Catheter Directed alteplase (rt-PA) for Pulmonary Embolism (PE)

Site Applicability

- VGH Intensive Care Unit (ICU)
- VGH High Acuity Unit (HAU)
- VGH Interventional Radiology (IR)

Practice Level

Specialized:

- RNs with Critical Care or High Acuity Education

Requirements

Only prescribed Alteplase is to be infused via a pulmonary catheter placed for the purposes of treating of PE. Alteplase infused via a pulmonary catheter to treat PE must be administered by an infusion pump as per PDTM. Alteplase requires an independent double check:

- Upon initiation including programming of infusion pump
- Changing of medication bag
- Upon admission to a new unit (e.g. transfer from interventional radiology to ICU or HAU).

Patients receiving thrombolytic medication must be monitored for adverse events related to thrombolysis including new neurological deficits, significant bleeding, or hematoma.

The infusion catheter must be removed by a physician (venous sheath may be removed with an order by RNs as per Non-Tunneled Central Venous Catheter (NT-CVC) – Basic Care and Maintenance (Adult) after infusion catheter has been discontinued).

Need to Know

Catheter directed alteplase for PE should be ordered using VCH.VA.PPO.1013 ALTEPLASE (rt-PA) - Catheter Directed For Pulmonary Embolism – ICU and HAU & Interventional Radiology (VGH Only)

Patients with acute Pulmonary Embolism (PE) associated with hemodynamic instability may be treated with catheter directed alteplase. Patients receiving thrombolytic medication must be monitored for adverse events related to thrombolysis including new neurological deficits, significant bleeding, or hematoma.

An infusion catheter through which alteplase is administered, is placed by an Interventional Radiologist, and directed into the affected pulmonary artery.

The infusion catheter used for alteplase administration can be transduced intermittently through a 3-way stopcock if ordered by MD. Care must be taken not to confuse with diagnostic pulmonary artery catheters (i.e. Swan-Ganz catheters).

Guideline

Ongoing care of patients receiving Catheter Directed alteplase (rt-PA) for Pulmonary Embolism (PE) should occur in HAU or ICU depending on patient care needs. See PTDM for site specific administration restrictions.

If patient is to be cared for in the HAU, assignment should be modified to 1:1 nursing ratio.

Upon admission to a new unit (e.g. transfer from Interventional Radiology to ICU or HAU) handover of the patient must include review of the physician's order for tPA and and IDC of the tPA infusion.

Assessment

Assess the site as per Non-Tunneled Central Venous Catheter (NT-CVC) – Basic Care and Maintenance (Adult)
The integrity of the catheter insertion site should be monitored each shift and PRN

Intervention

Alteplase infused via a pulmonary catheter to treat PE must be administered by an infusion pump as per PDTM.

Select "***PE / Vascular occlusion thrombolysis***" from the drug library when programming Alaris infusion pumps to administer alteplase via a pulmonary catheter to treat PE.

Alteplase requires an independent double check:

- Upon initiation including programming of infusion pump
- Changing of medication bag
- Upon admission to a new unit (e.g. transfer from interventional radiology to ICU or HAU).

Labelling Catheters

- The alteplase infusion bag should be properly labelled as per the Medication Administration Policy.
- Patients may have two catheters commonly inserted to the right internal jugular vein. Ensure catheters are appropriately labelled (i.e L-PA and R-PA) (See Figure 1)
- A NS flush line should be infused at TKVO to ensure the patency of the introducer sheath. If ordered by MD, Heparin infusion can be infused; otherwise, no other medications should be infused through the introducer sheath. (See Figure 2)

Figure 1: Ensure Labels are correct

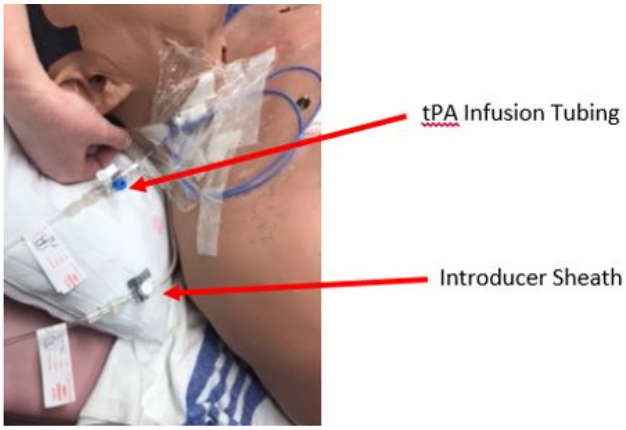

Figure 2: Infusion Tubing, Introducer Sheath

Securing Catheters

It is not a requirement to measure the external length of the catheter, but rather to perform chest x-ray to confirm catheter placement daily.

Infusion catheter is not sutured by radiologist, but secured by Steri-Strips and Tegaderm dressings. If insertion site is oozy or dressing is loose, reinforce dressing only.

Dressing Change

Dressing is to be reinforced only. Report to MRP and Interventional Radiologist of increase in oozing or development or growth of any hematoma.

Tubing Change

- Perform tubing change for both micro catheter and venous sheath as per Non-Tunneled Central Venous Catheter (NT-CVC) – Basic Care and Maintenance (Adult)
- IV pumps should be properly labelled to reflect the designated IV tubing that are attached to the infusion catheter (See Figure 3)

Figure 3: IV Pumps

Pulmonary Embolism Response Team (PERT)

Notify PERT, who follow all high risk PE patient at VGH, through the Critical Care Outreatch Team (CCOT) by dialing 8000.

Documentation

- Document alteplase infusion dosage hourly on Critical Care Flowsheet (CCFS)
- Document vital signs and neurovital signs on CCFS as ordered
- If femoral puncture site, document neurovascular checks on CCFS as ordered
- Document initiation, dosing adjustments, and medication bag change with independent double check on Medication Administration Record (MAR)
- Document signs of bleeding, hematoma, neurologic changes, or any other adverse events in nurses' notes

Related Documents

Guidelines / PPO

VCH –PHC:

Non-Tunneled Central Venous Catheter (NT-CVC) – Basic Care and Maintenance (Adult)

VGH:

Alteplase (rt-PA) - Catheter Directed For Pulmonary Embolism – ICU and HAU and Interventional Radiology (VCH.VA.PPO.1013)

References

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Owners: *(optional)*	VCH **Developer Lead(s):** • Clinical Nurse Educator, Critical Care ICU, VGH **Development Team members:** • Practice Initiatives Lead, Professional Practice - Nursing • Staff Anesthesiologist, MD, Critical Care ICU, VGH • Clinical Nurse Educator, Critical Care ICU, VGH • Clinical Nurse Educator, Critical Care ICU, VGH • Clinical Nurse Specialist, Critical Care ICU, VGH