

“Central line associated bloodstream infections is an important contributor of morbidity and mortality in children recovering from congenital heart surgery. The reliability of commonly used biomarkers to differentiate these patients have not been specifically studied.” Shin et al (2014).

Reference:

Shin, A.Y., Jin, B., Hao, S., Hu, Z., Sutherland, S., McCammond, A., Axelrod, D., Sharek, P., Roth, S.J. and Ling, X.B. (2014) Utility of Clinical Biomarkers to Predict Central Line Associated Bloodstream Infections After Congenital Heart Surgery. The Pediatric Infectious Disease Journal. September 17th. .

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Abstract:

BACKGROUND: Central line associated bloodstream infections is an important contributor of morbidity and mortality in children recovering from congenital heart surgery. The reliability of commonly used biomarkers to differentiate these patients have not been specifically studied.

METHODS: This was a retrospective cohort study in a university-affiliated children’s hospital examining all patients with congenital or acquired heart disease admitted to the cardiovascular intensive care unit following cardiac surgery who underwent evaluation for a catheter-associated bloodstream infection.

RESULTS: Among 1260 cardiac surgeries performed, 451 encounters underwent an infection evaluation post-operatively. Twenty-five instances of CLABSI and 227 instances of a negative infection evaluation were the subject of analysis. Patients with CLABSI tended to be younger (1.34 vs 4.56 years, $p = 0.011$) and underwent more complex surgery (RACHS-1 score 3.79 vs 3.04, $p = 0.039$). The two groups were indistinguishable in WBC, PMNs and band count at the time of their presentation. On multivariate analysis, CLABSI was associated with fever (adjusted OR 4.78; 95% CI, 1.6 to 5.8) and elevated CRP (adjusted OR 1.28; 95% CI, 1.09 to 1.68) after adjusting for differences between the two groups. Receiver operating characteristic analysis demonstrated the discriminatory power of both fever and CRP (area under curve 0.7247, 95% CI, 0.42 to 0.74 and 0.58, 95% CI 0.4208 to 0.7408). We

calculated multilevel likelihood ratios for a spectrum of temperature and CRP values.

CONCLUSIONS: We found commonly used serum biomarkers such as fever and CRP not to be helpful discriminators in patients following congenital heart surgery.

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