room temperature, below 25ºC.

INTRAVENOUS INFUSION

Presentation

Ampoule: 10 mg/10 mL = **1 mg/mL**

Available from CIVAS (KEMH) and PCS (PCH): *continuous infusion.*

Dosage

Corrected Gestational Age	Loading Dose	Maintenance Dose
Less than 30 weeks	0.75 microgram/kg/minute for **3 hours**	0.2 microgram/kg/minute
30 weeks and greater	0.4 to 1.25 microgram/kg/minute for **60 minutes**	0.25 to 0.75 microgram/kg/minute

Notes:

- Any fluid imbalance should be corrected before commencing.
- Consider reducing or omitting the loading dose if patient at risk of hypotension.

Dose Adjustment

- Adjust administration rate according to response.
- **Renal impairment:** reduction in infusion rate may be necessary.

Preparation

Dilution:

- Draw up 1.5 mg (1.5 mL) of milrinone per kg of baby's weight and make up to a final total volume of 50 mL with a compatible fluid.

Concentration: **1 mL/hour = 0.5 microgram/kg/minute.**

Administration

IV infusion:

Infuse via syringe driver pump at prescribed rate. See **Dosage** section for recommended infusion rates.

- Central line administration is preferred (UAC not recommended).
- Do not stop infusion suddenly. Gradual dose reduction is recommended.

Related Policies, Procedures, and Guidelines

HDWA Mandatory Policies:

MP 0131/20: WA High Risk Medication Policy

Clinical Practice Guidelines:

Congenital Diaphragmatic Hernia (CDH)

Cardiac: Neonatal Circulation Changes / Unbalanced Circulation

Cardiac: General Complications Management Following Surgery

Pharmaceutical and Medicines Management Guidelines:

CAHS Neonatology – Medication Administration Guideline

High Risk Medicines

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