

Umbilical Venous Line Protocol
East Bay Newborn Specialists Guideline

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Background:

Umbilical venous catheters (UVC) are needed in critically ill neonates for central access for medications and nutrition. They are known to have significant risk factors that need to be considered prior to placement and for the duration they are in place. Older studies have shown that ~ 33 of UVC's can develop thrombi. A more recent study by Kim Radiology 6/2001 showed 43% of 100 neonates had silent portal venous thrombosis detected by ultrasound (US). F/u US q 2-7 days until resolution or hospital d/c showed only 20 of these babies had resolution. Increase risk was seen with catheterization > 6days or transfusions via the catheter. UVC thrombi in liver are associated with liver abscess and portal venous hypertension. There is no evidence for use/safety of low lying UVC

Indications:

Critically ill neonates requiring central lines for medications (ie: pressors/prostaglandin, high glucose infusions, etc)

- Infants <28 weeks or <1000grams who need central TPN, if preterm infant is stable consider PIV x 24-48 hrs followed by central PICC if blood cultures are negative.
- Evaluate daily need to maintain catheter placement and remove immediately if no longer needed.
- If possible remove prior to 6 days to decrease rate of thrombi formation but keep no longer then 14 days.
- Placement should be in the inferior vena cava above the level of the ductus venosus and the hepatic veins but not in the right atrium.
- Except in emergencies where there is no other access low UVC's should be removed immediately.

Diagnostic Evaluation:

CXR/KUB to confirm placement. Adjust as needed for correct position. If adjustments made confirm adequate position with follow up xray.

References:

- Symansky Journal of Peds: May 1972; Umbilical vessel catheterization: Indications, management, and evaluation of the technique.
- Kim et al: Radiology June 2001 219: 645-650: Does Umbilical Vein Catheterization Lead to Portal Venous Thrombosis. Prospective US evaluation in 100 neonates.
- Schlesinger et al. American Journal of Roentgenology: Neonates and umbilical Venous Catheters: Normal Appearance, Anomalous Positions, Complications, and potential Aid to diagnosis.
- Ramasethu: Complications of Vascular Catheters in the Neonatal Intensive Care Unit: Clinics in Perinatology 35 2008 199-222