

**CONSIDERATIONS:**

1. Positive inotropic drugs:
  - a. directly increase cardiac contractility
  - b. include dobutamine and milrinone
  - c. are considered high alert medications; consideration should be made for double checking infusion pump parameters when each infusion container is initiated (e.g. per telephone call with pharmacist)
  - d. should be administered only by nurses who are educated and competent in inotropic drug infusions
2. Dobutamine works by stimulating beta 1 receptors in the heart muscle, resulting in increased contractility, stroke volume and cardiac output. It also causes mild beta 2 (vasodilation) and alpha (vasoconstriction) receptor stimulation with little to no effect on peripheral blood vessels.
3. Milrinone (Primacor) inhibits phosphodiesterase III causing an increase in intracellular adenosine monophosphate, which stimulates intracellular reactions leading to increased calcium transport. The result is increased contractility, stroke volume, and cardiac output. There is also a relaxation of smooth muscle cells which results in peripheral vasodilatation (decreasing blood pressure).
4. Routine intermittent infusions of positive inotropics are not recommended for refractory end-stage heart failure, but can be considered for palliation of symptoms. (ACC/AHA, 2009)
5. Patient selection considerations should include availability of a caregiver and patient and caregiver motivation to participate in infusion related care and monitoring.
6. A central vascular access device is required for inotropic drug infusions.
7. Specific physician orders for inotropic agents should include: drug dose, infusion duration/frequency, laboratory tests/frequency, parameters for physician notification. The dose should be titrated and regulated in the acute care setting prior to patient discharge.
8. In the home setting only, Milrinone and dobutamine may be administered on a continuous or intermittent basis.
9. Parameters for reporting changes in condition should be established with the physician at the time of patient referral (e.g. 2-3 weight gain over 7 days; increase in heart rate of 10-15/minute).
10. Consideration should be made for the use of telemonitoring for assessment of daily vital signs, oxygen saturation levels, and subjective patient symptoms.
11. Inotropic drug dosage may be increased or decreased based on patient condition and response but must be done in an acute care setting.

12. Nurses should consult with pharmacist about the existence of incompatibilities prior to administration of medications.
13. Psychosocial issues should be addressed with the patient and family throughout the course of home care including patient goals, quality of life issues, and changes/deterioration in condition and decision making (e.g. DNR status).

**EQUIPMENT:**

Prescribed medication(s) per specific physician's order  
Infusion device(s), pump, administration sets

Tape

Antiseptic prep pads

Gloves

Saline flush

Puncture-proof container

Impervious trash bag

**PROCEDURE:**

1. Adhere to Standard Precautions, Identify patient and explain procedure.
2. With each home visit, perform a thorough cardiac assessment including:
  - a. Weight: Compare to previous weights on a daily log maintained by patient or via telemonitoring data
  - b. Blood pressure
  - c. Pulse: check apical and radial for both rate and rhythm; assess prior to starting infusion and 10-15 minutes after the infusion has been running and identify any increase in pulse rate (e.g. 10-15 beats per minute), or rhythm changed from baseline
  - d. Respiratory rate and level of dyspnea
  - e. Lung sounds/presence of cough and characteristics
  - f. Presence or absence of edema (location and grade) and/or jugular vein distention
  - g. Patient complaints of chest pain/palpitations
  - h. Nail bed color and capillary refill time
  - i. Skin temperature and turgor
  - j. Urine output and voiding patterns
  - k. Changes in sensorium or level of consciousness
  - l. Current laboratory findings, as available
3. Notify physician of any abnormal findings or changes from previous assessment.
4. Follow the specific procedures for the appropriate vascular access device care.
5. Obtain laboratory work per physician orders.
6. Administer inotropic agents (see *Infusion Therapy – Infusion: Medication Administration*)
7. Check blood return from 2<sup>nd</sup> lumen and flush. Do not flush inotropic lumen as this will bolus patient with medicine

**AFTER CARE:**

1. Document in patient's record:
  - a. Pre- and post-procedure assessment
  - b. Name of medication, dose, route, duration of infusion.
  - c. Patient's response to infusion
  - d. Any patient/caregiver education provided
  - e. Any communication with physician

**REFERENCE:**

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- Gorski, L, (2005). *Pocket Guide to Home Infusion Therapy*. Sudbury, MA: Jones & Bartlett.
- Institute for Safe Medication Practices (2012). ISMPs List of High Alert Medications. Accessed on September 3, 2012 at:  
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- Taitel, M, Meaux, N, Pegus, N, Valerian, C (2012) Place of Death Among Patients with Terminal Heart Failure in a Continuous Heart Failure Program. *American Journal of Hospice and Palliative Care Medicine* 29 (4), 249-252.

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