



In this study, we sought to determine the diagnostic accuracy of procalcitonin in predicting bacteremia in children with a central line and fever” Damman et al (2019).

Abstract:

OBJECTIVES: Unnecessary use of antibiotics is an increasing problem. In this study, we sought to determine the diagnostic accuracy of procalcitonin in predicting bacteremia in children with a central line and fever, and we sought to determine optimal cutoff values to maximize sensitivity and specificity. This is the largest study to date in which procalcitonin is examined as a predictive marker of bacteremia in pediatric patients with a central line and fever.

METHODS: We conducted a retrospective cohort study of children aged 0 to 23 years with a central line and fever of 38°C who had procalcitonin and blood cultures drawn before initiation of antibiotics and had no other identified bacterial infection. Patients were also prospectively monitored via a custom-built electronic medical record dashboard for eligibility.

RESULTS: There were 523 patients and >2500 procalcitonin values reviewed for eligibility. Of these, 169 (47%) patients and 335 blood cultures with procalcitonin were included. There were 94 (28%) positive bacterial blood cultures and 241 (72%) negative bacterial blood cultures. In bacteremic cultures, the mean procalcitonin level was 9.96 ± 15.96 ng/mL, and the median procalcitonin level was 4.85 ng/mL (interquartile range 18.5). In nonbacteremic cultures, the mean procalcitonin level was 1.23 ± 10.37 ng/mL, and the median procalcitonin

level was 0.3 ng/mL (interquartile range 0.7). A receiver operating characteristic analysis indicated a procalcitonin level of ≥ 0.6 ng/mL as the best cutoff point that produced a sensitivity of 85.6% and a specificity of 65.7% (area under the curve 0.85).

CONCLUSIONS: Procalcitonin is a sensitive biomarker in predicting bacteremia in children with a central line and fever.

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Reference:

Damman, J., Arias, P., Kerner, J., Zhang, K.Y., Dehghan, M., Krishnan, G., Nesper, C., Bensen, R. and Park, K.T. (2019) Procalcitonin as a Predictive Marker for Bacteremia in Children With a Central Line and Fever. *Hospital Pediatrics*. May 16th. . doi: 10.1542/hpeds.2018-0123.

