

Peripheral IV catheter infections

Abstract:

Background: Peripheral venous catheter (PVC) is the most used vascular access device in medicine, allowing administration of intravenous fluids and medications. Known complications associated with PVC include extravasation, phlebitis and rarely bloodstream infection (BSI). Data regarding PVC-related BSI in children are lacking. Our aim was to evaluate the epidemiology, clinical and microbiologic characteristics of pediatric inpatients with PVC-related BSI.

Methods: A retrospective study was conducted in a pediatric tertiary care center. Children with BSI, admitted to general pediatric departments during 2010-2019, were identified and their medical records examined. Patients with BSI and phlebitis were further characterized and included in the analysis. We excluded patients with central venous catheters, other identified source of infection and with BSI upon admission. Data collected included patients' demographics and clinical and microbiologic characteristics.

Results: Twenty-seven children with PVC-related BSI were identified and included in the study, consisting of 0.2% of the total BSI cases. Patient's median age was 24 (range, 1.5-213) months, 14/27 (52%) were female and 6 (22%) were previously healthy while 21 (78%) had prior medical conditions. Sixteen (59.3%) patients had Gram-negative BSI and 6 (22.2%) Gram-positive bacteria. Polymicrobial infection occurred in 4 (14.8%) patients and *Candida albicans* in 1 (3.7%) patient. The most common isolated bacteria were *Klebsiella* spp and *Staphylococcus aureus*. Longer dwell-time was a predictor of Gram-negative bacteria.

Conclusions: PVC-related BSI due to Gram-negative bacteria was more common than to Gram-positive bacteria. Clinicians should consider an initial broad-spectrum antibiotic coverage for PVC-related BSI in hospitalized pediatric patients.

Reference:

Berger I, Cohen T, Rahmani E, Levy I, Lowenthal A, Levinsky Y, Goldberg L, Marcus N, Kropach N, Ben-Zvi H, Chodik G, Ashkenazi-Hoffnung L, Scheuerman O. Peripheral Venous Catheter-related Bloodstream Infections in Hospitalized Children: The Role of Gram-negative Bacteria. *Pediatr Infect Dis J*. 2021 Jul 6. doi: 10.1097/INF.0000000000003255. Epub ahead of print. PMID: 34232922.