Intravenous Inotrope Infusion for Patients in Palliative Care Unit

Related Standards & Resources:

1. B-00-13-10030 - Peripherally Inserted Central Catheter (PICC) Groshong: Patient Care
2. B-00-13-10157 – Central Venous Catheter (CVC): Care and Maintenance
3. Appendix - Inotrope Infusion Checklist

Skill Level:

Basic – All registered nurses in Palliative Care Unit who have completed the self-directed learning module.

Need To Know:

Heart Failure

Heart Failure (HF) is a chronic illness that can be defined as the inability of the heart to pump sufficient blood to the tissues to meet metabolic demands. Goals of treatment for end-stage heart failure are to reduce symptoms, decrease the need for hospitalization.

Inotropes

Inotropes are a class of drugs that affect the force of contraction of the heart, the inotropes referred to in this standard are termed “vasoactive” infusions – these are drugs such as dobutamine, milrinone or dopamine that increase myocardial contractility. In acute care settings, inotropes can be used to improve symptoms and in some cases to prolong survival to enable other therapies such as transplantation.

Both dobutamine and dopamine are short-acting drugs. In emergency situations once the infusion is stopped the ill effects should resolve within 10 minutes. Milrinone is longer acting so may take up to 30 minutes for ill effects to resolve.

Inotropes in Palliative Care

In the Palliative Care Unit (PCU) setting, inotrope infusions are indicated to relieve the uncomfortable symptoms of heart failure, such as shortness of breath due to pulmonary edema, fatigue, anxiety and other symptoms of hypotension. They are not intended to prolong life, but may do so while improving quality of life.

Inotrope infusions must not be initiated on the PCU. Once initiated on the critical care or cardiac units patients can be transferred to PCU. Patients must be followed by the Heart Failure team and must be accepted for transfer by a Palliative Care physician. Refer to checklist for detailed transfer criteria.

Most Responsible Physician (MRP)

Patients referred will be admitted to PCU under the care of the PCU physician and the Cardiology NP or Heart Failure Cardiologist on call will continue to be involved via consultation.

Administration

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Inotrope infusions must be administered using an infusion pump. Doses are usually calculated at micrograms/kilogram/minute (see prescriber order PH371 – "Inotrope Infusion Orders – Palliative Care").

Infusions should be delivered using a long-term catheter such as a PICC line where possible, but can be delivered via a peripheral IV in stable heart failure patients (**Except for dopamine** which must infuse via a central line).

Initial Assessment (transfer to PCU)

- Patients admitted to PCU with inotrope infusions will not require extra monitoring
- Standard initial assessment of the patient admitted to Palliative Care should occur
- Admission vital signs as per routine or as ordered.
- Monitor IV site

Patients with an Implantable Cardioverter Defibrillator (ICD)

- Some patients will have an implantable cardioverter defibrillator (ICD), and a discussion should occur between the HF team and the patient prior to transfer to PCU regarding whether or not the ICD's ability to shock will be turned off.
    - This function is called tachycardia detection – when this is turned off, the ICD will not fire during an arrhythmia. The ICD's pacemaker function will not, as a general rule be turned off. That means that the device will act as a normal pacemaker.
    - If the tachycardia detection function has not been turned off on transfer, but the patient would like it turned off, the patient's electrophysiology (EP) physician should be contacted during business hours. If the patient does not have a local EP physician, the on-call EP physician can be contacted during business hours.
    - After hours, the tachycardia detection function can be disabled by taping the magnet (stored on the side of the narcotic cupboard) over the device, which is usually situated inferior to the left clavicle. One can usually feel the device under the skin to determine where it is.
    - PCU RN to apply magnet as ordered.
    - The magnet will only suspend the shock capability and NOT the pacemaker function of the device.
- There are times when the patient asks for the tachycardia detection and treatment function to continue and the Inotrope Infusion – Palliative Care order (PH371) will reflect this.
    - If the patient chooses to have this function continue, discussions with the patient regarding turning it off should occur PRN
- The status of the ICD will be documented in the Interdisciplinary Progress Note and on

Ongoing Assessment:

- Independent double checks must be performed at the beginning of shift and with any titration or IV bag change. 2 RN signatures must be entered into the MAR.

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- Inotrope infusion rate to double checked by two RNs at beginning of shift and with any titration of dose
- Check patency and condition of IV PRN and at least once every shift
- Assess patient's understanding of purpose of inotropic infusion
- Vital signs should be monitored as ordered. Vital signs may not be required depending on the goals of care.

Interventions:

1. Notify most responsible physician (MRP) if any of the following occur:
   - Anxiety, restlessness
   - Dyspnea (or crackles on auscultation)
   - Pale skin
   - Diaphoresis
   - Decreasing level of consciousness

These clinical signs could be the result of worsening HF symptoms or nearing EOL.

2. IV site/Infusion
   - Monitor as per standard protocol, report problems.
   - Stop infusion if extravasation of drug occurs and contact MRP
   - Bag should be changed Q24H or as advised by pharmacy
3. Comfort and hygiene
   - IV infusions may be temporarily stopped and capped off for the purposes of shower or other activities unless otherwise specified by MRP.

Titration (increase or decrease):

1. If titration is necessary there must be a physician's order by either the consulting cardiac team or a palliative physician with specialized training in the use of inotropes.
2. The physician order must state the new dose and rate.
3. PCU RN to adjust medication as ordered
4. Titration must be doubled checked and signed in the MAR by 2 RNs
5. Assess vital signs only if above noted symptoms occur or worsen

Procedure for Mixing Interim Inotrope Agents on Night Shift

1. DOBUTamine: Link to Parenteral Drug Therapy Manual – DOBUTamine infusions
2. Milrinone: Link to Parenteral Drug Therapy Manual – milrinone infusions
3. DOPamine: supplied in manufactured pre-mixed bags - link to Parenteral Drug Therapy manual – DOPamine infusions

Patient /Family Education:

1. Purpose of inotrope infusion
2. Activity allowed

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3. Reporting feelings of shortness of breath, dizziness, coughing, anxiety, restlessness, chest discomfort, nausea, rapid heartbeat or sweatiness immediately
4. Reporting if they plan to leave the unit

Documentation:

1. MAR—concentration of infusion and dose of infusion
2. Clinical record—record IV site check
3. Interdisciplinary Progress Notes—record any assessment varying from baseline, nursing interventions and patient's response

References:

1. Caccamo, M. A.; Eckman, P. M. (2011). Pharmacologic therapy for New York Heart Association Class IV Heart Failure. Congestive Heart Failure.17, p. 213–219 doi: 10.1111/j.1751-7133.2011.00235.x
2. Lemond, L.; Allen, L. A. (2011). Palliative care and hospice in advanced heart failure. *Progress in Cardiovascular Diseases.* 54(2), p.168-178. DOI: 10.1016/j.pcad.2011.03.012
3. Murthy, S.; Lipman, H. I. (2011). Management of end-stage heart failure. *Primary Care Clinical Office Practice.* 38, p. 265–276. doi:10.1016/j.pop.2011.03.00

Persons/Groups Consulted:

CNL Palliative Care
Palliative Care Physicians
Palliative Consult Team
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Approved/Reviewed/Revised:

January 2016

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Appendix A: Inotrope Infusion Checklist

PALLIATIVE CARE
INOTROPE INFUSION CHECKLIST

Use this checklist as a reference when accepting a patient to the Palliative Care Unit (PCU) with an inotrope infusion for symptom management.

Date: _____

INOTROPE INFUSION CHECKLIST	Initials
1. Inotropes must be NOT be initiated on PCU. Patient can be transferred to PCU once stable on infusion.	
2. All patients being considered for transfer to PCU must be accepted by a Palliative Care physician.	
3. All patients being considered for transfer to PCU must be followed daily by a consulting Cardiologist providing guidance on the infusion.	
4. Ensure that the unit specific Inotrope Infusion Orders (PH371) have been completed by transferring cardiac team.	
5. RNs caring for patients with inotrope infusions must have completed the self-directed learning module.	
6. Patient/family understands that inotrope infusions are being used for symptom management NOT life prolongation.	
7. Patient/family understands that inotrope infusions could lead to arrhythmias that can shorten the patient's life.	
8. Patient/family agrees that inotrope infusions will be titrated to wean off while in hospital. If the wean off is successful, and the patient is able to, the patient may go home. However, if the inotrope weaning causes an increase in symptoms, the patient will likely die while in hospital. Medications to manage and control symptoms (e.g. dyspnea) will be used.	
9. Patient/family understands and accepts that the purpose of transfer to PCU is not long term stay.	
10. Patient/family/team understands that there are no community supports in place to provide palliative care of a patient on inotrope infusion at home.	

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