



Rapid and accurate methods for the diagnosis of CRBSIs are needed in order to implement timely and appropriate treatment” Deleers et al (2016).

Abstract:

Catheter-related bloodstream infections (CRBSIs) remain a leading cause of healthcare-associated infections in preterm infants. Rapid and accurate methods for the diagnosis of CRBSIs are needed in order to implement timely and appropriate treatment.

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A retrospective study was conducted during a 7-year period (2005-2012) in the neonatal intensive care unit of the University Hospital Erasme to assess the value of Gram stain on catheter-drawn blood samples (CDBS) to predict CRBSIs. Both peripheral samples and CDBS were obtained from neonates with clinically suspected CRBSI. Gram stain, automated culture and quantitative cultures on blood agar plates were performed for each sample. The paired quantitative blood culture was used as the standard to define CRBSI. Out of 397 episodes of suspected CRBSIs, 35 were confirmed by a positive ratio of quantitative culture (>5) or a colony count of CDBS culture >100 colony-forming units (CFU)/mL. All but two of the 30 patients who had a CDBS with a positive Gram stain were confirmed as having a CRBSI.

Seven patients who had a CDBS with a negative Gram stain were diagnosed as CRBSI. The sensitivity, specificity, positive predictive value and negative predictive value of Gram stain on CDBS were 80, 99.4, 93.3 and 98.1 %, respectively. Gram staining on CDBS is a viable method for rapidly (<1 h) detecting CRBSI without catheter withdrawal.

Reference:

Deleers, M., Dodémont, M., Van Overmeire, B., Hennequin, Y., Vermeylen, D., Roisin, S. and Denis, O. (2016) High positive predictive value of Gram stain on catheter-drawn blood samples for the diagnosis of catheter-related bloodstream infection in intensive care neonates. *European Journal of Clinical Microbiology & Infectious Diseases*. February 10th. .

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