THE VALUE OF C-REACTIVE PROTEIN AND PROCALCITONIN IN THE DIFFERENTIATION OF INFECTIOUS FEVER AND TUMOR-RELATED FEVER IN SOLID TUMORS

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Aim: The utility of C-reactive protein (CRP) in distinguishing infection from other fever causes is limited. Procalcitonin (PCT) is a protein linked to bacterial endotoxin, which rise specifically in infection and not in response to other inflammatory states. Nevertheless, in solid tumors with non-neutropenic patients, there are few studies with these biomarkers. Our aim was to study the usefulness of PCT and CRP as early diagnostic markers of infectious fever versus tumor-related fever in solid tumors.

Methods: Retrospective analysis of consecutive records of 141 patients with fever and solid tumors, who were admitted in our Institute between January 2010 and May 2012. CRP and PCT levels were evaluated in blood samples at baseline and 24 hours after hospitalization, and selecting the higher value. The cutoff values, were 10 mg/dL for CRP and 0.5 ng/mL for PCT. We considered 3 groups, sepsis, systemic inflammatory response syndrome (SIRS) and without SIRS, according to the 2012 definition of the Society of Critical Care Medicine. Statistical analysis was performed using SPSS v20.

Results: Patients with sepsis had significantly higher CRP and PCT mean levels than those with SIRS (p < 0.001) and without SIRS (p = 0.001). In the subgroups sepsis vs non sepsis, the ROC curve analysis yielded a large area under the curve for PCT (0.92) compared to CRP (0.76). The 0.5 ng/mL cutoff (PCT), showed a sensitivity of 70% and a specificity of 92%. Moreover, in the 27 of 29 patients with tumor-related fever, PCT levels were under our cut-off, showing highly discriminative power (p < 0.001), that relation was not significant for CRP. In the sepsis group, we compared neutropenic vs non-neutropenic patients. The PCT was significantly higher in neutropenic patients (median 19.65 ng/mL vs 5.27 ng/mL, p = 0.002), we didn’t found significant difference for CRP. CRP and PCT median levels in patients did not correlate with metastization status.

Conclusions: In this study, PCT showed accuracy in distinguishing tumor-related fever with a high negative predictive value. PCT was a better diagnostic discriminator than CRP to exclude the diagnosis of sepsis. Neutropenic patients had higher values of PCT.

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