Safe use and prescribing guideline: Vasopressor & Inotrope Infusions via Peripheral Intravenous Administration

PURPOSE:
- To avoid delays in initiating vasopressors/inotropes due to lack of central IV access.
- To avoid unnecessary invasive procedures, such as central venous catheter (CVC) placement when benefits do not outweigh risks.
- To improve the safety and monitoring of peripherally administered vasopressor/inotrope IV infusions.

RESTRICTIONS:
- Refer to OhioHealth Intravenous (IV) Administration Handbook in regards to administration of intravenous medications in adult patients and unit specific restrictions (i.e., level of care).

DOSING & ADMINISTRATION:

General Guidance for Peripheral IV Administration:
- Note: administration may deviate from this guideline in emergency situations (i.e., rates above the recommended maximum peripheral IV rate in an acute decompensating patient)
- Patient should only be prescribed a single intravenous vasopressor medication.
- Only standard concentrations of intravenous vasopressors may be given peripherally; max concentrated drips should be administered via central line.
- Initiate peripheral IV administration if anticipated use is less than 24 hours and dose does not exceed the recommended maximum peripheral IV rate (see below).

<table>
<thead>
<tr>
<th>Vasopressor/Inotrope</th>
<th>Standard Concentration</th>
<th>Maximum recommended peripheral IV rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dopamine</td>
<td>400 mcg/250 mL</td>
<td>Less than or equal to 5 mcg/KG/min</td>
</tr>
<tr>
<td>Norepinephrine</td>
<td>4 mg/250 mL</td>
<td>Less than or equal to 15 mcg/min</td>
</tr>
<tr>
<td>Phenylephrine</td>
<td>50 mg/250 mL</td>
<td>Less than or equal to 150 mcg/min</td>
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</table>

The following vasopressors/inotropes are excluded from this guideline – please refer to the OhioHealth Intravenous (IV) Administration Handbook. General recommendations are given below:
- Dobutamine or Isoproterenol: standard concentrations may be given peripherally without restrictions; dobutamine max concentrated drip should be administered via central line
- Epinephrine or Vasopressin: never recommended for peripheral IV administration; should be administered via central line

Central vs Peripheral IV Administration
- Recommend CENTRAL LINE placement if any of the following are present:
  - Patients on two or more vasopressors.
  - Vasopressor/inotrope requirements increasing rapidly or significant hemodynamic instability.
  - Vasopressor/inotrope dose exceeding recommended maximum peripheral IV rate.
  - Vasopressor/inotrope use for greater than 24 hours.
  - Inability to obtain peripheral access via recommended nursing protocol (outlined below).
- Nursing Peripheral Administration Requirements:
  - Access: above the wrist, placed under ultrasound guidance (if available), confirm blood return prior to initiation of vasopressor/inotrope.
  - IV gauge: 20 gauge or larger
  - Duration: maximum of 24 hours
  - There should be a new, dedicated line exclusively for vasopressor/inotrope administration.
  - Recommend labeling/placing a sticker on the IV indicating line is being used for a peripheral vasopressor/inotrope.

Content included in this guideline is based on available evidence of safety in the literature. Deviation from guidelines may be warranted based on individual patient condition.
Last Updated: 4/2018
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- Contact physician or APP if patient condition worsens, requiring rapidly increasing vasopressor/inotrope dose, or if hemodynamic instability develops. If this occurs, the prescriber should consider obtaining central venous access to liberate vasopressor/inotrope use.

**MONITORING:**
- Assess IV site for signs of infiltration every 2 hours
- Ensure IV has adequate blood return every 2 hours. **If no blood return, line is considered unusable for vasopressors.**
- If signs of extravasation are noted, notify physician or APP immediately.
- Avoid obtaining blood pressures on the limb being used for peripheral vasopressor/inotrope administration.

**MANAGEMENT OF EXTRAVASATION:**
**CAUTION: Tissue vesicant – potential for serious complications if extravasation occurs.**
- Stop infusion immediately.
- Contact the physician or APP immediately to assess the site.
- Remove the catheter and mark the site of extravasation. Do not apply pressure to the area.
- Refer to Nursing Policy P-128.051 Management of Extravasation of Non-Chemotherapy Medications for additional information including antidotes.
- Establish new peripheral access site for vasopressor/inotrope administration. Consider obtaining central venous access.

**References:**