



To evaluate patterns and predictors of peripherally inserted central catheter (PICC)-related occlusion” Smith et al (2017).

Abstract:

PURPOSE: To evaluate patterns and predictors of peripherally inserted central catheter (PICC)-related occlusion.

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MATERIALS AND METHODS: Data from a multihospital study were used to examine factors associated with PICC occlusion. Occlusion was defined if documented in the medical record or when tissue plasminogen activator was administered for occlusion-related concerns. Mixed-effects logistic regression was used to predict occlusion, controlling for patient-, provider-, device-, and hospital-level characteristics.

RESULTS: A total of 14,278 PICCs placed in 13,408 patients were included. Of these, occlusion developed in 1,716 PICCs (12%) in 1,684 patients. The most common indications for PICC insertion were intravenous antibiotic therapy (32.7%), difficult intravenous access (21.5%), and central access (13.7%). PICCs placed in the right arm had decreased odds of occlusion compared with those in the left arm (odds ratio [OR] = 0.82; 95% confidence

interval [CI] = 0.72-0.94). Verification of catheter tip position following insertion was associated with reduction in occlusion (OR = 0.75; 95% CI = 0.61-0.92). Although normal saline solution or heparin flushes did not reduce occlusion, PICCs flushed with normal saline solution and “locked” with heparin were less likely to become occluded (OR = 0.54; 95% CI = 0.33-0.88). Compared with single-lumen devices, double- and triple-lumen PICCs were associated with greater incidences of occlusion (double, OR = 3.07; 95% CI = 2.56-3.67; triple, OR = 3.72; 95% CI = 2.92-4.74). Catheter tip malposition was also associated with occlusion (OR = 1.46; 95% CI = 1.14-1.87).

**CONCLUSIONS:** Several patient, provider, and device characteristics appear associated with PICC occlusion. Interventions targeting these factors may prove valuable in reducing this complication.

Reference:

Smith, S.N., Moureau, N., Vaughn, V.M., Boldenow, T., Kaatz, S., Grant, P.J., Bernstein, S.J., Flanders, S.A. and Chopra, V. (2017) Patterns and Predictors of Peripherally Inserted Central Catheter Occlusion: The 3P-O Study. *Journal of Vascular and Interventional Radiology*. March 11th. .

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