

Peripheral Intravenous Catheter Resite

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Clinical Question:

In hospitalized patients with peripheral IV access, does routine catheter replacement versus clinically indicated catheter replacement affect the rate of complications?

Articles:

Lee, W., Chen, H., Tsai, T., Lai, I., Chang, W., Huang, C., & Fang, C. (2009). Risk factors for peripheral intravenous catheter infection in hospitalized patients: a prospective study of 3165 patients. *American Journal of Infection Control* 37 (8), 683-686. Retrieved from PubMed.

Rickard, C.M., McCann, D., Munnings, J., & McGrail, M.R. (2010). Routine resite of peripheral intravenous devices every 3 days did not reduce complication capered with clinically indicated resite: a randomized trial. *BMC medicine* 2010, Retrieved from PubMed.

Webster, J., Clarke, S., Paterson, D., Hutton, A., Van Dyk, S., Gale, C., & Hopikins, T. (2008). Routine care of peripheral intravenous catheters versus clinically indicated replacement: randomized controlled trial. *British Medical Journal*. 337 doi: 10.1136/bmj.a339.

Synthesis of Conclusions:

The study conducted by Lee, et al. (2009) is a prospective study; it is a level IV study in the hierarchy of evidence. They found that catheters removed between 48 and 72 hours had a 4.4% higher occurrence of phlebitis as compared to catheters removed 72 to 131 hours after insertion. The latter group had a 0.5% higher occurrence of phlebitis, which they concluded was not clinically significant. They also found that specially trained IV therapists, continuous infusion, and the administration of systemic antibiotics were protective factors against catheter infection. Lee et. al. (2009) recommended that IV catheters should be left in longer to promote patient comfort and to save costs. They state that efforts should be directed towards training personnel in proper catheter insertion and maintenance.

Rickard, McCann, Munnings, & McGrail (2010) performed a non-blinded randomized control trial; a level 2 hierarchy of evidence. They found that there was not a significant difference in complication rates between the routine resite group (36%) and the clinically indicated resite group (41%). Their study recommends extending the length of use of an intravenous catheter to beyond 72-96 hours.

The study by Webster et al. (2008) is a level 2 evidence of hierarchy and a randomized controlled trial. They found that catheters were removed from patients due to phlebitis or infiltration in 33% of the control group (routine resite) and 38% of patients in the intervention group (clinically indicated). This difference is not clinically significant. Their recommendations include changing catheters only when clinically indicated rather than changing catheters according to set time frames.

These studies were well designed and met all research criteria. The studies had sample sizes ranging from 362-3165 patients. The results of these 3 studies were consistent and show that there is not a relation between scheduled intravenous catheter resite and a decrease in complication rates.

Bottom Line:

These studies show that changing peripheral intravenous catheters only when clinically indicated does not change the rate of complications.

Implications for Nursing Practice:

This evidence can be used by nurses to promote patient comfort as well as cost and time savings. Nurses should use these recommendations as a guideline to help them determine when to change intravenous catheters. Continued assessment of catheter sites is vital in determining when sites should be changed.