Reducing Routine Central Venous Catheter Blood Sampling: An Initiative to Decrease Catheter Occlusion and Infection

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Background

- In 2012, The Joint Commission authored a monograph to assist health care professionals with preventing Central Line-Associated Bloodstream Infections. Use of central venous access devices for blood sampling is listed as a practice to avoid, referencing the Infusion Nursing Society. The 2011 Infusion Nurses Society Standards of Practice state the risk of this procedure include catheter occlusion and infection.
- Alteplase (tPA) is approved for use in restoration of function to occluded central venous devices.
- Rationale for infection is increased hub manipulation.
- At an acute care facility all patients with central venous access devices undergo routine central venous catheter blood sampling. A Vascular Access team performs Alteplase administration.

Purpose

Develop a patient specific process to reduce routine blood sampling from central venous catheters with the intent of decreasing catheter occlusion requiring Alteplase and central line-associated bloodstream infections.

Project

Patients received education regarding the potential risks of catheter occlusion and/or infection with routine blood sampling through their catheter versus venipuncture. Their decision was entered into the electronic medical record. Signage hung at the head of bed. Standard of practice to aspirate for a blood return to determine patency was not changed.

Efficacy was measured by normalizing data to rates per 1000 catheter days. Six months of baseline data. One year after practice change routine blood sampling decreased 40%, infection rates decreased 40%, and Alteplase administration decreased 0.09%.

References


Implications

Reducing routine blood sampling decreases the incidence of infection and occlusion; however, the decline in occlusion rates was not clinically significant. Checking blood aspiration for patency may play a larger role in occlusion since this was not eliminated. Patients acquiring infection chose to have routine catheter blood sampling. More study and control is needed.