

Background: Infections are major cause of morbidity and mortality in children receiving cancer chemotherapy particularly when they are neutropenic, mainly due to immune deficiency. Between 48-60% neutropenic patients with fever have an underlying infection which can often be life threatening. Before putting the child on empiric antimicrobial regimes for FN, it is essential to know the spectrum of locally prevalent pathogens and their susceptibility patterns. Often these children don't manifest fever even in presence of infection and fever may be present in patients with neutropenia receiving chemotherapy even in the absence of infection. Present diagnostic tools available for diagnoses in FN are often not so robust and do not differentiate between various classes of organisms causing these infections.

Objective: To evaluate the role of PCT, as a sensitive marker for diagnosis of pediatric patients with cancer having FN.

Methods: The analysis is representative of 82 episodes, 3 of the patients had poly-microbial infections and were included for statistical analysis. Blood culture is time consuming and negative blood culture does not exclude bacteremia, which leads to the empirical use of broad-spectrum antibiotic treatment in pediatric patients with neutropenia, even where signs of infection are absent.

Figure1: Distribution of serum PCT in pediatric patients with febrile neutropenia in accordance with pulmonary and extra-pulmonary origin of infection. P value=0.188.

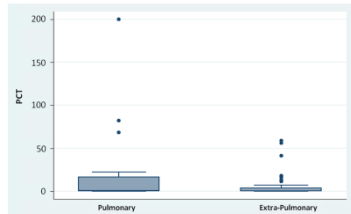
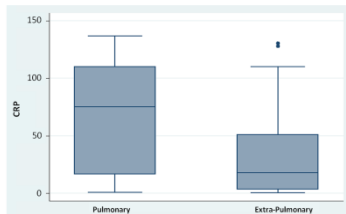


Figure2: Distribution of serum CRP in pediatric patients with febrile neutropenia in accordance with pulmonary and extra-pulmonary origin of infection. P value=0.002.



Results: Blood-culture was positive in 18.05% of the patients, with majority of patients having gram-negative bacterial infections. On comparison with the focus of infection, high PCT and CRP values were obtained in patients with pulmonary infection than in extra-pulmonary infections. In our study the sensitivity of PCT was high up-to 73.3 % at a cut-off of $\geq 0.25\text{ng/ml}$ for ruling out bacteremia, when compared to blood culture and CRP in our patients.

Figure 3: Distribution of PCT in pediatric patients with infection of pulmonary (P value=0.378) and extra-pulmonary (P value=0.579) origin in accordance with culture positive and culture negative.

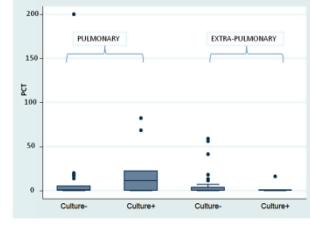
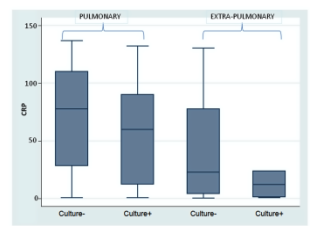


Figure 4: Distribution of CRP in pediatric patients with infection of pulmonary (P value=0.512) and extra-pulmonary (P value=0.523) origin in accordance with culture positive and culture negative.



Conclusion: The PCT value is certainly helpful in guiding the physicians in clinical decisions and thus the better approach towards the management of pediatrics oncology patients with FN.