

NURSING CLINICAL STANDARD

INOTROPE INFUSION - ICU

- PURPOSE:** To outline the management of the patient receiving inotropic infusion.
- SUPPORTIVE DATA:** Inotropes are drugs that enhance cardiac contractility. Increased contractility results in improved cardiac output and perfusion. Dobutamine and milrinone are the commonly used inotropes. Inotropes may increase myocardial workload and oxygen demand. These agents may be ineffective if intravascular fluid status is inadequate or acid-base abnormalities are uncorrected. At high doses, excessive myocardial stimulation can occur, leading to tachycardia and tachydysrhythmias. Unlike vasopressors, inotropes cannot be titrated by the nurse at the bedside. A new provider order is required for each dose change.
- See Vasopressor Standard for management of dopamine infusions.
- ASSESSMENT:**
1. Assess the following prior to administration:
 - Vital signs
 - Hemodynamic parameters from pulmonary artery catheter if present (e.g. Cardiac Output, RA, PAWP, SVR)
 - CVP from central line (if present and ordered)
 - Arterial blood gases/ Venous blood gases (as ordered)
 - Electrocardiogram (ECG) rhythm
 - Level of consciousness (LOC)
 - Urine output
 2. Determine concentration and verify dosage upon initiation, within one hour of assuming care of the patient or earlier as clinically appropriate, and with bag changes. In addition, verify accurate dosage with every rate change order.
 3. Assess the following a minimum of every hour
 - Vital Signs
 - For tachycardia
 - For hypertension
 - For hypotension
 - Adults: MAP less than 60 or as defined by the provider
 - Peds: as defined by the provider
 - DO NOT administer loading dose milrinone if patient is hypotensive
 - ECG rhythm
 - For extravasation if infused via a peripheral line
 4. Assess vital signs and hemodynamic parameters (as applicable) 5-10 minutes post-rate change until desired parameters are achieved, then per Unit Structure Standards.
 5. Assess for adverse reactions/side effects a minimum of every 4 hours:
 - Altered LOC
 - Chest pain
 - Diminished peripheral pulses
 - Cardiac arrhythmias
 6. Monitor as ordered:
 - Platelet levels, liver function tests (milrinone)
 - Blood gases
- ADMINISTRATION:**
7. Administer inotrope as ordered. Order to include:
 - Dose/rate
 - Titration parameters should not be included in the order. A new provider order is required for each dose change
- SAFETY:**
8. Administer inotrope infusion via infusion pump with Guardrails. Use a central line

whenever possible. If using a peripheral line, check for extravasation hourly.

9. Infuse medications as ordered
(NICU refer to Neofax; PICU -refer to the Pediatric Drug Dosage Handbook and Formulary). See table for recommended adult doses.

*Note if Dose exceeds recommended max; notation that “Name of Attending is aware” should be in comments section of medication order.

10. Ensure the following:

- Patent IV access
- Infusion pump with Guardrails is used for administration
- Drug concentration and dosages are correct and within ordered parameters
- Drug compatibility

DISCONTINUATION:

REPORTABLE
CONDITIONS:

11. Discontinue infusion as ordered.

- Each reduction in dose requires a new provider order

PATIENT/CAREGIVER
EDUCATION:

12. Notify the provider for:

- Signs of adverse reactions
- Inability to achieve desired effects within infusion limits
- Extravasation
- Significant change in vital signs

ADDITIONAL
STANDARDS:

13. Instruct on the following:

- Purpose of inotrope
- Need for frequent monitoring
- Notification of RN for complaints of chest pain

DOCUMENTATION:

14. Implement the following as indicated:

- Arterial Line - ICU
- Oxygen Therapy
- Pulmonary Artery Catheter – ICU
- Central line
- IV therapy

REFERENCES:

15. Document in accordance with documentation standards.

LAC+USC Clinical Resources: Micromedix and UptoDate drug info (Lexi-comp)
Consult: LAC+USC Department of Pharmacy

ADULT DOSAGES
(Administer per provider's order)

MEDICATION	INITIAL DOSE	USUAL DOSE	USUAL TITRATION RATE: *EACH DOSE CHANGE REQUIRES NEW PROVIDER ORDER
Dobutamine	2.5-5 mcg/kg/minute	2.5-10 mcg/kg/minute Maximum:20*mcg/kg/minute *May be exceeded, with attending physician approval, up to max 40 mcg/kg/min	*2-3 mcg/kg/minute every 10-30 minutes
Milrinone	50 mcg/kg over 10 minutes Drip: 0.375 mcg/kg/minute	0.375-0.75 mcg/kg/minute (Decrease dose in renal dysfunction- consult with pharmacist)	*0.25-0.5 mcg/kg/minute every 5-15 minutes

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