

# Diagnostic and Prognostic Performance of Proadrenomedullin Versus Procalcitonin in Children with Cancer and Febrile Neutropenia

## Original Article

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## ABSTRACT

### OBJECTIVES

Primary objective was to compare the performance of proadrenomedullin (ProADM) and procalcitonin (PCT) for diagnosing clinically documented infections (CDI)/microbiologically documented infections (MDI)/fever without focus (NF) in children with cancer having febrile neutropenia (FN). The secondary objective was to compare the prognostic utility of PCT and ProADM for identifying adverse clinical outcome.

### METHODS

Cancer patients (aged  $\leq 18$  years) presenting with FN were included; those who had received antibiotics within the last 14 days were excluded. Serum PCT and ProADM were estimated on days 1, 3 and 7 of enrolment. Adverse outcome was defined in terms of clinical non-response and day 30 mortality.

### RESULTS

We recruited 345 children. PCT in children with MDI were significantly higher than those with CDI on day 1 ( $P = 0.031$ ) and day 7 ( $P < 0.001$ ); PCT  $\geq 0.21$  ng/mL on day 1 had a 77% sensitivity and 44% specificity for diagnosis of MDI; the area under receiver operating characteristic curve (95 CI%) 0.601 (0.49, 0.71). ProADM did not differentiate between MDI and CDI. PCT and ProADM on day 1 did not predict the need for second line antibiotics. PCT  $\geq 0.21$  ng/mL on day 1 was predictive of MDI ( $P = 0.041$ ) and PCT  $\geq 1.77$  ng/mL on day 7 was an independent predictor of day-30 mortality.

### CONCLUSION

PCT is effective in differentiating between MDI, CDI, and NF in children with FN, and also predicts the day 30 mortality.

**Keywords:** Biomarker · Child · Mortality · Oncology · Sepsis

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