Serial Procalcitonin Levels Correlate with Microbial Etiology in Hospitalized Patients with Pneumonia

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Background. Brucellosis is still endemic in many developing countries and frequently leads to misdiagnosis and treatment delays. Indirect inflammatory markers such as mean platelet volume (MPV), platelet distribution width (PDW), red cell distribution width (RDW), neutrophil to lymphocyte ratio (NLR) and platelet to lymphocyte ratio (PLR) have been identified as markers of inflammation. The present study aimed to evaluate and compare the levels of these markers for diagnostic and to assess the correlation of C-reactive protein (CRP) with brucellosis in adults and children.

Methods. The study included 137 adults and 41 age- and gender-matched healthy controls, as well 71 children and 81 age- and gender-matched healthy controls. hematological parameters and CRP were retrospectively recorded and compared between the adult and pediatric patients.

Results. The mean age of the adult patients (54% female) was 43.1 ± 15.4 years, whereas the mean age of the pediatric patients (59.2% male) was 9.5 ± 3.6 years. Significantly higher lymphocyte count, and lower neutrophil count, platelet count, RDW, MPV, NLR and PLR values were found in adult brucellosis patients compared with their healthy subjects, whereas higher lymphocyte count, PDW and lower neutrophil count, plateleti count, MPV, NLR and PLR values were observed in pediatric brucellosis patients compared with the control subjects. Significantly higher neutrophil count (p = 0.019) and NLR (p < 0.001) were found in adult patients compared with the pediatric patients. Positive correlation was found between CRP and NLR (R² = 0.052, p = 0.011), PLR (R² = 0.061, p = 0.006) in adult patients.

Conclusion. Based on our findings, we consider that the use of complementary indirect markers such as MPV, NLR, PLR and RDW together with the CRP test – which is used concomitantly with serological diagnostic tests in situations where brucellosis is suspected – might be helpful in the diagnosis and follow-up of brucellosis, as well as in the evaluation of complications and response to therapy, in both adult and pediatric brucellosis patients.

Disclosures. All authors: No reported disclosures.

1148. Impact of Procalcitonin (PCT)-Guided Antibiotic Therapy on Mortality in Critically Ill Patients: A Systematic Review and Meta-Analysis of 18 Randomized Controlled Trials

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Background. Procalcitonin (PCT)-guided antibiotic therapy has been shown to reduce antibiotic use in critically ill patients with suspected or proven infection, but its impact on mortality remains uncertain. Our meta-analysis examines the effect of PCT-guided antibiotic treatment and reporting survival or antibiotic duration. Study quality was assessed using the Cochrane risk of bias tool. Two protocols. Prolactin levels were measured during the first four days of hospitalization. We compared procalcitonin levels between different bacterial etiologies over the first four days of admission, using the Mann–Whitney U test to assess for statistical significance.

Results. Out of 505 patients, the disease of pneumonia was adjudicated in 317, and bacterial etiology determined in 62 cases. The predominant pathogens were Staphylococcus aureus (N = 18), Streptococcus pneumoniae (N = 6), Pseudomonas aeruginosa (N = 11) and Haemophilus influenzae (N = 5). Admission levels of PCT were lowest in H. influenzae infections, highest in pneumococcal infections, though not reaching statistical significance. On hospital days two and three, procalcitonin levels were significantly higher than all other etiologies, but on day four, there was no statistically significant difference in PCT values for different microbial etiologies.

Conclusion. Serial procalcitonin levels during the early course of bacterial pneumonia reveal a difference between pneumococcal and other bacterial etiologies, and may have an adjunct role in guiding antibiotic choice and duration.

Disclosures. All authors: No reported disclosures.

1150. A Novel Host-protein Assay Accurately Distinguishes Bacterial From Viral Upper Respiratory Tract Infections

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Background. Procalcitonin (PCT) is a biomarker that is finding increasing diagnostic and prognostic utility in lower respiratory infections. It remains unclear, however, whether it can be helpful in predicting the bacterial etiology of pneumonia, with a view to informing antibiotic choice and duration. This study examines the relationship between serial PCT measurements and microbial etiology in patients hospitalized for pneumonia to determine whether changes in PCT levels provide discriminatory information on microbial etiology.

Methods. We performed a subgroup analysis of data from a prospective cohort study of 505 patients admitted to a tertiary care center with findings concerning for pneumonia. Microbial etiology of pneumonia was determined from high quality respiratory samples, blood cultures or other relevant diagnostic tests according to standard protocols. Procalcitonin levels were measured during the first four days of hospitalization. We compared procalcitonin levels between different bacterial etiologies over the first four days of admission, using the Mann–Whitney U test to assess for statistical significance.

Results. Procalcitonin levels were significantly higher than all other etiologies, but on day four, there was no statistically significant difference in PCT values for different microbial etiologies.

Conclusion. Serial procalcitonin levels during the early course of bacterial pneumonia reveal a difference between pneumococcal and other bacterial etiologies, and may have an adjunct role in guiding antibiotic choice and duration.

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