CVC Dysfunction: Conservative and Pharmacologic Management
Checklist for the Non-Interventional Management of CVC Dysfunction:

- Use a conservative bedside approach first before other medical or mechanical interventions (e.g. patient repositioning, saline flush etc.).

- Administer intraluminal thrombolytic agent in each CVC port to restore function of dysfunctional CVCs due to thrombosis.

- Consider: Use alteplase or urokinase plus citrate 4% per limb for restoring intraluminal CVC blood flow in an occluded CVC.

- Suggest: intraluminal administration of alteplase 2 mg in preference to alteplase 1 mg in each CVC port to restore function of dysfunctional CVCs due to thrombosis.

- Suggest: Administering recombinant tissue plasminogen activator (rTPA) e.g. alteplase, by the dwell or push method to treat CVC dysfunction.
Flow Diagram 22.a.
Management of Hemodialysis Catheter (CVC) Dysfunction: Conservative and Pharmacological Maneuvers

Hemodialysis patient with CVC dysfunction (unable to achieve $Q_b$, for prescribed dialysis without prolonging dialysis time)

Has patient ever had successful hemodialysis session using existing CVC?

Yes

• Consider patient repositioning: Trendelenburg position
• Consider rapid saline flushes to dislodge a potential thrombus
• Consider reversing lumens to allow completion of dialysis

Maneuvers successful?

No

Consider possible cause(s): Intraluminal thrombus vs CVC tip thrombus vs Fibrin Sheath

• Intraluminal therapy with Alteplase or Urokinase + Citrate 4% per limb
• If Alteplase used: 2 mg per lumen preferred over 1 mg dose
• Alteplase dwell or push method can be used

CPG 22.1

No

• Catheter tip may be up against vessel wall or catheter kink
• Consider repositioning or replacement

CPG 22.2, 22.3, 22.4

Yes

• Leave catheter in place
• Continue to assess at each dialysis session
Management of Hemodialysis Catheter (CVC) Dysfunction: Mechanical Maneuvers

Flow Diagram 22.b.

1. Hemodialysis patient with CVC dysfunction (unable to achieve $Q_b$, for prescribed dialysis without prolonging dialysis time)

   - Yes
   - Send for angiogram
   - Fibrin Sheath Present?
     - Yes
   - Consider Fibrin Sheath disruption at the time of CVC exchange procedure
   - Consider obliteration of Fibrin Sheath BEFORE exchanging CVC over a guidewire to protect against early CVC failure
   - Consider Revision with NEW tunnel and NEW exit site with original venotomy site at the time of CVC exchange to reduce infectious complications
   - Guidewire exchange is safe and important in patients with central venous stenosis to optimize use of existing site

   - No
   - Follow Flow Diagram 22a: Management of CVC Dysfunction: Conservative vs. Pharmacological

CPG 22.5, 22.6, 22.7