

Prospective evaluation of serum concentrations of ferritin and C-reactive protein in pulmonary TB patients undergoing anti-tuberculous therapy

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Tuberculosis (TB) is a leading cause of death worldwide. Unsuccessful sputum culture conversion at month 2 of treatment has been proposed as risk factor for treatment failure and relapse. Several biomarkers have been evaluated with culture conversion. Experimental data suggest a role for anemia and iron in the course of TB infection. However, there is limited evidence on the potential effects of anemia of inflammation and iron deficiency or iron overload on the TB treatment. In the present study, we prospectively depict the immune profile and microbial clearance in pulmonary TB patient cohort before and 60 days after ATT initiation. We studied a total of 241 PTB patients, with median age of 40 (IQR: 31-51). The majority of the patients were male (84%) and displayed median BMI of 22.7 kg/m² (IQR: 20.6 – 24.8). Anemia, defined as hemoglobin levels below 12.5g/dL (WHO), was present in 42.4% of the study participants. Notably, only 5 individuals out of 125 with anemia (4%) presented with criteria for iron deficiency anemia. Ferritin and C reactive protein (CRP) did not reflect pre-treatment bacterial loads as observed in sputum. The analyses of the circulating levels of CRP and Ferritin revealed that CRP values slightly but consistently increased at day 30 of treatment, with a trend to decrease at day 60. When we compared CRP and ferritin levels measured at day 60 of ATT between individuals who became culture negative with those who remained culture positive after treatment initiation, CRP levels failed to distinguish these groups of patients, but ferritin values were shown to be heightened in individuals who remained culture positive. Although the CRP and ferritin values seem to equally decrease following ATT initiation in TB patients regardless the culture status at day 60, ferritin levels may be useful discriminating patients with negative or positive cultures at this timepoint.

Key words: Inflammation, tuberculosis and ferritin, anemia.

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